REPUBLIC OF RWANDA

NATIONAL COUNCIL FOR SCIENCE AND TECHNOLOGY

ncst National Council for Science and Technology

Driving Research Excellence: Digitization of Systems, Skills development, and broadening Collaborations

NCST Quarterly Newsletter – Issue 017- July – September 2025

PREAMBLE: The 17th Edition of the NCST Newsletter highlights Rwanda's continued progress in strengthening its research and innovation ecosystem. This issue features key developments such as the prototype review of the Rwanda Research and Innovation Repository, the national consultation on data protection and privacy guidelines for the research sector, capacity-building workshops on fundraising and commercialization, and field visits to assess the impact of funded research projects in priority areas. Collectively, these initiatives underscore NCST's commitment to advancing science, technology, and innovation as drivers of Rwanda's transformation into a knowledge-based and sustainable economy.

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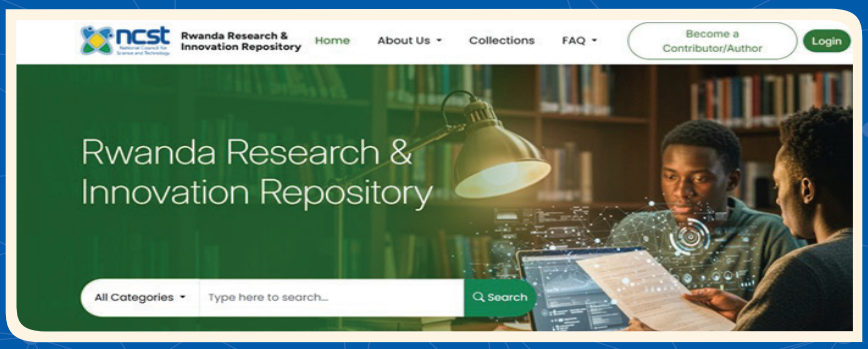

Rwanda Research and Innovation Repository HomePage

Driving Rwanda Research Innovation and Integrity: Repository Prototype Review and NCST contribution on Data Privacy Guidelines

Louis Sibomana[1], Theogene Kayumba[1], Felly Kalisa[1], Marie Chantal Cyulinyana[1], Japhet Niyibuhungiro[1], Didacienne Mukanyiligila[1], Jean-Louis Niragire[1], and Pachat Pacifique Hategekimana[2]

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1. Driving Rwanda Open Research: Prototype Review of the Research and Innovation Repository

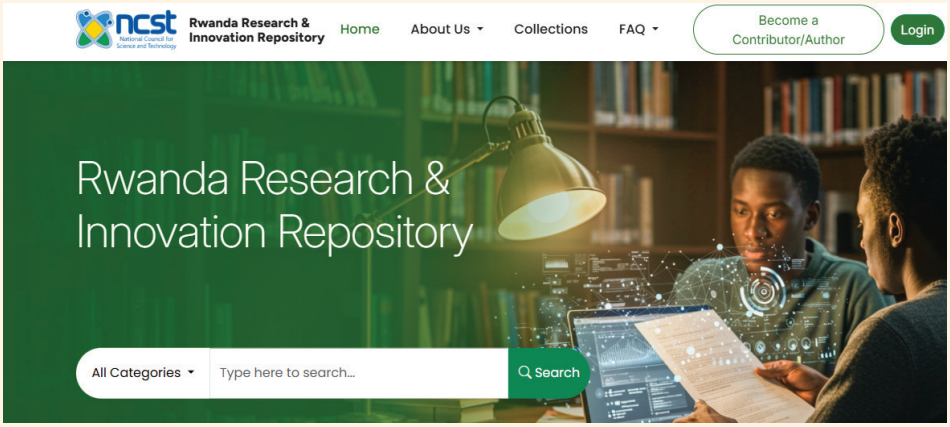
Introduction

The National Council for Science and Technology (NCST) in collaboration with the University of Rwanda (UR) secured a grant to implement a project titled **"Strengthening Rwanda's Research and Innovation Ecosystem through Training, Coordination, and Collaboration"**, funded by the Research and Innovation Systems for Africa (RISA fund, Kenya) program. The project is expected to contribute to the enhancement of National Innovation system by enabling effective technology and knowledge transfer that supports Rwanda's economy growth.

One of the project's specific objectives is to establish the Rwanda Research and Innovation Repository, a digital platform designed to store, disseminate, and enhance access to scientific and research outputs, thereby transforming the way research and innovation are managed and shared in the country.

Background

To support the development and implementation of the repository, NCST, the University of Rwanda, and CSM Technologies Private Limited (CSM Technologies Ltd) signed a tripartite agreement to establish the Rwanda Research and Innovation Repository. Since then, several activities have been undertaken, including a stakeholder workshop held from 26–28 February 2025 to define user requirements, and a virtual kick-off meeting on 4 June 2025 to present the development plan and clarify the roles of all stakeholders for successful implementation. In addition, the CSM Technologies Ltd developed an inception report with key deliverables and timeline, which has been approved by UR and NCST on 13 June 2025.



Rwanda Research and Innovation Repository HomePage

Following the readiness of the developed prototype repository by CSM Techn, the NCST in collaborations with national stakeholders hosted a **5 days' workshop, on 04th-08th August 2025**.

Objectives and Expected Outcomes of the workshop

The purpose of the workshop was to present and demonstrate the developed prototype of the repository to national stakeholders and gather feedback and inputs for improved prototype design. The specific objectives of the workshop were to:

- Present and demonstrate the developed prototype of the repository to national stakeholders.
- Gather feedback and further inputs form stakeholders for improved prototype design of the repository.
- Document revised business requirements document (BRD) and system design document (SSD).
- Prepare and document hosting requirement and specification of the repository.
- Review and address identified technical issues for the existing Research and Innovation Grant Management System (RIGMS).

The workshop had the following as expected outcomes:

- Prototype of repository demonstrated and approved by stakeholders.
- Key recommendations for prototype design improvement documented.

- Revised business requirements document (BRD).
- Hosting requirements developed and documented for the repository.
- Request of changes of the Research and Innovation Grant Management. Systems (RIGMS) documented and agreed with CSM Technologies Ltd.

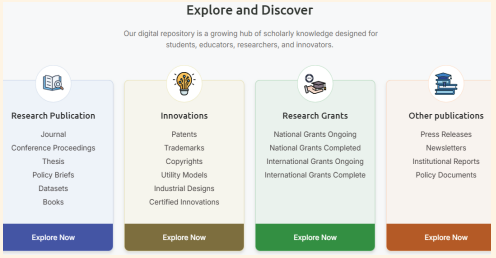
Workshop approach and proceedings

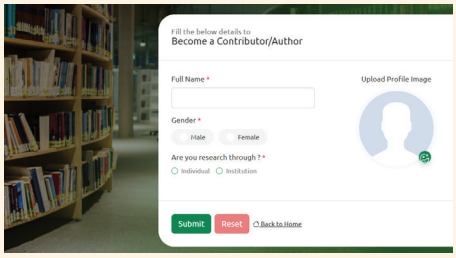
The workshop brought together a diverse group of 20 participants, including: researchers, innovators and technology developers, government representatives, policymakers, NCST staff, and ICT expert from CSM Technologies Ltd.

The workshop used a participatory approach, including:

- Presentations from CSM Technologies Ltd experts on the developed repository prototype (accessible through: http://152.67.164.45/cms/Web/home).
- Group discussions to gather inputs, feedback, comments and additional requirements from participants.
- Technical sessions for addressing feedback and comments from participants.
- Interactive sessions to define hosting requirements and technical specifications.
- Technical session to agree for the revised Request of changes for the RIGMS.
- CSM Technologies Ltd experts addressing comments and presenting revised repository prototype to participants.

Working session to improve the repository with experts at UR Headquarter





Rwanda Research and innovation repository features

Workshop key insights

The five-day workshop resulted in the following key insights:

- The necessity of a centralized and accessible repository to enhance research and innovation visibility and impact, as well as significance of aligning the repository's functionality with national research and innovation priorities.
- The importance of user authentication, content management, publication management, and integration with other data sources.
- The need for robust search and discovery features, analytics, and user feedback mechanisms.
- Agreed revised Request of Changes for the RIGMS upgrade.

Key Recommendations and Next steps

The following are the key recommendations:

- CSM Technoloies Ltd to consolidate all functional and non-functional requirements into the final BRD.
- NCST and UR to develop an awareness plan and propose incentives.approaches to encourage researchers and innovators to upload their available. research outputs and promote their usage. This can be implemented for example in the form of a project aiming at awarding top researchers/innovators with more scientific production as number of documents uploaded during the specified period (retrospectively).
- Technical team (CSM Technologies Ltd) to finalize user requirements and develop technical specifications, i.e., Business Requirements Document (BRD).

Experts presenting the revised repository content and structure based on stakeholders' comments

Conclusion

The prototype demonstration validated the feasibility and relevance of the Rwanda Research & Innovation Repository. Stakeholder inputs have been incorporated into the refinement plan, ensuring alignment with national research needs. Once implemented, the platform will improve research visibility, accessibility, and collaboration in Rwanda.

2. Consultation workshop on research sector data protection and privacy guidelines

Consultation workshop on research sector data protection and privacy guidelines

On July 31, 2025, the National Cyber Security Authority (NCSA) convened a consultation workshop on Data Protection and Privacy Guidelines for the research sector. The workshop together the government institutions that included National Council for Science and Technology (NCST), and members of the research community.

The workshop, led under the framework of Law Nº 058/2021 on the Protection of Personal Data and Privacy, brought together representatives from the public and private research institutions.

Why it Matters

With Rwanda's rapid digital transformation, the volume of personal data being processed has grown significantly. Protecting this data is not just a legal obligation, but a cornerstone of trust, accountability, and ethical practice. For researchers, it means ensuring that while data drives innovation, the rights and dignity of participants remain safeguarded.

Workshop Highlights

- Public & Research Sector Dialogue: Stakeholders that included the Chairperson of the Rwanda National Ethics Committee (RNEC), representatives from Rwanda Biomedical Centre (RBC), Centre for Impact, Innovation and Capacity building for Health Information Systems and Nutrition (CIICHIN) , University of Rwanda (UR), NCST, and NCSA among others, together with the consultant who is developing the guidelines had an extensive conversation on identifying practical ways to strengthen compliance with data protection law.
- **Balancing Needs:** participants discussed lawful bases for data use, anonymization, and safeguarding sensitive data.
- **Ethics at the Core:** Participants emphasized the role of research regulators, ethics committees, and cultural sensitivity in protecting research subjects.
- **Collaboration to streamline research permit and ethical clearance processes:** Participants highlighted the need to harmonize procedures for obtaining research permits and related approvals.

Next Steps

The workshop outcomes will feed into the finalization of the research sector specific Data Protection and Privacy Guidelines. These guidelines will be rolled out alongside awareness and capacity-building initiatives to support institutions in embedding data protection into everyday practice.

Empowering Innovators: NCST Hosts Training on Fundraising and Business Planning for Commercialization

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Background

The National Council for Science and Technology (NCST) is mandated to ensure that Rwanda harnesses the potential of Science, Technology and Innovation (STI) to drive sustainable development, competitiveness, and wellbeing. Through the National Research and Innovation Fund (NRIF), NCST has supported research and innovation in key priority areas such as sustainable energy, agriculture, health sciences, digital services, local production, and climate resilience.

Group photo of all participants

However, many promising research outputs face challenges in scaling up and commercialization due to limited business skills, scarce funding, and weak linkages with industry. To address these barriers, NCST organized a 3-day workshop from 12th –14th August 2025, focusing on fundraising, resource mobilization, and business plan preparation for scaling up, technology transfer, and commercialization. This was the second workshop of its kind, following the first session held in May 2025.

Objectives

The primary goal of the training was to equip researchers and innovators with the knowledge and practical skills needed to transform research outputs into viable business ventures. Specifically, the objectives were:

- Train participants in innovation readiness and business development skills.
- Support the development of winning business models and plans attractive to investors.
- Strengthen fundraising and resource mobilization capacity.
- Foster stronger collaboration between researchers and industrial partners.

Workshop Proceedings

The 3-day workshop combined experts' facilitation, case studies, peer-to-peer learning, and mentorship. The sessions were highly interactive and practical, focusing on the following key areas:

- **Innovation Readiness:** Assessing customer, technology, and business feasibility.
- **Entrepreneurship Mindset:** Encouraging opportunity-driven approaches.
- **Business Model Development:** Using tools such as the Business Model Canvas.
- **Business Plan Preparation:** Drafting investor-ready plans and financial models.
- **Financing and Fundraising:** Exploring funding options from banks, grants, venture capital, and green finance.
- **Market Analysis:** Customer discovery, competitive analysis, and value chain mapping.
- **Pitching and Simulation:** Practicing investor engagement and negotiation skills.

Experts' facilitation sessions

Outcomes from the Workshop

The workshop successfully enhanced the participants' knowledge, skills, and networks for commercialization. Key outcomes include:

- Increased understanding of innovation readiness and commercialization pathways.
- Participants began drafting business plans for their innovations.
- Greater appreciation of the importance of market research and customer focus.
- Strengthened collaboration between researchers and industry players.
- Recognition of the need for continuous mentorship, tailored training, and structured support mechanisms.

Conclusion

The NCST workshop marked a significant milestone in bridging the gap between research and industry in Rwanda. By equipping researchers and industrial partners with entrepreneurial skills, tools for business planning, and strategies for fundraising, the workshop laid the foundation for transforming innovative ideas into impactful business ventures.

Moving forward, sustained mentorship, multi-level support system, and stronger networking platforms will be essential to ensure that research outputs not only remain innovative, but also lead to useful innovation and technological progress, reach markets, create jobs, and contribute to Rwanda's socio-economic transformation.

Experts' facilitation sessions

Bridging Academia and Industry: Strengthening Partnerships for Innovation and Commercialization

Esperance Munganyinka[1], Damien Hanyurwimfura[2], Didacienne Mukanyiligira[1]
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[2]University of Rwanda (UR)

Introduction

Group Discussions

The University of Rwanda (UR), in collaboration with the National Council for Science and Technology (NCST) is implementing a project entitled "Strengthening Rwanda's Research and Innovation Ecosystem through Training, Coordination, and Collaboration." The project is funded through the Research and Innovation Systems for Africa (RISA fund) programme, which aims to enhance research and innovation ecosystems across Africa. The project follows the successful implementation of the previous project that developed the national technology transfer and commercialization strategy.

The project aims to build a nationwide capacity through Training of Trainers to boost research, entrepreneurship, and innovation skills. It fosters collaboration between academia and industry to drive market-relevant innovations. Strengthened systems will enable effective technology and knowledge transfer. The long-term goal for this project is a sustainable research and innovation ecosystem that supports Rwanda's economy growth. This will be achieved through the following project objectives: (1) Enhance research to commercialization pathway, skills and talents for innovation through technology and knowledge transfer, (2) Strengthen research and innovation systems partnerships and cooperation between entrepreneurs (from industries) and researchers (research institutions), and (3) Develop a national online centralized repository and database to enhance evidence-based decision-making and policy formulation for research and innovation to promote product commercialization.

In line with project objective 2 (strengthening partnerships between academia and Industry), a roundtable meeting between the academia and industry has been held on 13th August 2025 at University of Rwanda, Huye Campus. The roundtable meeting provided the opportunity for mentorship and networking events to link state-funded researchers and innovators with private sector to promote the scale up and uptake of research innovation outputs.

Objectives and expected outcomes of the meeting

Group Discussions

The main goal of the meeting was to strengthen partnership between academia and industry with a purpose of developing special programs and frameworks directed at the Private Sector and academia to support the engagement for commercialization and impact. The roundtable meeting gathered the total of 47 participants where 17 participants were from Industry and 13 participants from academia and 17 participants from research institutions. Involved researchers and academicians and industry partners are those that have NCST/NRIF funded projects that have substantial outputs and have the potential to scale up.

Objectives and expected outcomes of the meeting

Specific objectives	Expected outcomes
To discuss academia industry partnerships and future trends to better align academic research priorities with business demands.	Ideas and actions documented on establishment of academia-industry collaboration roadmap to support alignment of academic research priorities with business demands
To build trust & collaboration models for strong and sustainable academia-industry collaboration	Ideas and actions documented on establishment of mutual understanding, expectations, and long-term partnership frameworks between academic institutions and industry players.
To explore collaborative and joint Programs/ projects where academia and industry solve real-world problems collaboratively	A network platform initiated and a dedicated staff in charge of Academia-Industry linkage and collaboration identified to promote academia industry collaboration and networking for impact

Outcomes of discussions

Item discussed	Key interventions documented
How a clear academia-industry collaboration roadmap can be established to support alignment of academic research priorities with business demands.	1. Engage the right people within the academic community to ensure smoother collaboration. 2. Create a skills-matching platform similar to LinkedIn but focused on researchers, where the private sector can identify and connect with the right academic experts for their projects. 3. Strengthen communication channels between academia and the private sector to maintain alignment throughout the project**.** 4. Organizing seminars/conferences involving academia and local private players 5. High commitment from all involved parties 6. More Research Grant/Consultancy offers to encourage local researchers to contribute 7. Government funded projects to focus on R&D and Income generating project with social and community impact 8. Private partners to approach Researchers for R&D
How To build trust & collaboration models through establishment of mutual understanding, expectations, and long-term partnership frameworks between academic institutions and industry players?	1. Development of clear terms of reference to ensure transparent communication about resources and timelines, thereby building trust for the academia-industry joint grant 2. Involvement of both parties during the proposal-writing stage, for the academia-industry joint grants 3. Establish clear, mutually beneficial rules, requirements, and criteria for collaboration, including transparent regulations for joint funding so both academia and industry gain from the process. Funding platforms should be user-friendly for all parties. 4. Streamline the fund execution process to minimize bureaucracy, paperwork, and time delays. 5. Establish a sustainability plan of the research outputs and fund management and project scale-up (e.g: Establish agreement of how to manage the IPs registered) 6. Consider business idea in the projects during the development of research proposals 7. Align Interests and procedures between Researchers and business owners 8. Sharing expertise and experiences between parties
How can we initiate a network platform supported by a dedicated staff in charge of Academia-Industry linkage and collaboration identified to promote academia industry collaboration and networking for impact?	1. The participants found that it is very important to have such network platform where they can share information, opportunities, and other collaborative activities. The platform will facilitated easy communication. 2. Participants proposed to have workshops and meetings on regular basis (ex: quarterly, annually) to guide the proposal writing processes, pitching of research outputs, provide a space for discussing challenges, organize Research and Innovation Day, organizing workshops for researchers and the industry partners and involving funders 3. The WhatsApp group has been created as an initial network platform which include all participants to facilitate the exchange of information and opportunities.

Conclusions and way forward

The round table meeting was a success. The collected ideas and proposed actions will be implemented progressively through different initiatives and forums. As we plan to hold other meetings and events to establish strong and sustainable partnerships and collaborations between academia and industry, these ideas will inform planning of next meetings to ensure what came up is put in actions.

Assessing Research Impact: Insights from NCST's August 2025 M&E Field Visit

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[1]National Council for Science and Technology

Introduction

In August 2025, the National Council for Science and Technology (NCST) conducted a series of Monitoring and Evaluation (M&E) field visits to assess the progress and impact of ongoing research projects funded under its various innovation schemes. The aim of these visits was to track the implementation of projects, evaluate their achievements against set objectives, and document their contribution to Rwanda's socio-economic development. One of the key responsibilities of NCST as the grantor is to monitor and evaluate project implementation through quarterly and annual technical and financial reports submitted by researchers via their host institutions and Principal Investigators. In addition, NCST conducts field visits to observe on-the-ground progress, interact with project teams, and provide guidance to ensure that funded research is aligned with national priorities. These August field visits offered valuable insights into how research outputs are addressing critical challenges in aquaculture, health, renewable energy, sustainable agriculture, and clean technologies. The reviewed projects outlined below demonstrate Rwanda's growing capacity to leverage science, technology, and innovation (STI) as catalysts for food security, climate resilience, green industrialization, and community empowerment.

1. Strengthening Aquaculture through Carp Domestication

The Carp Project, led by Rukeratabaro Simon who is a Senior Lecturer at the University of Rwanda, specializing in Aquaculture and Fisheries Management., pioneers the domestication of common carp in Rwanda's aquaculture industry while valorizing silkworm pupae as a cost-effective and nutritious feed. The project has assessed reproduction and rearing conditions across agro-climatic zones and developed a prototype Recirculating Aquaculture System (RAS) using locally available materials. Draft manuscripts and training modules are under preparation, ensuring knowledge dissemination. This initiative is poised to enhance food security, reduce reliance on imported inputs, and improve farmer livelihoods through affordable, nutritious, and sustainable fish production.

Aquaculture through Carp Domestication project by PI Dr. Rukeratabaro Simon

2. Building Resilience to Climate Health Risks

PI Dr. Muhamed Semakula presenting his project on Building Resilience to Climate Health Risks

Led by Muhamed Semakula who is Permanent Secretary at the Ministry of Health of the Republic of Rwanda, the project "Building Resilience: Addressing Climate Change Impacts on Health in Rwanda" is pioneering an integrated approach to climate and health data management. Key achievements include the development of a centralized web-based platform, integration of meteorological and satellite data, and the organization of two international conferences on spatio-temporal modeling. A Kigali hub has also been inaugurated, and scientific manuscripts are underway. The project's societal impact lies in equipping policymakers, researchers, and health professionals with real-time surveillance tools, building local expertise, and laying the groundwork for a resilient health system that anticipates climate-driven disease risks.

3. Advancing Sustainable Energy through Battery Recycling

PI Mr. Léandre Berwa presenting his project on building second life energy storage/battery

The project "Lithium-ion Battery Direct Cathode Recycling and Battery Cell Manufacturing", led by Léandre Berwa

the co-founder of SLS Energy, is advancing Rwanda's green industrialization agenda by promoting circular economy practices. Achievements to date include comprehensive market research, supplier engagement, and procurement groundwork for a local battery production line. Despite some challenges, the project is preparing to launch laboratory-based recovery and assembly processes.

By fostering local innovation and reducing dependence on imports, this initiative has the potential to strengthen Rwanda's energy security, create green jobs, and position the country as a regional hub for sustainable battery technologies.

Advancing Sustainable Energy through Battery Recycling

4. Promoting Organic Fertilizer for Sustainable Agriculture

The National Program for Sustainable Usage of Organic Fertilizers (NAPROSUOF), led by Olive Tuyishime, a Lecturer and Researcher at University of Rwanda, is driving innovation in environmentally friendly farming. The project has developed prototypes of organic fertilizers from locally available materials such as Tithonia, cow dung, banana peels, eggshells, and biochar. Soil and vermicompost analyses have been completed, and field sites identified across five districts. The project also gained visibility at the 18th National Agricultural Show. By improving soil health, reducing chemical fertilizer dependency, and supporting women and youth entrepreneurs, NAPROSUOF contributes directly to food security, climate-smart agriculture, and inclusive economic growth.

PI Olive Explain to the team the process of making the organic fertilizer and where they are

5. Innovating for Clean Cooking Solutions

Under the leadership of Abijuru Delphine, a Head of Science and Technology (R&D Department)- Rwanda Energy Group, the project on Solar-Powered Induction Cookers aims to provide sustainable alternatives to biomass-based cooking. The design phase has been completed, components sized, and 50 pilot households identified in Rulindo district. Progress has also been made in assembling critical parts such as the coil and oscillator. Once deployed, this innovation will reduce indoor air pollution, curb reliance on charcoal and firewood, and promote Rwanda's renewable energy transition. Beyond health and environmental gains, it is expected to catalyze local entrepreneurship, job creation, and industrial growth in clean energy technologies.

PI Dr. Delphine Abijuru presenting the process of induction cooker develpment project to the NCST team

Conclusion

NCST's August 2025 M&E field visits underscored the transformative role of research and innovation in Rwanda's development agenda. From food systems and climate resilience to renewable energy and sustainable agriculture, these projects exemplify how strategic investments in STI generate tangible benefits for society. By bridging science and practice, they not only advance national priorities under NST1 and NST2 but also position Rwanda as a leader in harnessing homegrown innovation for sustainable development.

Group photo with NCST Monitoring and Evaluation Team