NCHE

THEME:

THEME: Harnessing Innovations in Higher Education for Accelerated Economic Transformation

THE 7th NCHE ANNUAL HIGHER EDUCATION CONFERENCE PROCEEDINGS

23rd & 24th MARCH 2026

National
Council for
Higher Education
Ensuring Quality for Excellence

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National Council for Higher Education

Ensuring Quality for Excellence

CONFERENCE PROCEEDINGS

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EXECUTIVE SUMMARY

1.1 Introduction

The National Council for Higher Education (NCHE) held a two-day 7th Annual Higher Education Conference at Acholi Inn Hotel, in Northern Uganda on March 23rd and 24th, 2026. The conference is part of Higher Education Week and is the third conference to be held outside Kampala. The theme of the conference was "*Harnessing Innovation in Higher Education for Accelerated Economic Transformation*." The main goal of the conference was to provide a multi-stakeholder platform for dialogue, knowledge exchange, and strategic collaboration aimed at strengthening the role of higher education institutions in driving innovation-led economic transformation. By showcasing best practices, policy insights, and institutional innovations, the conference seeks to stimulate reforms and partnerships that enhance the responsiveness, relevance, and impact of higher education in achieving national and regional development goals.

The Conference aimed at achieving the following:

i) To assess the effectiveness of curriculum and pedagogical reforms in improving graduate employability and fostering innovation, with actionable recommendations for integration into higher education programs.

ii) To showcase best practices in fostering entrepreneurship and start-up ecosystems within HEIs.

iii) To explore strategies for strengthening university-industry linkages and knowledge transfer.

iv) To promote transformative research and innovation in STEM fields for national development.

v) To provide a platform for networking, policy dialogue, and strategic collaboration among stakeholders.

vi) To provide a platform for researchers to present their research findings.

1.2 Official Opening

1.2.1 Welcome Remarks

The welcome remarks were given by the Executive Director (ED) of NCHE, Prof. Mary J. N. Okwakol. The key highlights of her remarks include:

i) Welcomed participants and dignitaries to the 7th Annual Higher Education Conference.

ii) Recognized the Chief Guest Hon. Norbert Mao and Hon. Dr. Monica Musenero for their presence and support.

iii) Explained that Higher Education Week is an annual NCHE event featuring a conference and exhibition.

iv) Highlighted the rotation of the event across regions to improve access and visibility of HE opportunities.

v) Noted that this was the third regional conference, following Eastern and Western.

vi) Introduced the conference theme on harnessing innovation for economic transformation.

vii) Emphasized that the event provides a platform for sharing information among HE stakeholders.

viii) Stated that innovation is key to sustainable development and national economic progress. Outlined NCHE's efforts to promote innovation through research, policies, ODeL standards, partnerships, and STEM prioritization.

ix) Urged compliance with competence-based education (CBET) and stressed collective responsibility in making HE a driver of economic transformation, while appreciating leadership support.

1.2.2 Opening Remarks

The Chairperson of Council of NCHE, Professor Joy C. Kwesiga gave remarks. The following were some of the key highlights:

i) Welcomed participants and distinguished guests to the 7th Annual Higher Education Conference.

ii) Appreciated key leaders, including the Chief Guest Hon. Norbert Mao and Hon. Monica Musenero, for their support and contributions.

iii) Emphasized that research and innovation are vital links between universities and industry, driving economic productivity.

iv) Urged Higher Education Institutions (HEIs) to move beyond theory and focus on research, commercialization, and community engagement.

v) Highlighted NCHE's strategic focus on advancing STEM/STEI to boost enrolment, innovation, and economic transformation.

vi) Noted that STEM/STEI are essential for building human capital and a knowledge-based economy.

vii) Stressed that the conference theme calls for rethinking the role of higher education in Uganda's socio-economic development.

viii) Reaffirmed NCHE's commitment to strengthening quality assurance frameworks that support innovation and institutional growth.

ix) Identified key challenges, including weak research-industry linkages, limited funding, and poor intellectual property management.

x) Called for stronger partnerships, increased funding, alignment with national priorities, and practical innovation outcomes to drive economic transformation.

1.2.3 Guest of Honour

The official opening of the Conference was done by Hon. Norbert Mao, Minister for Justice and Constitutional Affairs. The key highlights of his speech included:

i) Innovation is about solving real-world problems, not merely acquiring certificates.

ii) Education should drive production, problem-solving, and prosperity.

iii) Government regulation should enable innovation, not hinder progress.

iv) Called on universities to evolve into engines of innovation and economic growth.

v) HE is central to justice, accountability, and the rule of law.

vi) Funding should support innovative ideas and prevent talent from being constrained.

vii) Called on NCHE to act as a bridge between government and higher education institutions.

viii) Challenged universities to remain centers for truth and innovation.

ix) Innovation in HE is no longer optional but a necessity – for all developments.

x) Emphasised that stronger collaboration between academia and industry is essential.

xi) Encouraged institutions to produce problem solvers rather than job seekers.

xii) In his conclusion, the Minister encouraged scientists to communicate knowledge in accessible ways and pledged continued government support.

1.3 Keynote speakers and presenters

1.3.1 Keynote Speakers

i) **Prof. Timothy M. Waema**, Professor of Information Systems at the University of Nairobi. He presented on topic *Reimagining Higher Education as an Engine for Innovation-Led Economic Transformation.*

ii) **Hon. Dr. Monica Musenero**, Minister of Science, Technology and Innovation presented on *From Knowledge to Innovations: Positioning universities at the Centre of Innovation and Knowledge- Transfer***.**

iii) **Mr. Stephen Asiimwe**, Chief Executive Officer, Private Sector Foundation of Uganda presented on *Transforming Higher Education through Competence-Based Learning, Innovation Ecosystems, and Strong University-Industry Partnerships.*

1.3.2 Presenters

The presenters considered for the conference were researchers and experts in Innovations, Entrepreneurship and Industry linkages. The table below provides a summary of presenters together with the topics.

S/N	Presenter Name	Organization	Topic
1	Dr. Bernadette N. Karuhanga	National Curriculum Development Centre	Innovative Pedagogical Approaches for Learner-Centered and Inclusive University Classrooms
2	Dr. Ezra Muhumuza	Uganda Manufacturers Association	Strengthening University-Industry Linkages to Support Competency-Oriented Teaching and Learning
3	Prof. Jacob Godfrey Agea	Muni University	Integrating Competence-Based Curricula and Innovative Pedagogies to Equip Graduates for Sustainability and Global Engagement
4	Ms. Giovanna Lawino	MUBS	Pedagogical Reforms and Adoption Readiness of Competence-Based Curriculum: The Moderating Role of Supportive Resources among Public Universities in Northern Uganda
5	Prof. Simon Anguma Katrini	Muni University	Harnessing STEM Research for Climate Resilience and Sustainable Development in Uganda
6	Prof. Winston Tumps Ireeta	Makerere University Technology and Innovation Centre (MUTIC)	Interdisciplinary Approaches to Innovation: Leveraging STEM for Socio-Economic Transformation
7	Dr. Harriet Ayiorwoth	Uganda Management Institute (UMI)	Challenges and Prospects of Academic-Practitioner Knowledge-Sharing: Insights from Uganda Management Institute
8	Mr. Abraham Onyait Ageet	Uganda Registration Services Bureau (URSB)	From Research to Market: Intellectual Property Management and Commercialization Strategies in Higher Education
9	Dr. Medard Twinamatsiko	MUST (Centre for Innovations and Technology Transfer)	Sustaining University-Industry Partnerships: Models for Joint Research, Technology Transfer, and Knowledge Exchange
10	Dr. Cathy Ikiror Mbidde	Makerere University Technology and Innovations Center	Embedding Entrepreneurship in University Curricula: Strategies for Cultivating Innovation-Driven Graduates
11	Mr. Opio Patrick	Researcher	Building a Functional Innovation System in Uganda: The Role of Knowledge Transfer in Driving Inclusive Development
12	NSSF (Presenter not specified)	National Social Security Fund	Preparing for Financial Security: The Role of Higher Education in Promoting Social Security Awareness and Retirement Planning in Uganda

13	Prof. Moses Muhwezi	MUBS	Lessons from Long-Standing University Innovation Hubs: The MUBS Experience
14	Mr. Orace Tom David	Gulu University	From Survival to Innovation: How Loan Adequacy Influences STEM Graduates' Innovation Capacity in Uganda
15	Mr. Eutychus Ngotho Gichuru	Makerere University	Reconciling Faculty Promotion with Competence-Based Curricular Innovation in East African Higher Education
16	Prof. Saphina Biira	Busitema University	Gender Inclusive Participation in Science, Technology and Innovation

1.3.3 Panel Discussions

The table below presents the panel discussions held at the 7th Annual Higher Education Conference.

Panel Topic 1: Financing innovations in higher education to accelerate Uganda's economic transformation			
Moderator: Dr. Nora Mulira, Director ICT, Research and Innovation, NCHE			
PANEL DISCUSSION			
Guiding Questions			
i) What policy and financing reforms are needed to sustainably fund innovation in higher education? ii) How can Parliament strengthen NCHE-university–industry linkages to translate higher education innovations into jobs and productivity?		Hon. James Kubeketerya Chairperson Education and Sports Committee	
	Hon. Agnes Kunihira, Gender, Labour and Social Development		
	Hon. James Nsaba Buturo, Chairperson, East African Community Affairs		
	Prof. Joy Kwesiga, Chairperson Council		
Panel Topic 2: Gender Inclusive participation in Science Technology and Innovation			
Moderator: Dr. Maria Nakachwa Ssemakula, Principal Statistics and Data Management Officer, NCHE			
14:50 - 15:50	**PANEL DISCUSSION**		

	Guiding Questions i) How can higher education institutions promote gender-inclusive participation in Science, Technology and Innovation? ii) What barriers limit gender inclusion in STI, and how can higher education address them?		Prof. David Okello Owiny, Deputy Vice Chancellor, Gulu University
		Mr. Richard Kityo, Principal Gender Office, Ministry of Gender, Labour and Social Development	
		Dr. Charity Basaza Mulenga, Vice Chancellor King Ceasor University	
		Prof. Pauline Byakika-Kibwika, Vice Chancellor, Mbarara University of Science and Technology	

The panel discussion on financing innovations in higher education was guided by two questions:

1. Regarding what policy and financing reforms are needed to sustainably fund innovation in higher education, the following were raised:
    - Adoption of strategic financing and institutional reforms, moving beyond traditional government subventions.
    - Establishment of a National Research and Innovation Fund, with a proposed allocation of at least 1 percent of GDP.
    - Introduction of performance-based financing models, linking funding to outputs such as patents, innovations, and publications rather than student numbers.
    - Development of university venture capital mechanisms to support faculty and student-led start-ups.
    - Provision of targeted tax incentives for companies that host students and support problem-solving initiatives.
    - Institutionalization of mandatory industry advisory boards comprising of private sector practitioners.
    - Promotion of Public-Private Partnerships to support innovation financing.
    - Diversification of university income streams to enhance financial sustainability.
    - Strengthening of the National Intellectual Property Framework.
2. The second guiding question was about how Parliament can strengthen NCHE-university–industry linkages to translate higher education innovations into jobs and productivity. The following recommendations were raised:
    - Parliament should prioritize and adequately value research and innovation.
    - Establishment of a dedicated national fund for research and innovation.
    - Deliberate and sustained investment in research and innovation activities.

- Adoption of performance-based indicators to guide allocation.
- Introduction of competitive grant systems to support high-impact innovations.
- Consideration of tax exemptions for research and innovation funds to enhance accessibility and impact.

From the Panel Discussion on Gender and Equity, the following were noted;

Regarding how higher education institutions can promote gender-inclusive participation in Science, Technology and Innovation, the following were raised:

- Affirmative action for females in admission for subregions.
- Bringing back the females that have already come out thru the leaky pipeline.
- Incentives and fellowships to attract females into the system.
- Mentorship and role modeling by leadership.
- Support females for graduate studies.

Regarding the barriers that limit gender inclusion in STI, and how higher education address them, the following were raised:

- The barriers are not biological but social and culturally constructed.
- Strengthen gender responsive curricular in universities through gender responsive pedagogies– some males discourage females from studying science, examples are gender directed.
- Socialization practices need to stop.
- There is need for coaching and mentorship to both females and males for stem.
- Need for available and visible mentors on platforms accessible to female students.
- Need for male allies to promote STEM for females.
- Advocate for female in decision making decisions, who champion female causes and issues.

1.4 Official Closure

The closing session was guided by Dr. Nora Mulira, Director IRI; the remarks by the ED, Professor Mary J. N. Okwakol; and Professor Joy C. Kwesiga, Chairperson of Council of NCHE officially closed the 7th Annual Higher Education Conference.

1.4.1 Remarks by ED, NCHE

The ED appreciation all participants especially the Chief Guest, Hon. Nobert Mao, our Keynote Speakers Hon. Dr. Monica Musenero and Prof. Timothy Waema, and Members of Parliament, for their insights, experiences, and perspectives during this conference. Thanked everyone for participating and highlighted the following:

i) The conference, had provided a platform for scholars, policymakers, innovators, and practitioners to reflect on the evolving role of higher education in addressing national and global challenges.

ii) The conference had demonstrated the power of collaboration in advancing higher education and innovation agendas, and reaffirmed that education systems must continuously evolve to respond to technological change and societal needs, as emphasized in global education dialogues.

iii) Appealed to participants to carry forward the knowledge, and inspiration and connections gained from the conference.

iv) Called participants to strengthen collaboration, advance research and innovation, and work collectively towards improving the quality and relevance of higher education in the country and beyond.

v) Pledged NCHE's commitment to supporting universities in implementing reforms and maintaining standards.

Closure remarks by Chairperson Council, NCHE

The Chairperson, Council expressed appreciation to all participants for their time, knowledge, and experience to the rich discussions during the conference.

i) Noted that the Conference brought together various minds in higher education, research, and innovation, all united by a shared commitment to advancing the role of higher education in driving national development.

ii) Noted that the insights shared in the conference reaffirmed the critical role that universities and other higher education institutions play in generating knowledge, nurturing talent, and fostering innovation for societal transformation.

iii) Informed that the Conference was convened at a time when higher education systems across the world are urged to respond decisively to societal and economic challenges of the time.

iv) Reminded that institutions must not only generate knowledge but must also translate that knowledge into practical solutions that transform societies and economies.

v) Noted that innovation is no longer optional but a necessity for national development and competitiveness.

vi) Appealed to all participants to translate the ideas, recommendations, and insights generated from the conference concrete actions within their institutions.

vii) Informed that the responsibility of strengthening higher education, promoting innovation, and addressing the complex challenges facing society rests with everyone.

viii) Urged all stakeholders to align their efforts with the evolving policy frameworks such as the Competence Based Education and Training that seek to strengthen quality, relevance, and accountability in higher education.

ix) Thanked everyone and declared the conference closed at 7:19pm

1.5 Conference Resolutions

The key resolutions and timelines are presented below.

S/N	Action	Responsible Stakeholders	Time Frame
1	Establish a National Research and Innovation Fund as proposed in NDP IV to ensure sustainable financing for research and innovation.	• MoES • MoFPED, NPA • NCHE	By 2029
2	a) Develop a framework for accessing the National Research and Innovation Fund by both private and public Higher Education Institutions b) Increase the gross domestic expenditure on research and development (GERD) from 0.4% to 1.0% in the next 5 years.	• MoES • NCHE • Parliamentary Committee on Education and Sports • MoFPED	By 2028
3	Align existing Higher Education Institution (HEI) curricula with Competence-Based Education and Training (CBET) frameworks, with NCHE providing standards, guidelines, and capacity-building support, and Government and other promoters ensuring provision of the necessary CBET resources and infrastructure.	• MoES • NCHE • HEIs • MOFPED • Professional Bodies	Immediate By 2027

4	Strengthen university, industry and community partnerships to ensure that research and innovations are demand-driven and responsive to national needs.	• MoES • HEIs • PSFU • NCHE • Professional Bodies	By 2030
	Develop a management framework for intellectual property and commercialization strategies for Higher Education and integrate it with private sector forum guidelines	• URSB • PSFU • HEIs • NCHE	By 2030
6	Develop a framework for the establishment and operationalization of Innovation Hubs within HEIs to support incubation, commercialization, and scaling of innovations.	• NCHE • HEIs • Industry Partners	By 2030
7	a) Research and Innovations conducted in HEI's should be aligned with Uganda's national development priorities, particularly those outlined in Vision 2040, with a strong emphasis on advancing industrial development and economic transformation. b) Promote Basic and Applied Research as a springboard for Research and Innovations in Higher Education Institutions.	• MoES • HEI • NCHE	By 2028
8	Prioritize strengthening the Science, Technology, and Innovation (STI) pipeline for women by promoting inclusive participation and encouraging men and women to actively serve as allies in advancing gender equity	• MoES • HEIs, NCHE • MGLSD • Parliamentary Committee GLSD	By 2028

1.6 Conference strategies for the follow-up

i) Disseminate conference proceedings to all the stakeholders.

ii) Publish the conference proceedings on the NCHE website and online.

iii) Develop the action plan for implementing the resolutions from the conference

iv) Follow up on feedback on the implementation of the action plan.

CONFERENCE OPENING

DAY ONE: 23RD MARCH 2026

WELCOME REMARKS

Our Chief Guest, the Minister for Justice and Constitutional Affairs,
Hon Dr. Monica Musenero, the Minister of Science Technology and Innovations,
Hon. Members of Parliament present,
Officials from the Ministry of Education and Sports present,
Chairperson and Members of National Council for Higher Education (NCHE),
Members of NCHE Management,
Vice Chancellors and Principals present,
Staff of NCHE,
Distinguished Researchers and Innovators,
Development Partners,
Members of the Press,
Ladies and Gentlemen,

Good morning.

It is my honour and privilege to welcome you all to the the 7th Annual Higher Education Conference convened under the theme *"**Harnessing Innovations in Higher Education for Accelerated Economic Transformation**"*. In a special way I welcome you our Chief Guest and sincerely thank you for honouring our invitation despite your very busy schedule. Thank you very much Hon. Minister.

I acknowledge, with appreciation, the attendance of Hon. Dr. Monica Musenero, Minister of Science, Technology and Innovation who has kindly accepted to deliver a keynote address.

The conference brings together legislators, Vice Chancellors, policymakers, industry leaders, researchers, regulators and partners whose attendance we value. I extend our gratitude to Keynote Speakers, Session Chairpersons and Presenters for accepting to play those important roles. Your presence (everyone) underscores a shared commitment to advancing higher education as a driver of national and regional development.

Honourable Minister, I have the pleasure to inform you that the Higher Education Week is an annual event on the NCHE calendar. It comprises a conference such as this one, you are about to open, followed by an exhibition which will be opened on Thursday at Gulu University. The conference provides a platform for the dissemination of research outputs from institutions of higher learning.

In 2024, NCHE adopted the rotation of the Higher Education Week across the regions of the country. This is the 3rd Higher Education Week to be conducted outside Kampala, the first one having been held in Mbale in 2024 and the second in Mbarara last year. The rotation aims at ensuring equitable access to information about opportunities in higher education institutions as well as enhancing countrywide visibility for the institutions.

The Higher Education Week, in addition, creates a platform for the providers of higher education to interact with other stakeholders in order to share information on matters pertaining to higher education. It also provides an opportunity for them to exchange ideas on how to bridge the gap between the lecture room and the job market.

Guest of Honour, Ladies and Gentlemen, innovation is the cornerstone of sustainable development and economic progress. Nations that have achieved rapid transformation have done so by investing in new knowledge, fostering creativity, and translating ideas into practical solutions that improve productivity and livelihoods. Such countries include South Korea (with 69% of its population completing higher education), Singapore, Finland, Germany and Ireland. They have leveraged higher education to drive technological innovation, skilled workforce development and knowledge based

economic growth. Innovation drives industrialization, enhances competitiveness of countries, and creates opportunities for inclusive growth.

As the National Council for Higher Education, we are actively contributing to harnessing innovation within the sub sector. We continue to strengthen quality assurance frameworks, promote digital learning, support research, and foster partnerships. Among others:

- NCHE regulates innovation by embedding research and technology in its strategic goals, and by implementing its Research and Innovation policy (2019). Structurally, a Directorate of ICT, Research and Innovation is in place and is responsible for research and innovation standards.
- Furthermore, NCHE is committed to strengthening research and innovation ecosystems. We foster innovation, entrepreneurship and start-up incubators and commercialization of research outputs within institutions of higher learning. In addition, the Uganda Higher Education Review Journal, published biannually, provides a vital platform for researchers, policy makers and academics to publish research findings on technological advancements, higher education policy, and emerging issues.
- To address digital innovation, NCHE has promoted the integration of digital technologies in teaching and learning by providing and enforcing ODeL (Open, Distance and e-Learning) guidelines and standards. These have revolutionised Uganda's higher education by enabling rapid regulated transition to digital learning, including ensuring continuity of education during COVID-19 lock-downs. Ultimately, they led to technological infrastructure improvement in institutions and increased access to higher education.
- Equally important, is industry partnership. In December 2025 NCHE signed a Memorandum of Understanding (MoU) with the Private Sector Foundation Uganda (PSFU) to enhance the quality and market relevance of research and innovation. The MoU focuses on enhancing quality and market relevance of skills, promoting research commercialisation and fostering innovation through private sector collaboration. This is significant for bridging the gap between academia and industry.
- We engage in other partnerships to ensure quality assurance and promote research. A case in point is the collaboration with bodies such as the Research and Education Network of Uganda (RENU). At regional level, NCHE played a leadership role in successfully organising the 1st Regional Ministerial Conference on EACHEA, convened by the First Lady and Minister of Education and Sports and jointly organised by the Forum of CEOs of Higher Education Regulatory Agencies and the Inter-University Council for East Africa. It resulted in signing of a Ministerial Communique expected to catalyse regional integration of Higher Education.
- NCHE prioritises accreditation of Science, Technology, Engineering and Mathematics (STEM) progammes to drive industrial and technological growth, in line with national development goals. In effect this translates into driving economic transformation.
- Deliberate steps towards curriculum reforms across higher education institutions, have been taken by availing standards for implementing competence-based education and training (CBET) so as to equip students with practical job-ready, critical thinking and entrepreneurial skills. This aligns higher education outcomes with industry needs and encourages industry aligned innovations. Institutions have been instructed to ensure that all academic programmes intended for first year student intake in the year 2027/2028 are compliant with the NCHE CBET standards.
- Last but not least, NCHE promotes capacity building by organising workshops for leaders of higher education institutions on various aspects of its regulatory mandate, including research and innovation.

Hon Minister, there is great potential and opportunities to harness innovations from higher education institutions in pathogen economy (vaccines/medications), ICT, Agriculture and manufacturing, among others, in Uganda. However, several systemic, procedural and institutional

challenges make it difficult for innovators to obtain patents. There is, therefore, urgent need for Government to intervene by addressing the challenges in order to ensure that Uganda derives maximum benefits from innovations.

On behalf of NCHE, I wish to thank you, Hon Minister, for the various ways in which you and your Ministry support NCHE as well as the individual Higher Education institutions to harness innovations for the benefit of the country. In addition to support related to Intellectual Property (IP) Rights, we have continually benefited from legal guidance by the Office of the Attorney General, in the course of performing our regulatory functions. Appreciation goes to the Ministry of Education and Sports for continued support to NCHE. I extend gratitude to the Ministry of Finance, Planning and Economic Development for availing funds for the execution of our mandate.

I wish, in a special way, to appreciate the Council Chairperson and members for policy direction and guidance to Management.

Last but not least, I sincerely thank the NCHE family for their invaluable commitment to effective regulation of higher education - Management and staff. I wish to record appreciation to the conference organising committee, led by Dr Nora Mulira, for a job well done.

In conclusion, innovation must be at the heart of our higher education system. The responsibility lies with all of us to ensure higher education becomes a catalyst for economic transformation.

I once again welcome you all and wish you fruitful discussions.

I now take this opportunity to welcome the Chairperson of NCHE Council to make her remarks.

Professor Mary J.N. Okwakol
EXECUTIVE DIRECTOR

OPENING REMARKS

Our Chief Guest, Hon. Nobert Mao, the Minister for Justice and Constitutional Affairs,
Hon Dr Musenero, Minister of Science, Technology and Innovation,
Honourable Members of Parliament present,
Senior officials and Staff of the Ministry of Education and Sports present,
Members of the NCHE Council present,
Executive Director and Members of Management present
Heads of Government Departments and Agencies present
Vice Chancellors and Principals of Higher Education Institutions,
Political Leaders of Gulu City present,
Staff of the National Council for Higher Education,
Distinguished participants, here and online,
Ladies and Gentlemen,

I take this opportunity to welcome you all to the 7th Annual Higher Education Conference 2026, organised by the National Council for Higher Education.

Allow me to welcome you, our Chief Guest, Hon. Minister, and thank you for supporting the National Council for Higher Education innovation agenda, through your presence here. Thank you for accepting to officiate at the opening of the 7th Higher Education Conference. Please also accept our congratulations on your recent election as the Member of Parliament for Laroo–Pece Division, Gulu City.

I recognize the presence of Hon. Monica Musenero, once again and express our appreciation for always honouring NCHE invitations, and for generously sharing your knowledge, skills and expertise and passion for science and development. May you continue to inspire Ugandans.

I REQUEST MEMBERS OF NCHE TO STAND UP FOR RECOGNITION.

Our Chief Guest, the National Council for Higher Education, established by the Universities and Other Tertiary Institutions Act, CAP 262, under Section 4 is mandated, among other functions, to promote and develop the processing and dissemination of information on higher education for the benefit of the people of Uganda. To achieve this, the Council annually organises stakeholder engagements like this Conference, and the exhibition, where information is disseminated to the public. Through the Conference, Council identifies a theme from among the emerging issues in Education for study and after a thorough research, the findings are disseminated to the public.

As Council, we recognize that research and innovation provide the bridge between knowledge and economic productivity. We therefore encourage, and support universities and other tertiary institutions to move beyond theory and become hubs of research, commercialization, technology transfer, and community engagement. You will be glad to know that many of these institutions are trying to carry out that mandate, although we are not yet there.

Strategic Objective three of the NCHE Strategic Plan 2025/2026-2029/2030 aspires to advance relevant Research and Innovation. This is intended to be achieved by regulating the implementation of STEM/STEI through minimum standards for increased enrolment. STEM/STEI are key in boosting economic transformation, increasing human capital development, fostering innovation, and building a knowledge economy by prioritising education and research in these areas.

This year's theme, ***"Harnessing Innovations in Higher Education for Accelerated Economic Transformation,"*** challenges us as the **national regulator to reflect, rethink, and to reimage the role of higher education in shaping Uganda's socio-economic future.** The Conference is one of the key avenues through which we can begin to solve the challenges at hand.

The Council remains committed to strengthening quality assurance frameworks that do not suffocate innovation, but rather those that guide HEIs responsibly. Regulation must enable progress, not impede it. In this regard, the Council has come up with strategies aimed at achieving the following;

Firstly, Curriculum innovation by embedding practical skills, entrepreneurship, and problem solving. This is in line with the MoES requirement for all institutions to embrace competence-based pedagogy.

Secondly, Digital Innovation where we are Leveraging Open Distance E-Learning (ODeL), platforms to expand access, equity and flexibility. The Council keenly supports, guides and monitors this service.

Thirdly, Research and Technology Innovation, by supporting applied research that responds to Uganda's developmental challenges, by the Council, and the HEIs.

Fourth, Institutional Governance Innovation which aims at strengthening accountability, quality assurance, and performance management systems.

I have to point out that despite the good intentions, currently, Higher Education Institutions are struggling in the area of innovation due to a combination of factors which are internal while others are external.

- A clear example is the weak link between research and industry where the research conducted remains theoretical and disconnected from the market needs.
- Limited funding for research and development for investing in laboratories, incubation centers, prototyping, intellectual property protection, and commercialization. In many HEIs, funding is still largely allocated to teaching and administration, leaving little for research and innovation ecosystems, skills mismatch.
- Weak intellectual property management where a number of our institutions lack policies and expertise, on patenting, ownership rights, and revenue sharing.

It goes without saying that Higher Education Institutions should align their innovations to national priorities such as national development strategies, the Human Capital Development agenda and Emerging global trends such as Artificial Intelligence, green technologies, and digital economies. Therefore, we are obliged, and we must ensure that innovation translates into employability, productivity, and wealth creation.

In this regard, NCHE calls on Institutions to embrace partnerships between institutions, industry, government, and international collaborators. These should be in the areas of Joint research, Internship and apprenticeship frameworks and Innovation hubs and incubation centres. I am glad to note that innovation hubs and incubation centres are beginning to find entry into our institutions, and everything possible should be done to bring these a notch higher. Partnerships help in knowledge sharing and co-creation, resource mobilization and promotion of capacity building and skills development. Partnerships are not optional in today's innovation landscape. They are strategic enablers that foster collaboration, trust, and shared vision and also accelerate economic transformation. It is also important to take note of the fact that donors and partners now prefer to work with consortiums and to take advantage of the economies of scale.

On behalf of NCHE, I would like to reaffirm our commitment to strengthening quality assurance mechanisms by developing innovative quality assurance frameworks, reviewing and updating accreditation standards to incorporate digital pedagogical standards, enhancing capacity building, strengthening monitoring through digital systems and supporting research and innovation ecosystems. Evidence of this is demonstrated through NCHE training sessions, research findings and the documentation that we disseminate to the stakeholders and the general public.

The theme of this Conference is pertinent. It is timely. It is contextual to contemporary times. The challenge, however, is that many of the things we are talking about are really not so new. For example, since I was a school girl, which is many decades ago, I have heard consistent lamentations about issues pertaining to relevant and practical education; innovation, productivity or socioeconomic transformation. The language has of course changed from the political slogan of educating job creators rather than job-seekers. BUT, but, the terrain has hardly changed – hence the urgency that we now face.

Our call as the Governing Council for Higher Education is for each player to commit to their different roles so that we can achieve accelerated transformation. This will require collective

responsibility. Thus far, we continue to operate in silos and we cannot therefore build synergies. What should be done?

Regulators – in this case, the NCHE should enable and guide the process.

Universities and other HEIs - should innovate and deliver results

Industry – should engage and invest

Government - should support and prioritize

Our Chief Guest, I think we all see the direction we must take. However, the main constraint I choose to focus on is funding. There are other constraints, such as the need for mindset change, but finance remains crucial. There are many innovations by students and staff of universities, just lying on shelves. These are from both private and public institutions. A variety of these brilliant ideas will be demonstrated at the Annual Exhibition due to open, following the closure of this Conference.

The lever to all these challenges is finance. ONLY intentional injection of finances to support the following actors will significantly enhance the pace of our development. For example:

- Provision of high-level laboratories
- Establishment of class of the art Incubation Centres that are well resourced with the necessary inputs and expert mentors and trainers
- Funds to migrate the prototypes to incubation and eventually into marketable products
- Funds for innovators to reach the market, and work with the industry to the stage of commercialization.

Our emphasis here is that Government must address the issue of gross underfunding of the Higher Education Sector:

Of the regulatory body – the NCHE - which needs finds to play its oversight role that includes policy making, training, monitoring and evaluation, guidance and laying strategies for collaboration

Funding public universities in terms of provision of standard infrastructure, support for training and human resources.

Strategies for support to private universities, e.g. in the form of competitive innovation funds.

Strategies for the actualization of equal opportunities, to increase access to educational services – both geographical to include hard to reach areas, lay special provisions for persons with disability, bridge the gender gap, and others.

A fund for support to exceptionally talented individual innovators

We are aware that the future of Uganda's economy will not be determined solely by natural resources but by knowledge, skills, innovation, and the courage to transform ideas into impact. This is possible when HEIs focus on problem solving. When universities become engines of economic transformation and not just certification. When the HE sector is positioned as a driver of **productive economies, and a creator of capabilities, not just credentials.**

It is my prayer therefore that this conference will come up with practical policy recommendations, and innovation models that can be implemented immediately to enable us move from discussion to action. May our innovations be transformative, deliberations be fruitful and higher education remain the cornerstone of Uganda's accelerated economic transformation.

"The question before us is not whether we can innovate—but whether we can do so boldly, collaboratively, and fast enough to meet the demands of our time."

Let us all take up the mantle and perform our specific roles for this purpose.

I thank you for your attention.

Professor. Joy C. Kwesiga
CHAIRPERSON, NCHE

OFFICIAL OPENING

Address by Hon. Norbert Mao, Minister for Justice and Constitutional Affairs

In his official opening address, Hon. Norbert Mao, Minister for Justice and Constitutional Affairs, underscored the centrality of innovation in driving national development. He observed that innovation should be oriented towards addressing real-world challenges, rather than being confined to the mere acquisition of academic credentials. In this regard, he emphasized that higher education must play a transformative role in fostering production, problem-solving, and socio-economic prosperity.

The Minister further highlighted the imperative of an enabling regulatory environment, noting that government policies and frameworks should facilitate, rather than constrain, innovation. He called upon universities to reposition themselves as engines of innovation and drivers of economic growth, while reaffirming the role of higher education in advancing justice, accountability, and the rule of law.

Hon. Mao emphasized the importance of sustained investment in research and innovation, stressing that adequate funding is essential to nurture talent and translate ideas into impactful solutions. He urged the National Council for Higher Education to strengthen its role as a strategic intermediary between government and higher education institutions.

He further challenged universities to uphold their mandate as centers of excellence, grounded in truth, knowledge generation, and innovation. He noted that innovation in higher education is no longer optional, but a fundamental necessity for national and global development. In addition, he emphasized the need to strengthen collaboration between academia and industry to enhance the relevance and application of research outputs.

The Minister called upon higher education institutions to focus on producing graduates who are problem solvers, capable of contributing meaningfully to society, rather than merely seeking employment. In conclusion, he urged scientists and researchers to communicate knowledge in accessible and practical terms, and reaffirmed the Government's commitment to supporting higher education and innovation in Uganda.

SESSION ONE

KEYNOTE SPEAKER

Prof. Timothy Waema
waema@uonbi.ac.ke

Presentation:

Reimagining Higher Education as an Engine for Innovation-Led Economic Transformation

Agenda

1. Emergence of innovation hubs in universities
2. My observations on emerging innovation hubs in universities
3. Tech start-up maturity model
4. Key challenges faced by innovation hubs
5. What do Universities have to do to Become National Innovation Engines for Socio-economic Development?
6. What is the Call to Action for Varsity Managerment Immediately (Short-term)?
7. What is the Call to Action for Varsity Management in the Medium-term?

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1. Emergence of Innovation Hubs

University	Hub	Main Focus
University of Nairobi	C4DLab	Tech innovation, incubation and acceleration
	FabLab	Digital fabrication, prototyping, makerspace
Dedan Kimathi University	AI Lab	AI research, training, makerspace solutions
Strathmore University	iLabAfrica	ICT research and innovation
	iBizAfrica	Startup incubation and entrepreneurship
	AHEAD Hub	Multidisciplinary AI-driven development solutions
Kenyatta University	Chandaria CBIIC	Business incubation, tech transfer
JKUAT	JHub	Student innovation, AI projects

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University	Hub	Main Focus
Makerere University	Innovation Pod (UniPod)	Multidisciplinary innovation, makerspace, entrepreneurship support
	Centre for AI and Data Science (Mak-CAD)	AI research, data science, interdisciplinary solutions
	Food Technology & Business Incubation Centre (FTBIC)	Agro-innovation, food startups, commercialization
Kabale University	Business Incubation Centre (KABBIC)	Youth entrepreneurship, agro-industrial innovation
Uganda Christian University	UCU-Hanze Innovation Hub	Entrepreneurship training, incubation, mentorship
Lira University	Research and Innovations Lab	ICT innovation, research support, startup competitions
Victoria University	Business Innovation Hub	Startup workspace, entrepreneurship support

2. Observations on Emerging Innov. Hubs

a) Diversification

- Universities diversifying from knowledge generation and transmission to innovation and commercialization, contributing to national socio-economic development and job creation

b) Individual efforts Vs. university-led initiatives

- Innovation hubs emerge from individual researcher efforts rather than a university-led initiative
- Others emerge from funding by a donor (e.g. KU in Ke from a local industrialist donor, MUST in Ke from a donation by the Chancellor)
- Sustainability is a challenge in both cases

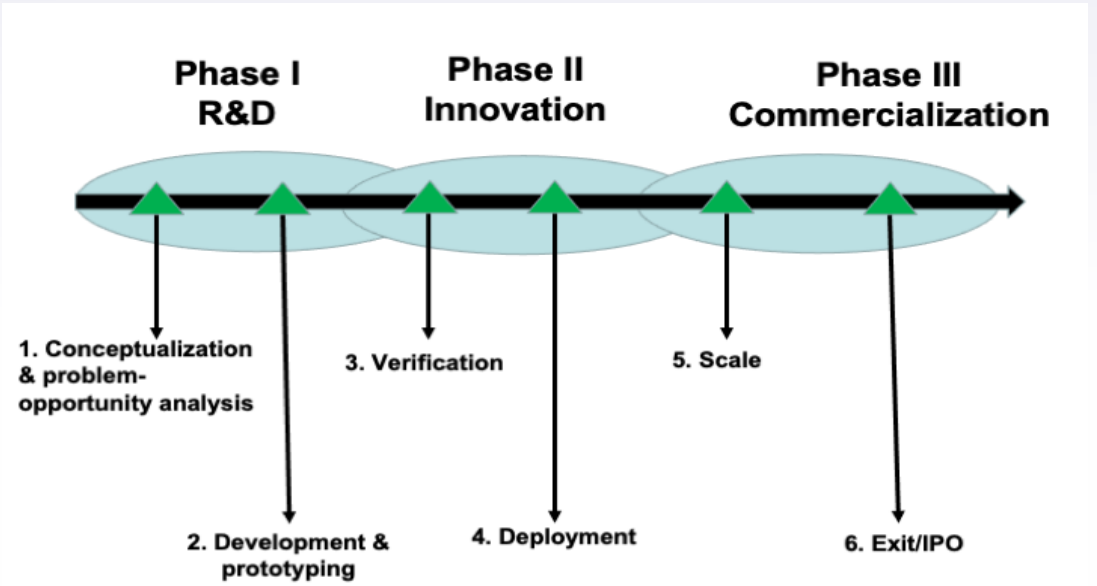
c) Student-led projects Vs. research-based innovations

- Innovation hubs are dominated by student-led projects, which may not have solid research behind them
- Researchers are reluctant to bring their research outputs for incubation

d) Reliance on partners

- Huge reliance on partners rather than university own resource allocation
- This has sustainability challenges

3. Tech Start-up Maturity Model



Phases

Phases	Key Costs	Main Outputs	Biggest Risk	Failure Points (Chasms)
1. R&D	• Research activities • Talent	• IP • IP value enhanced in subsequent stages	• Opportunity cost in lost funds without actionable output and time	• Poorly defined research objectives that lead to pursuit of the wrong problem/research
2. Innovation	• Develop-ment of prototype	• Products & services perceived to solve problems for specific stakeholders	• Funds lost in developing prototypes which do not add value and time	• Poorly defined innovation framework that leads to pursuit of the wrong solutions
3. Commercia-lization	• Enhancing the solution GTM & scaling strategies	• Maximized value of the original research idea	• Funds lost in developing applications, market planning, etc. with no commercial results	• Poorly defined solution & market scaling framework that leads to pursuit of sub-optimal commercial results

4. Key Challenges Faced by Innov. Hubs

a) Limited funding across the innovation/commercialization lifecycle
- African nations spend <1% GDP allocation on R&D vs. global 2.5%
- E.g.1 Kenya's STI Act of 2012 committed to 2% of GDP but the reality on the ground is that the spending is still < 1% (unlawful)
- E.g.2 Proposed establishment of PPP-based innovation fund almost 20 years ago but upto now no Govt funding
- Funding domiated by grants from development partners or private sector, etc. who have interests that may be at variance with national interests
- Lack of 'patient capital' - 'Silicon Valley' type VCs have tough conditions aimed at acquiring the business in the short to medium term

b) Mismatch in measurement of the success of incubated startups
- Dominated by number of startups that graduate or investment attracted
- Less of commercial products with IP, revenue/tax generated, jobs, etc.

c) Limited R&D and link to markets
- Being student-led, innovations are not informed by solid R&D
- Innovations divorced from real market demand - limited market exposure

d) Unfriendly operating environment
- Complex and bureaucratic business registration and licensing regimes
- Strangulating tax regimes, eg. lack of tax incentives, high compliance costs
- Unfriendly or inconsistent policy framework

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5. What do Universities have to do to Become National Innovation Engines for Socio-economic Development?

1. Set a clear strategy on innovation & commercialization
a) Explicit university strategic priority with visible leadership commitment, Council-level oversight, budget line, and measurable targets
b) Embed targets in university strategy and faculty promotion (e.g., startups created, commercialization achieved, industry contracts secured, etc.)

2. Change incentives and curriculum
a) Integrate mandatory entrepreneurship, lean startup and design thinking courses across key programs – creates entrepreneurial culture
b) Transition towards problem-based learning
c) Factor faculty time in commercialization activities (consulting, startups, spin-outs) in workload calculations
d) Offer internships and credit for startups and social enterprises

3. Create the right organizational infrastructure
a) Appoint a senior leader with industry commercialization experience and cross-campus authority and targets
b) Run a well-resourced innovation hub (incubator + accelerator) with access to makerspaces/labs for applied work
c) Create/strengthen a TTO with simple and transparent IP & licensing policy that rewards inventors and enables spin-outs into enterprises
d) Create a modest university seed/POC fund (matched where possible with private sector funds) and a clear equity/revenue-sharing policy

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4. Forge strong and strategic external partnerships

a) Industry – for joint R&D, sources of problems with strong multiplier effects (e.g. agri, health, edu), corporate pilots, sponsored research chairs, equipment donations, and sharing specialized lab facilities
b) Government - for pathways to public procurement and pilot programs, commitment to consume local innovation products, opportunities for regulatory sandboxes, & tax incentives for industry to co-fund research
c) Diaspora and alumni – for mentorship, capital, and market access

5. Deliver practical services to business founders

a) Support during verification (stage 3) and deployment (stage 4) - Market validation, customer discovery, business modelling and regulatory support
b) Provide technical prototyping facilities, product testing, and quality assurance
c) Provide legal support - company formation, IP filing, licenses, shareholder agreements
d) Provide investor matchmaking - demo days at startup graduations, and post-acceleration follow-on support

6. Seed finance and funding pathways

a) Establish a university seed fund and take small equity stakes in promising startups
b) Partner with angel networks, impact investors, DFIs and local VCs for follow-on capital
c) Use challenge prizes, milestone grants, and revenue-sharing contracts with industry to de-risk projects

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6. What is the Call to Action for Varsity Mgnt in the Short-term?

a) **Lead from the front:** Convene a senior management team and publish a decision on innovation and commercialization mandate
b) **Develop or review IP policy** to incorporate innovation and commercialization
c) **Allocate seed POC funding** (even a small pilot pot) and define selection criteria
d) **Map campus assets** (labs, workshops, startups, alumni investors) and create a public "innovation catalogue" of ready-to-pilot products and expert capabilities for industry outreach
e) **Initiate awareness creation** on innovation and commercialization to build varsity capacity
f) **Identify and resource an interim TTO lead and launch a 6-month incubation pilot** tied to a local public or private sector partner
g) **Announce a stakeholder engagement plan** (government, industry, funders, alumni)

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7. What is the Call to Action for Varsity Mgnt in the Medium-term?

a) **Launch regular accelerator cohorts** and a functioning TTO office
b) **Re-align institutional frameworks:** strategy, policy, funding and culture so that research and student projects reliably translate into sustainable businesses and public goods
c) **Integrate entrepreneurship, lean startup and design thinking modules** into core degree programmes and create faculty incentives for commercialization
d) **Create a conducive innovation/commercialization ecosystem**
   - Create clear, fair IP and spin-out rules
   - Seed and scale promising ventures
   - Partner with government, industry, diaspora and funders
   - Measure impact by jobs created, startups sustained, public sector adoption and lives improved
e) **Deliver first set of spin-outs** with paid pilots or procurement commitments in next 2 years
f) **Transition into entrepreneurial universities**
   - Start recognizing graduation with prototypes/businesses, alongside degree certificates

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Thank you for your attention

Asanteni sana

Webale nnyo myo

Apwoyo matek

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Annex:

Start-up Maturity Model Stage Outputs and Activities

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Stage 1.
Conceptualization & problem-opportunity analysis

Key Outputs	Key Activities
(A concept, problem, or opportunity statement that is fundable, profitable, impactful) 1. Clear vision/objective/job to be done 2. Detailed execution plan/schedules 3. Detailed resource requirements 4. Identified processes 5. Communication strategy	a) Knowledge • Carry out data-driven research (feasibility) • Document all deliverables b) Market • Define and analyze problem-opportunity • Create a vision (why) • Create a strategy (how) • Define a product (what) • Develop business model canvas c) Financing • Seek pre-seed funding d) Talent • Founders as initial talent • Onboard additional team members with requisite skill sets e) Technology • Define required technology capabilities f) Organization • Develop strategy • Define processes • Document deliverables

Stage 2.
Development and prototyping

Key Outputs	Key Activities
(A minimum viable product (MVP)) 1. Design methodology 2. Development strategy 3. Alpha prototype product	a) Knowledge • Document product development and prototyping b) Market • Design and run experiments • Measure the experiments • Build MVP c) Financing • Seek seed funding d) Talent • Onboard additional product development team members with project management expertise e) Technology • Acquire technology and related digital infrastructure f) Organization • Register business • Define business structure

Stage 3.
Verification

Key Outputs	Key Activities
1. Piloted product with minimum business viable fit 2. Market validated and beta tested product 3. Product market fit	a) Knowledge • Document product verification • Develop business case verification plan b) Market • Validate customer pull • Create a compelling offer • Understand customer/problem • Test MVP with customers c) Financing • Seek VC funding d) Talent • Develop a clear talent acquisition strategy • Onboard additional talent as required e) Technology • Improve the quality of service of the technology infrastructure? f) Organization • Obtain requisite licenses • Brand business/product(s)

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Stage 4.
Deployment

Key Outputs	Key Activities
1. Qualification & market acceptance design 2. Solution-pricing levels 3. Solution-support plan 4. Validated go-to- market strategy	a) Knowledge • Document deployment activities • Develop growth strategy b) Market • Test go-to-market strategy • Obtain customer feedback • Track financial metrics • Track consumption metrics c) Financing • Seek series A funding d) Talent • Develop a robust talent pipeline • Onboard skilled labour e.g. Sales, DevOps e) Technology • Acquire a sustainable and scalable production environment f) Organization • Establish a sustainable and scalable supply chain

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Stage 5.
Scale

Key Outputs	Key Activities
1. Solution large- scale growth plan 2. Market expansion strategies 3. Competition analysis 4. Solution con- tinuous improve- ment plan (CIP) 5. Organizational operational design	a) Knowledge • Document scaling activities • Perform evidence-based business planning b) Market • Accelerate business model to full potential • Identify/tune growth engines c) Financing • Seek series B funding d) Talent • Create a board • Enhance management and product development teams e) Technology • Acquire and use emerging technology to develop new products e.g. AI, Big data analytics f) Organization • Ensure legal and tax compliance

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Stage 6.
Exit/IPO

Key Outputs	Key Activities
1. Business valuation 2. Investors willing to pay the worth of the company 3. Business transition, including changes in organizational structure, leadership, and strategy 4. Financial returns from the sale of the company or an IPO 5. Reinvestment of sale/IPO proceeds in other ventures or assets	a) Knowledge • Assess exit/IPO readiness • Improve financial processes • Prepare an exit/IPO strategy that maximizes the value of the company b) Market • Carry out valuation comparison studies of companies in similar size/industry • Determine the price and allocation of shares to be offered to the investor or in the IPO, taking into account market demand, investor interest, and financial performance • Draft deal • Maintain ongoing communication with investors, providing regular updates on financial performance and other relevant information • Sell/liquidate

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Stage 6.
Exit/IPO (ctd)

Key Outputs	Key Activities
	c) **Financing** • Consider mergers • Seek series C+ funding to fund IPO costs • Free float (IPO manager) • Minority shareholders
	d) **Talent** • Hire/engage IPO or selling advisory team
	e) **Technology** • Implement operational systems to improve operations and reporting • Automate data collection • Readiness to integration with existing business(es) in case of acquisition
	f) **Organization** • Conduct due diligence to identify and address any potential legal, financial, or operational issues that could arise during the sale or IPO process • Complete audits of processes across the organization • Register with NSE and comply with all relevant regulations and disclosure requirements • Reporting structure of accounting standards

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KEYNOTE SPEAKER

Hon. Dr. Monica Musenero,

Minister of Science, Technology and Innovation

Presentations:

From Knowledge to Innovations: Positioning universities at the Centre of Innovation and Knowledge- Transfer.

Leveraging Science, Technology and Innovation as an Engine for the Qualitative Leap of Uganda's Economy

Cosmas Mwikirize, PhD
Superintendent Industrial Value Chains Development, STI-OP
@Cmwikirize; cosmas.mwikirize@sti.go.ug

7th Annual Higher Education Conference
March 24, 2026

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SCOPE

01 STI and Development

02 The National STI Policy Landscape

03 Progress Made (Including contribution of and opportunities for Higher Education, Challenges and Interventions)

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Chapter 1: Science, Technology and Innovation Vs Development

UGANDA HAS A VISION!

"A Transformed Ugandan Society From A Peasant to a Modern And Prosperous Country Within 30 Years."

It is therefore, with great pleasure that I now present the Vision 2040, whose aspirations are to change the country from a predominantly low income to a competitive upper middle income country within 30 years with a per capita income of USD 9,500.

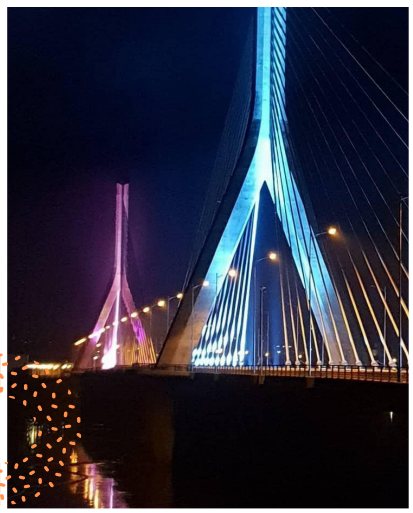
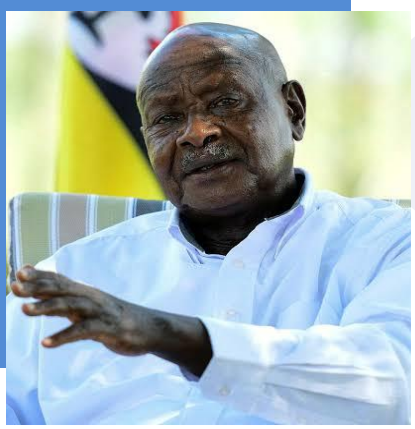


Table 2.1: Baseline Status and Vision Targets

No.	Development Indicator		Baseline Status: 2010	Target 2040
	Per capita income		USD 506	USD 9500
	Percentage of population below the poverty line		24.5	5
	Income distribution(GINI Coefficient)		0.43	0.32
	Sectoral composition of GDP (%)	Agriculture	22.4	10.4
		Industry	26.4	31.4
		Services	51.2	58.2
	Labor force distribution in line with sectoral contribution (%)	Agriculture	65.6	31
		Industry	7.6	26
		Services	26.8	43
	% share of national labor force employed		70.9	94
	Manufactured exports as a % of total exports		4.2	50
	Gross Capital Formation as % of GDP		24.1	30
	Saving as a % of GDP		14.5	35
	ICT goods & services as a % of total export		0	40
	Technology up-take & diffusion (Technology Achievement Index (TAI))		0.24	0.5
	Public expenditure as a % share of R&D to GDP		0.1	2.5
	Innovation as measured by patents registered per year		3	6000

Vision 2040, Pages 13-14



THE VISION

A science-led modernization of the nation before 2040.

"The envisioned economy of USD 550 Bn acknowledges the already achieved goal of quantitative expansion but adds another element of **Qualitative Leap** ... fueled by the knowledge economy"

H.E. Yoweri Kaguta Museveni
Budget Speech, June 15, 2023

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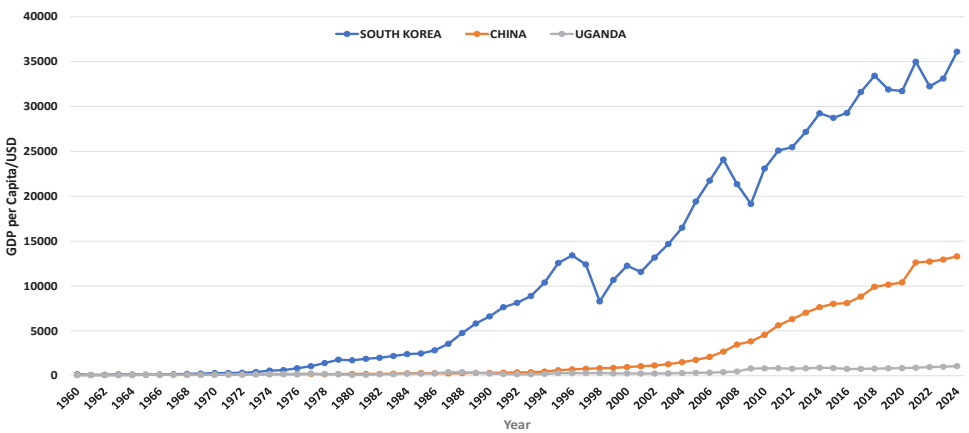
ECONOMIC GROWTH VS QUALITATIVE LEAP



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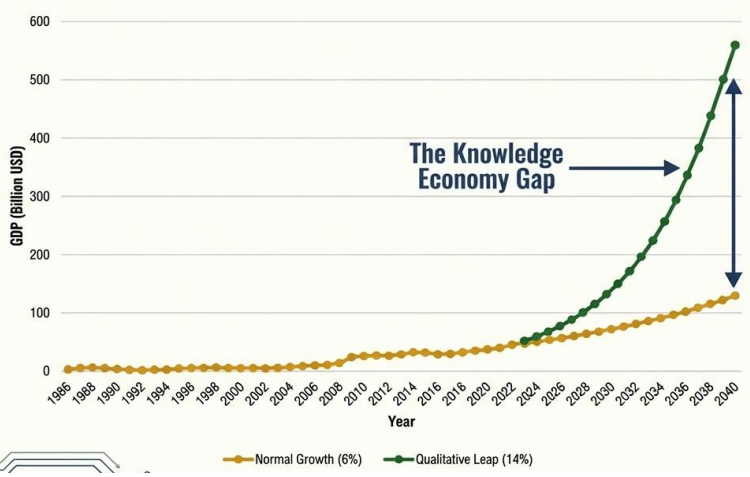
Igniting the Qualitative Leap: Vision 2040



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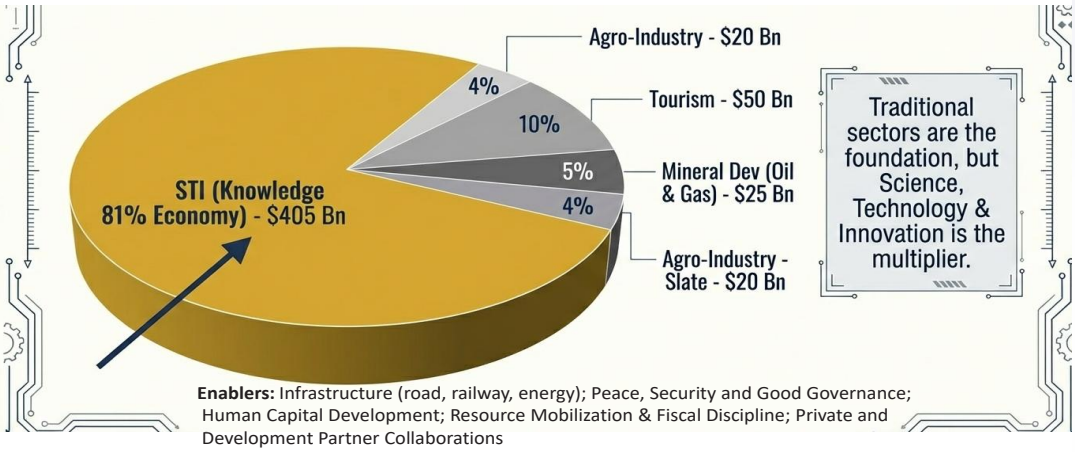
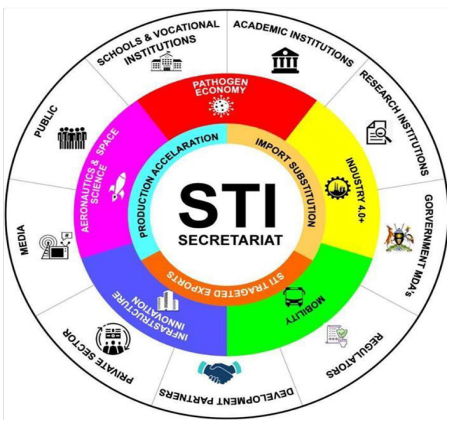
The Lubimbi: Expected Contribution to GDP (2040)



Enablers: Infrastructure (road, railway, energy); Peace, Security and Good Governance; Human Capital Development; Resource Mobilization & Fiscal Discipline; Private and Development Partner Collaborations



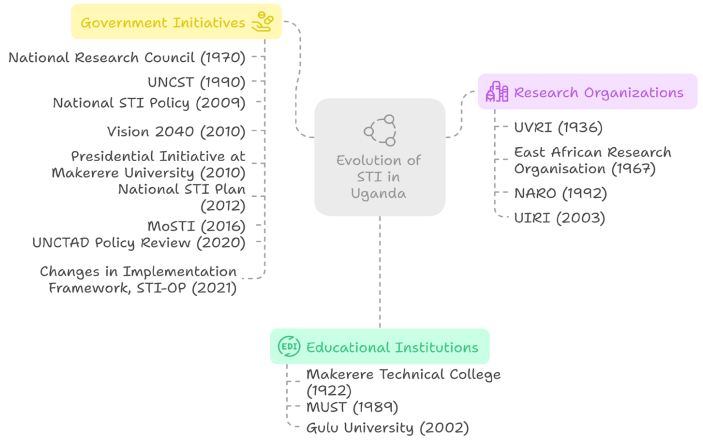
Chapter 2: The National STI Policy Landscape: Repositioning STI for National Development

Unlocking the Black Box of Development

THE STI-ECONOMIC HIGHWAY

Science	Technology	Innovation	Manufacturing	Commercialization	Economy
The systematic study and collection of data from the natural and social world to create knowledge.	Practical application of scientific knowledge to the change and manipulation of the human environment	Combination of knowledge and technology to change or create more effective processes, products, services, or ideas which create new value	Production of standardized products at scale	The process of making something available for sale as a viable, profitable commodity or service on the market.	Impact on how people live – Business The impact on GDP, Job creation, Technology availability, Environmental impact ETC
Knowledge: testable explanations and predictions about the world	Tools: process, invention, method	New Value	Industries	Business & Trade	Socio-economic Transformation

The difference between developed and developing nations is largely explained by the degree to which they have harnessed STI



The major challenge remained how to deploy STI to catalyze socio-economic transformation like happened for countries like South Korea, etc

2020 UNCTAD recommendations for Uganda STI

Context

"... Uganda's policymakers should seriously rethink the approaches being used to implement STI in the country if they are to achieve the aspirations laid out in Vision 2040."

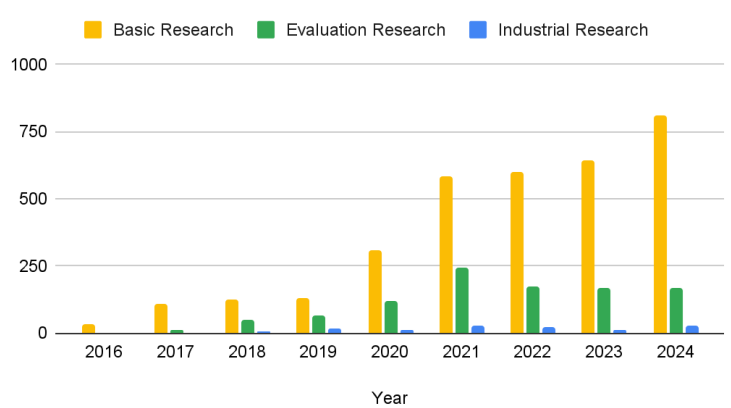
Intentionality: Purpose of STI

Appropriate Institutional and Policy Framework: National STI system without silos

Technical Leadership of the National STI system

Shift of Focus: From research to innovation end

Example: Registered Research 2016-2024



- **74.9%** is Basic Research
- Majority is Basic Social Research
- **22.5%** is Evaluation of foreign products;
- **Only 2.6% - focused on Industrial dvpt**

Source: UNCST

THE PROCESS OF VALUE CREATION

Produce Raw Materials	Process to add Value	Consumption
Low Value –(less than 10%) created Highest cost is value added inputs (from STI)	Highest Value – more than 90% is here The more the steps, the more the value Value Created depends on level of STI	Less than 5% value Created Consumer nations get net value loss (it is a cost) STI focuses on enabling consumption el.g. drivers, mechanics, doctors, importers

The Knowledge base in the Education system determines where a nation's economy will focus

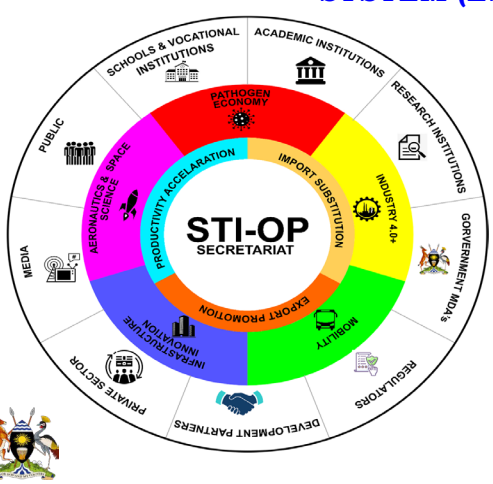
The Knowledge Black Box

THE PROCESS OF VALUE CREATION

Produce Raw Materials	Process to add Value	Consumption
Low Value –(less than 10%) created Highest cost is value added inputs (from STI)	[redacted]	Less than 5% value Created Consumer nations get net value loss (it is a cost) STI focuses on enabling consumption el.g. drivers, mechanics, doctors, importers

The Knowledge base in the Education system determines where a nation's economy will focus

THE NATIONAL SCIENCE, TECHNOLOGY AND INNOVATION SYSTEM (EST JAN 2022)



SECRETARIAT MANDATE

To **mobilize**, **coordinate** and provide **strategic oversight** and **policy guidance** to scientists and stakeholders in MDAs, local governments, academic and research institutions, private sector, schools and vocational Institutions, regulators, development partners, media, and the public **along the prioritized industrial value chains** to increase productivity, import substitution and export of knowledge-based products and services.

MAKING UGANDA THE BEST

STI IMPLEMENTING AGENCIES

UGANDA INDUSTRIAL RESEARCH INSTITUTE (UIRI)

STI FUNCTIONS:

- Undertake applied research to support Industrial Development
- Carrying out STI incubation
- Provide technical support to SMEs
- Provide specialized STI training and skills

UGANDA NATIONAL COUNCIL FOR SCIENCE & TECHNOLOGY (UNCST)

STI FUNCTIONS:

- Regulate all aspects of STI
- Translate STI policies into regulations and standards to guide operations of the entire STI System
- Monitor and evaluate STI activities and compliance to STI regulations
- Home science professional institutions and continue professional development

STI ENTERPRISES, CORPORATIONS & INVESTMENTS

PRESIDENTIAL INITIATIVE FOR BANANA INDUSTRIAL DEVELOPMENT (PIBID)

TARGET:

Commercialize value added banana products for export promotion.

- Transitioning into a commercial enterprise owned by Government

KIIRA MOTORS CORPORATION (KMC)

TARGET:

To be the Best-in-Class Motor Vehicle Manufacturer in Africa

- Promoting environmentally friendly transport solutions

Dei Biopharma, Inspire Africa Coffee, Jena Herbals etc

STI-OP MANDATE

To **mobilize**, **coordinate** and provide **strategic oversight** and **policy guidance** to scientists and stakeholders in MDAs, local governments, academic and research institutions, private sector, schools and vocational Institutions, regulators, development partners, media, and the public **along the prioritized industrial value chains** to increase productivity, import substitution and export of knowledge-based products and services.

MAKING UGANDA THE BEST

THE NSTIS Addresses

Attribute	Description
Intentionality	• STI as a catalyst for national transformational development (address poverty and underdevelopment
Institutional and Policy Framework	✓Provides a well-coordinated NSTIS ✓Involves all key actors ✓Eradicates institutional silos; ✓Clear economic-facing KPIs & robust M&E framework for evaluating progress
Technical Leadership	• Knowledgeable and knowledge-seeking, patriotic, flexible and skilled • Human Capital Development for industrial STI. Coordination mechanisms with key stakeholders emphasized
Shift of Focus:	• Supporting the idea-to-market journey and STI economic highway development

STRATEGIC DIRECTION

THE VISION

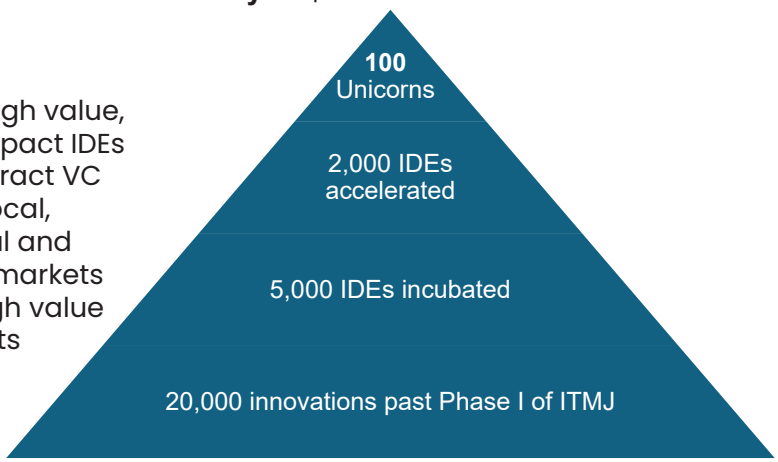
Uganda as the Best, most technologically advanced, and most innovative nation in the region.

SLOGAN

"Make Uganda the Best."

The Journey to $405 Bn

1) Grow high value, high impact IDEs that attract VC
2) Flood local, regional and global markets with high value products



It can be done! Recent Lessons

Tamil Nadu: GDP of $420 billion, currently growing at **11.19%,** fueled by the knowledge economy (Deep tech, health tech, Fintech, Space tech, automotive etc). Targeting **$1 trillion by 2030**. In 2020, GDP was $253Bn.

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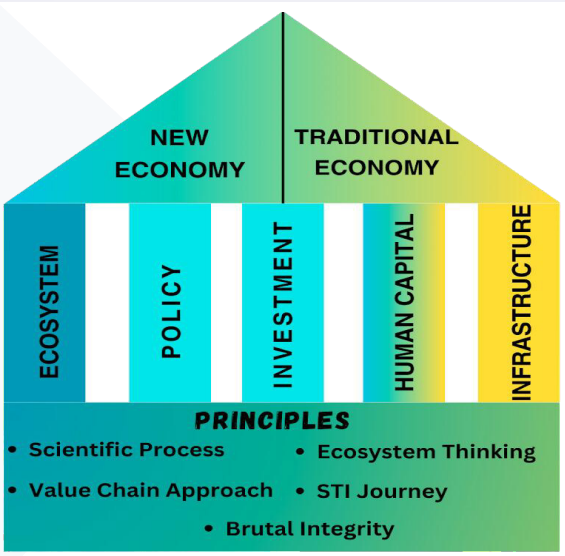
STRATEGY FOR QUALITATIVE LEAP OF THE ECONOMY



NCHE

THE NEW ECONOMY

Making sectors hitherto not part of our economy begin to significantly contribute to GDP by leveraging Science, Technology and Innovation

NCHE

THE NEW ECONOMY

MOBILITY

This sector encompasses the evolution of transportation systems, focusing on advanced, sustainable, and integrated mobility solutions.

PATHOGEN ECONOMY

Centered around harnessing the pathogens industrial value chain from harmful organisms to products on the. market.

AERONAUTICS & SPACE SCIENCE

Encompassing aeronautics and space exploration, this chain explores R&D in aerospace technology, satellite communications, and beyond.

INFRASTRUCTURE INNOVATIONS

This includes the development of cutting-edge infrastructure solutions, and exploration of our raw materials for high vaule added products.

INDUSTRY 4.0+

This focuses on the R&D in smart technologies, automation, and local innovation and manufacturing of inputs.

NCHE

THE TRADITIONAL ECONOMY

- The Traditional Economy refers to what the country has been accustomed to producing and selling. These are currently predominantly either consumed or sold as raw materials or with limited value addition.
- The Ugandan production ecosystem, especially for agriculture, is predominantly **peasantry** and **subsistence**.
- *The Science which built our raw material economy was generated outside*
- **Goal:** Generate value-added goods and services from products we have traditionally sold or consumed as raw materials

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NCHE

Chapter 3: Progress Made

NCHE

THE NEW ECONOMY

Making sectors hitherto not part of our economy begin to significantly contribute to GDP by leveraging Science, Technology and Innovation

NCHE

01 | MOBILITY

MANDATE: Coordinating and facilitating research, development, technology transfer, and commercialization of innovations that augment the national mobility ecosystem to develop, make, sell and use sustainable mobility solutions.

GOAL: A developed Mobility Ecosystem contributing 12.5% to GDP by 2040

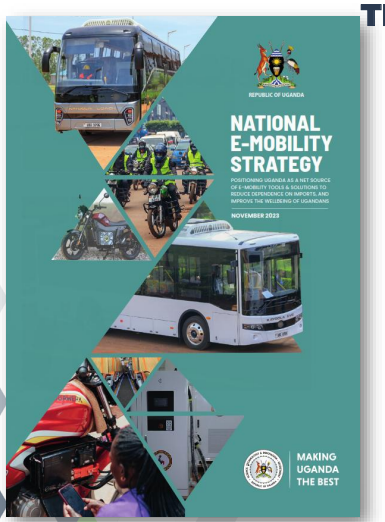
32

The National E-Mobility Ecosystem

- Inter-ministerial committee and technical task force
- 80 Member E-Mobility Consortium
- Developed the National E-Mobility Strategy
- Organization of ecosystem has seen commitment of over USD 800 Million investment in next 5 years

33

The National E-Mobility Strategy



- Targets to position Uganda as a net source of e-Mobility tools and solutions to reduce dependence on imports.
- **Vision:** Uganda fully transitioned to E-Mobility in public transport and motorcycles by 2030 and passenger vehicle sales by 2040.
- **Mission:** A robust, self-sustaining and competitive E-Mobility Ecosystem in Uganda.

SCAN TO DOWNLOAD

34

National E-Mobility Priorities

1) Local EV Manufacturing & Supply
2) Local EV Battery Manufacturing
3) Electrification of Public Transport
4) Establishment of a Charging Network
5) E-Mobility Human Capital Development
6) EV Uptake
7) E-Mobility Standards Development

35

36

PRODUCT PORTFOLIO

Kayoola EVS
Electric, Low Floor Bus
7, 8, 10 & 12 M

Kayoola E-Coach
10 & 13 M

Kayoola Diesel Coach
10 & 12 M

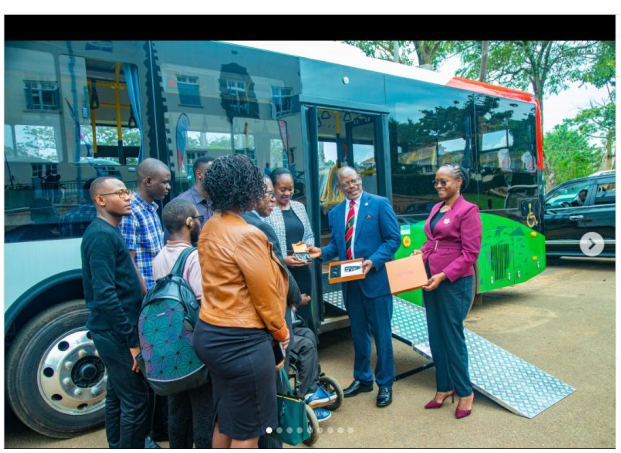
Installed Capacity
2,500 Vehicles/Year
(Single Shift)

Scalable
10,000 Vehicles/Year
(MULTI-SHIFT)

Total Vehicles Produced
69 Buses

37 Electric 32 Diesel

KIIRA MOTORS CORPORATION



ntvuganda • Follow

ntvuganda 23w
UPDATE: @makerere has received a Kayoola EVS 8.5m electric bus from @kiiramotorsofficial Motors Corporation to support the transportation of students with disabilities. The donation follows the university's recent purchase of two diesel buses from Kiira Motors.
#NTVNews

Vice Chancellor Prof. Barnabas Nawangwe noted that the bus is equipped with a ramp for accessibility and will offer free transport to students

518 6

October 7, 2025

CEDAT Acquires New Executive Bus to Enhance Mobility

Published 2 weeks ago on March 9, 2026
By **Alex Isemaghendera**

https://news.mak.ac.ug/2026/03/cedat-acquires-new-executive-bus-to-enhance-mobility/

xfmug • Follow

xfmug 3d
Uganda is accelerating into the future of mobility.

Kiira Motors has installed a 180kW DC fast charger at @Makerere to support the #Kayoola EVS bus serving the campus and Greater Kampala area. @kiiramotorsofficial

Uganda aims to achieve full e-mobility by 2040, with plans to install 260 fast chargers in 14 cities by 2030. #GreenMobility #ClimateAction

3

3 days ago

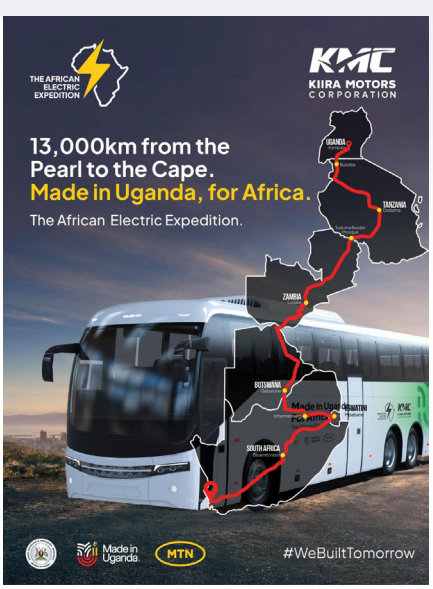
https://news.mak.ac.ug/2026/03/makerere-university-affirms-e-mobility-push-with-fast-charging-station-launch/

THE PEARL TO CAPE ELECTRIC EXPEDITION

About the Expedition
The "Made in Uganda Pearl to Cape Electric Expedition," a landmark journey stretching **13,784** km from the Pearl to the Cape, represents a definitive turning point in the continent's industrial and logistical history.

The Value Proposition
High-Fidelity Feasibility Study for the Kampala-cape Town Green Belt, a Prospective Transnational Economic Corridor Integrating Sustainable Mobility, Renewable Energy Grids, and Digital Telecommunications.

Metrics
- Distance Travelled - **13,784 km**
- Energy Efficiency - **0.79kWh/km**
- Energy Consumed - **10,904 kWh**
- Fuel Cost Saving - **USD 4,050 (~UGX 14.2 M)**
- Carbon Emission A voided - **6 Tons CO2eq**
- Contracts- **450 Kayoola Buses**



Achievements: Local R&D, Manufacturing and Supply

Annual Installed Capacity
Target: 500,000
Status: ~10,000

Investment since 2018
Target: USD 5b
~UGX 514Bn

Annual Revenue
UGX 50Bn

Local Content
Target: 65%
Status: 20-30%

Direct Jobs Created
>15,000

70+ ELECTRIC BUSES

07 DIESEL COACHES

13000+ TWO WHEELERS

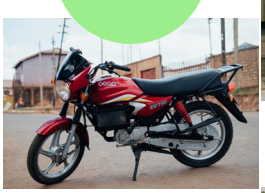
KEY SUPPORTED E-MOBILITY PRODUCTS

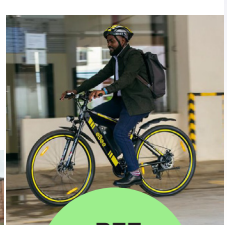
SPIRO 8000+

SafeBoda

ZEMBO 1300+

GOGO 3000+



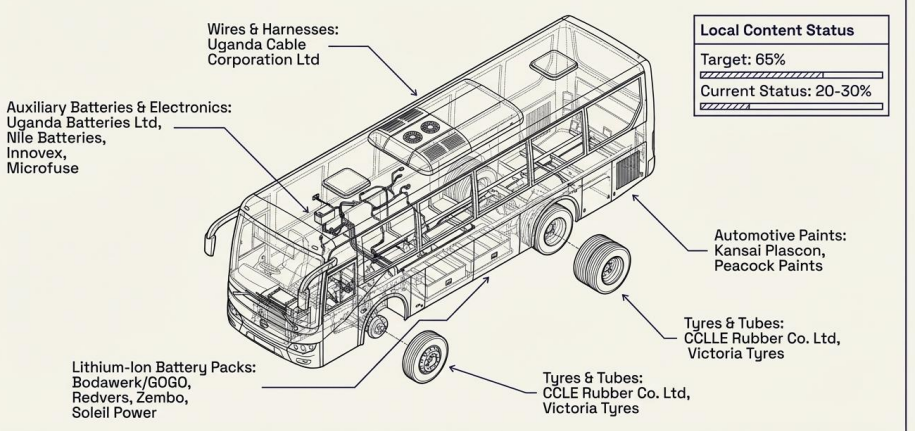


eBEE, KARAA 400+

Mobility

PRODCTION OF ELECTRIC MOTOR CYCLES (GOGO ELECTRIC-NTINDA)

Blueprinting the Local Supply Chain (21 Enterprises)



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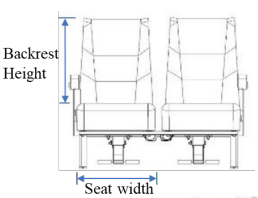
Assorted Vehicle Parts made in Uganda by Standard Waves Auto, Kyabadaza, Mpigi

E-Bus Express

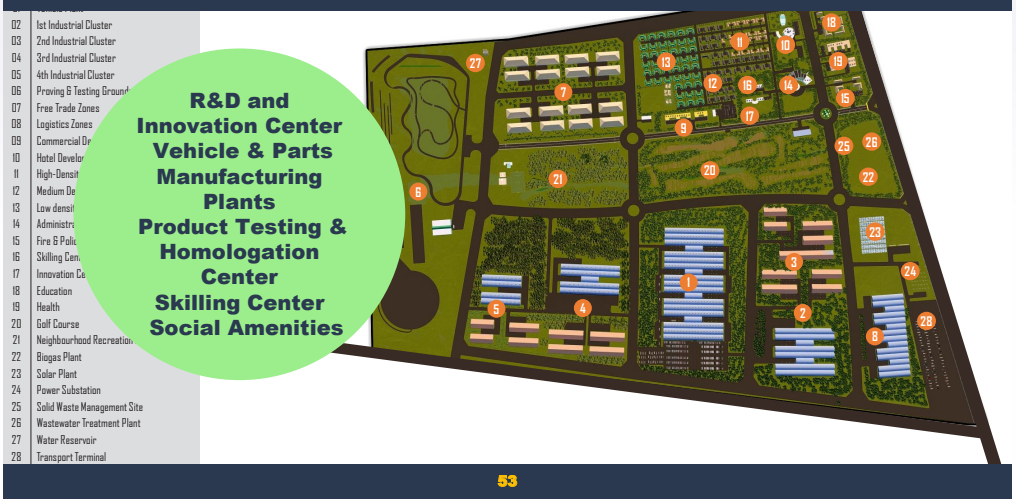
Parts identified to take us to localization of 65% of the Kayoola Bus

Localization of Vehicle Parts, Components and Systems

- Frame of Kayoola Buses fully localized
- Design and Engineering of Coach Seat



ONGOING: ECO- MOBILITY INDUSTRIAL & TECHNOLOGY PARK



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02 | PATHOGEN ECONOMY

MANDATE: Research, development, technology transfer, and commercialization of innovations targeting disease control and management for plants, humans and animals e.g vaccines, diagnostics, therapeutics, instrumentation, consumables and PPE

GOAL: A developed Pathogen Economy Ecosystem Contributing USD 11%bn to Uganda's GDP by 2040

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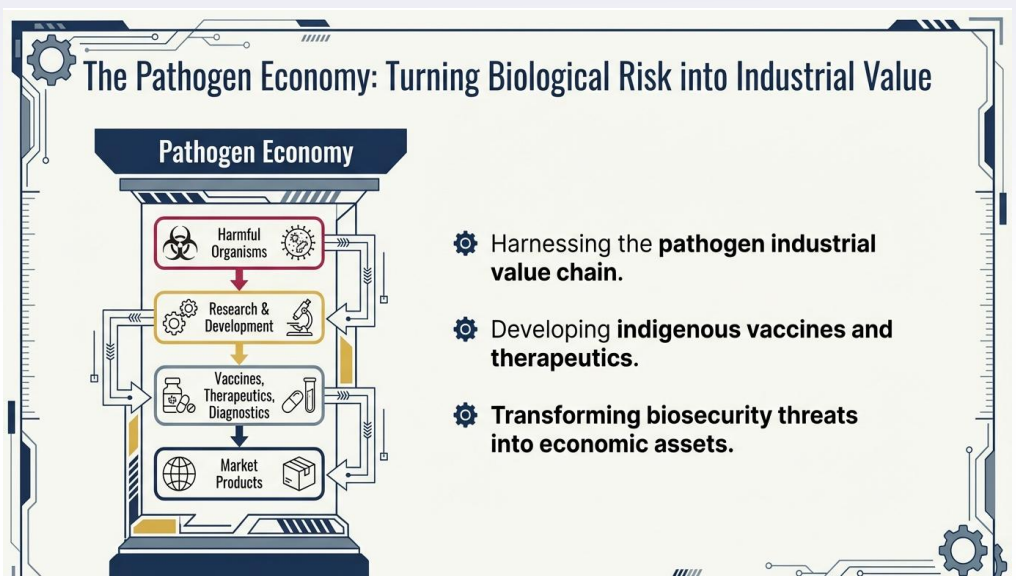


Progress on Vaccines

HUMAN VACCINES

- **3 candidate human vaccines** developed for acute respiratory tract infections (Uganda Virus Research Institute and Makerere University)
- All human vaccines have **completed pre-clinical trials**
- **Next step is clinical trials**
- 2 projects working on developing inputs to vaccine development which are currently imported
- 2 vaccines for Crimean Congo Hemorrhagic Fever and Rift Valley Virus (Preclinical).
- Construction of cGMP pilot plants for human vaccines
- Attracted additional UGX 30bn in Funding

ANIMAL VACCINES

- **Anti-tick vaccine** developed and completed Phase I clinical trials. Production ongoing for Phase II clinical trials
- Dual vaccine for Lumpy Skin Disease and Foot and Mouth Disease under development
- Vaccine for East Coast Fever-Preclinical stage

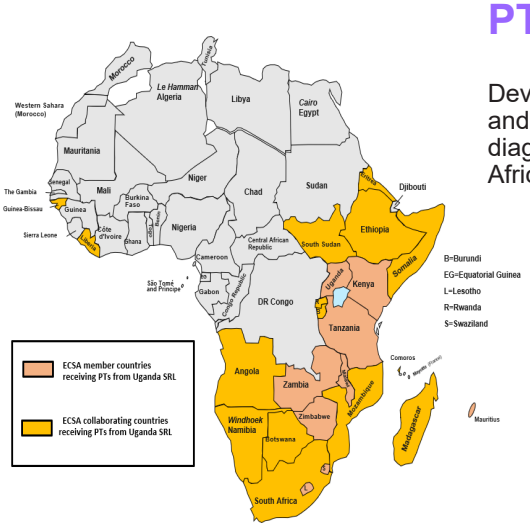
Progress on Diagnostics

ACCOMPLISHMENTS

- ✓ **5 PCR and 15 rapid diagnostic kits for human diseases validated**
- ✓ **1 RDT (paper-based lateral flow assay)** for cassava/sweet potato/banana wilt validated
- ✓ **1 RDT** for pregnancy in cows

PT Panel

Developed test used for standardization and quality assurance for other rapid diagnostics tests in the country and in 23 African countries, certified by WHO.



PCR Diagnostic Kits

- PCR kit contains locally developed and Primers, Probes, Buffers, Enzymes, Cultures.
- Kit has been internally validated to COVID-19:

Used for more than 2 million COVID tests, reducing the cost by 50% and saving the nation over USD 37 million (~UGX 140 billion), with the fastest turnaround time and quality, yielding the highest number of true positive cases (100,214).

- Kit components can be applied to other diseases like HIV, TB, Malaria etc. More than 50 prototypes in pipeline

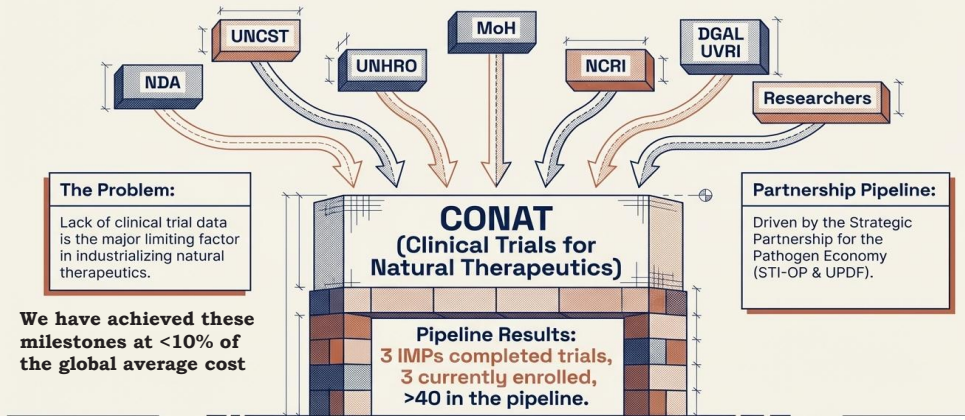
Microhaem: Rapid Diagnostic Kits

RDTs for HIV, Sickle Cell Disease, Malaria on the market

RDT Manufacturing at Microhaem

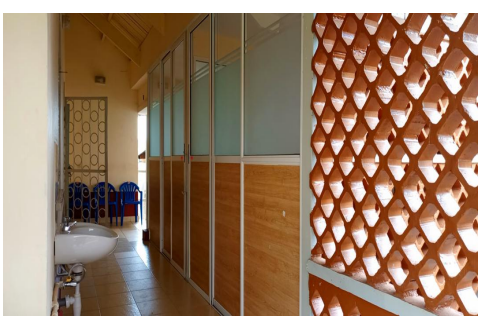
III. Therapeutics

Institutionalizing Indigenous Knowledge: CONAT



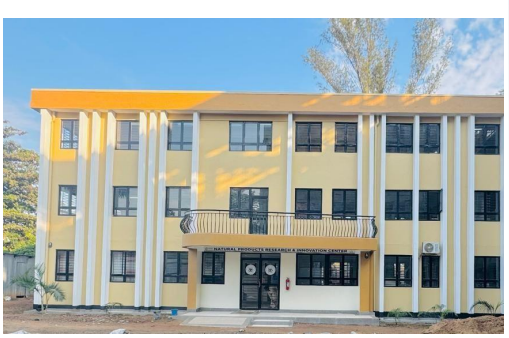
Institutional R&D Facilities

CONAT Clinical Trials Unit



Institutional R&D Facilities

Research Team in a rented room at Mbale R R Hospital, 2021



GLP funded by Government (STI-OP)

64

Biobanks

MAK BRC Biorepository

Samples support access to a convenient pool of well annotated biospecimens, organs, and tissues to researchers developing vaccines, therapeutics and diagnostics.

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Institutional R&D Facilities

Genomics and Translational Research Lab, MUST

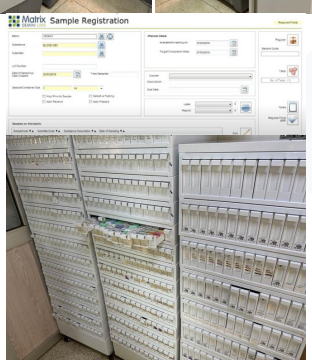
Institutional R&D Facilities

Diagnostics Research Lab-JCRC

Institutional R&D Facilities

Lab Animal Research Facility, CoVAB, Makerere University

Biobanks



Pan-Cancer Tissue Biorepository at Uganda Cancer Institute Biobank

FFPE, cells, DNA, fresh frozen tissue, blood samples support molecular and immunophenotypic characterization of cancers.

UCI: Molecular characterization of cancers in Uganda

- Basic and translational cancer in collaboration with COVAB and MAKCHS
- Molecular and immunophenotypic characterization of the commonest cancers
  - HIV-associated Kaposi Sarcoma
  - Breast Cancer
  - HIV-associated NHL
  - Acute Leukemias
  - Prostate Cancer
  - Lung cancer
- Whole exome sequencing, tumor and normal, ctDNA, germline

Dei Biopharma

ONGOING: Biosciences Park, T-6 Industrial Park, Nakasongola

Biosciences Park Facilities

- GMP complaint pilot production lines for animal and human vaccines
- GMP complaint pilot production line for diagnostics
- GMP compliant pilot production line for natural therapeutics
- GMP compliant pilot production line for biomedical consumables
- Nuclear Magnetic Resource (NMR) spectrometer center
- Clinical and Translational Research Centre
- Biorepository/Biobank
- Business incubator, conference center and common user facilities like labs and bio-repositories

Progress: PCR Plant (Construction by NEC Works)

Strategic Partnership for the Pathogen Economy: STI-OP-UPDF

- Epidemiological forecasting
- Natural therapeutics development
- Human Capital Development

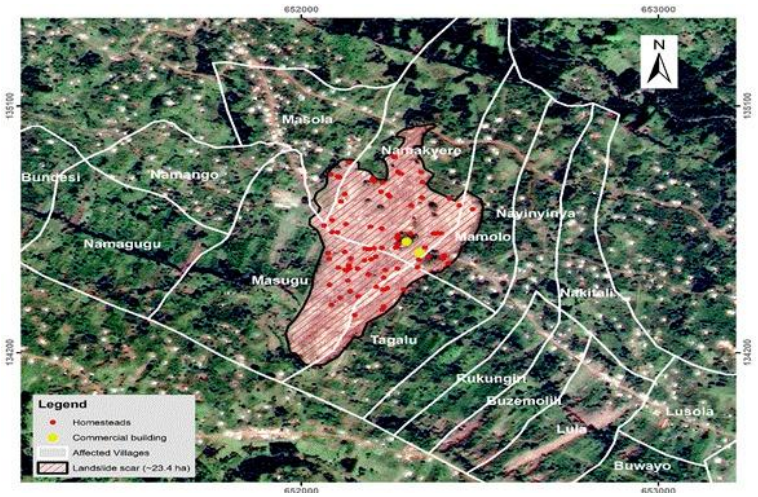
03 | AERONAUTICS & SPACE SCIENCE

FOCUS: Research, development, technology transfer, and commercialization of innovations in space exploration, earth observation systems such as satellites, and establishment of a National Aerospace Program

GOAL: A sustainable aerospace industry that enhances resource planning and management, agricultural productivity and national security, contributing 4% to the National GDP by 2040.

77

Satellite Image Analysis: Bulambuli Landslides



MPOMA UPGRADE, PHASE II: 7.5m LOW EARTH ORBIT S/X-BAND ANTENNA SYSTEM

Strategic, national-level space, security, and scientific operations

- High-Capacity Satellite Command & Control (TT&C) for Low Earth Orbit and Geostationary Earth Orbit
- High-Resolution Earth Observation (X-Band)—Climate Monitoring, Mineral Exploration, Urban Planning, Environmental Protection, Disaster Response
- National Security & Strategic Surveillance
- Commercial Ground Station Services
- Space Diplomacy & International Cooperation: Data Sharing, Joint Missions etc

04 | INDUSTRY 4.0+

FOCUS:
Research, development, technology transfer, and commercialization of innovations in electronics, artificial intelligence, cybersecurity, robotics, big data and analytics, Internet of things, and additive manufacturing

GOAL: **A** vibrant, self-sustaining electronics and high-tech development ecosystem contributing 10% to Uganda's GDP by 2040

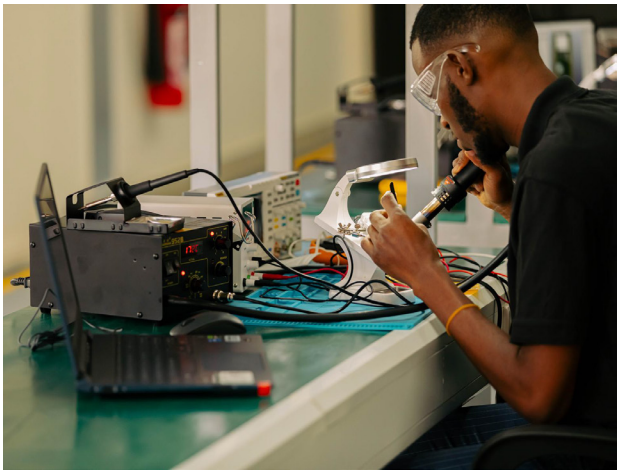
80

Manufacturing Facility for Printed Circuit Board Assemblies

Design and Manufacturing of Smart Electronics

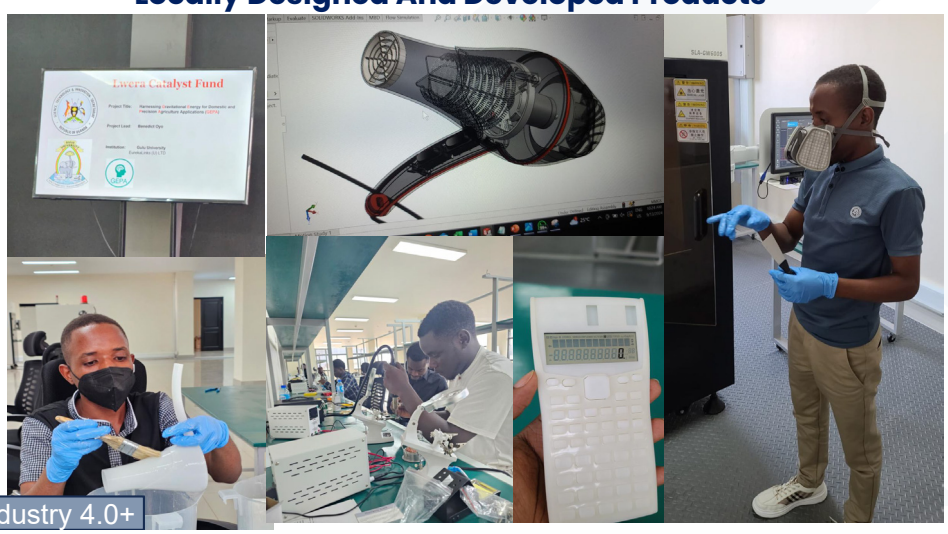
Electronics Hardware Design and Incubation Center

Electronics Hardware Design and Incubation Center



84

Locally Designed And Developed Products

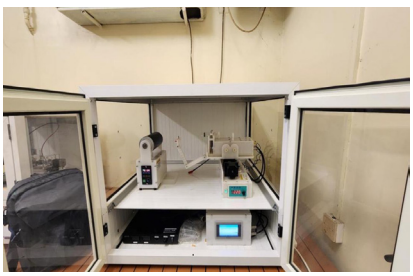


Industry 4.0+

Locally Designed And Developed Products

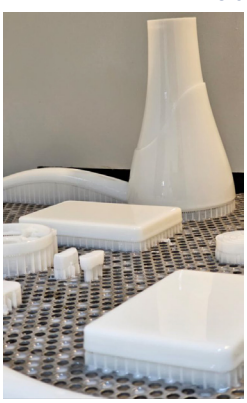
86

Locally Designed And Developed Products (CARI)



87

Locally Designed And Developed Products



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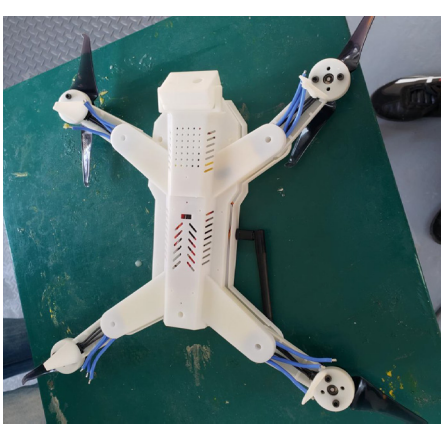
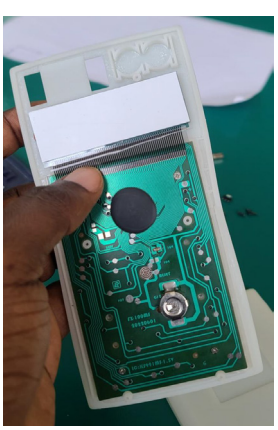
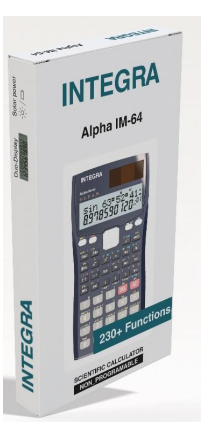
Locally Designed And Developed Products







89

Locally Designed And Developed Products

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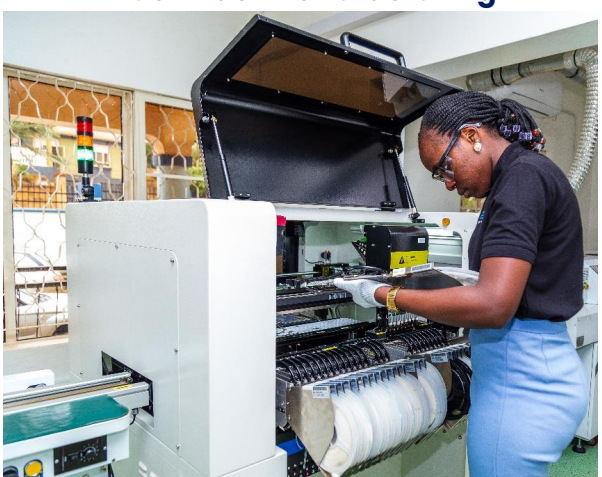
Contract Manufacturing



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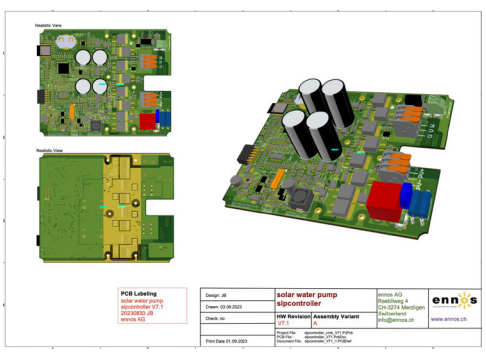
Contract Manufacturing: Ennos, Swiss water pump



92

Locally Designed And Developed Products

93

Contract Manufacturing: Solar powered freezer, Nigeria

94

Unified Immigration and Border Control Platform for the Ministry of Internal Affairs

95

Industrial Automation, Power Systems Control and IoT Management Platform

- Cetus Laboratory established as a fully equipped R&D facility for hardware testing and verification.
- Developed modular architecture and functional prototypes for the C-Series PACs (C700, C800, C900).

Establishment of the Uganda Climate Technology Incubator

PEARL CARBON

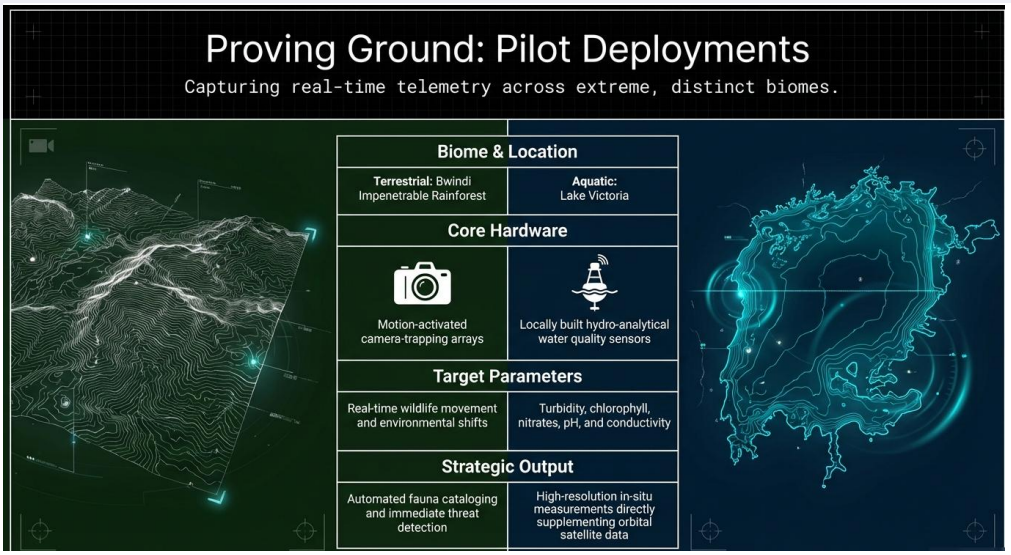
Turn Your Climate Project Into Action and Funding

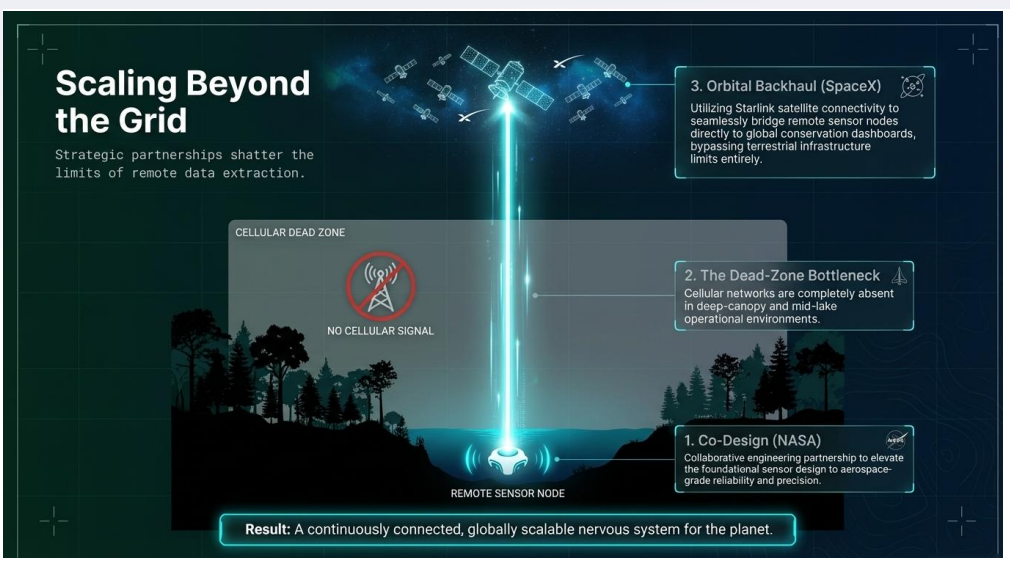
Launch and grow your climate project with the Pearl Carbon Platform — Uganda's one-stop digital hub for carbon and green-finance projects.

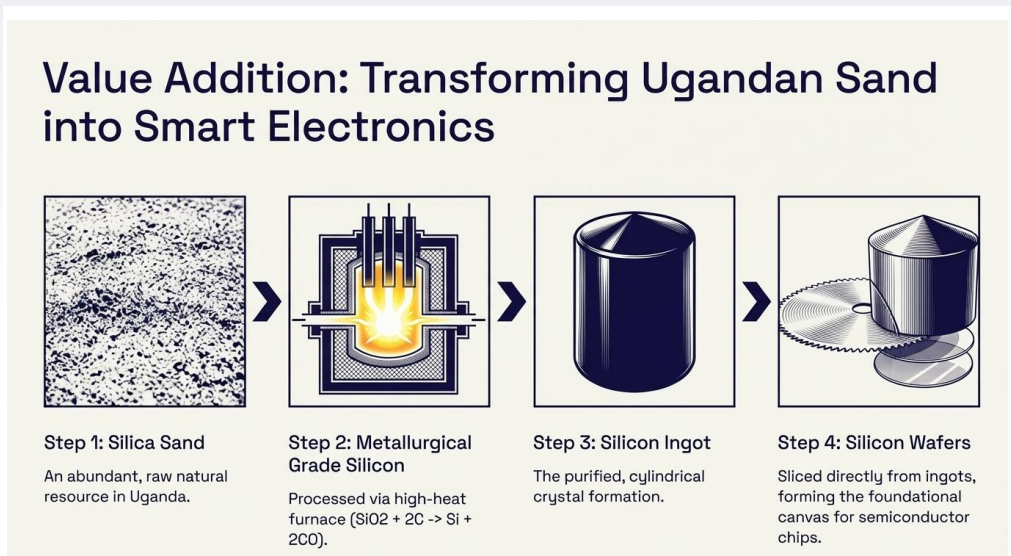
START YOUR PROJECT REQUEST A FREE DEMO

- Three ventures onboarded onto the Carbon Origination Platform
- Carbon yield assessments completed
- Mentorship and technical support to climate ventures
- Readiness grants issued to de-risk projects

PEARL CARBON PLATFORM


Proving Ground: Pilot Deployments
Capturing real-time telemetry across extreme, distinct biomes.
Biome & Location
Terrestrial: Bwindi Impenetrable Rainforest
Aquatic: Lake Victoria
Core Hardware
Motion-activated camera-trapping arrays
Locally built hydro-analytical water quality sensors
Target Parameters
Real-time wildlife movement and environmental shifts
Turbidity, chlorophyll, nitrates, pH, and conductivity
Strategic Output
Automated fauna cataloging and immediate threat detection
High-resolution in-situ measurements directly supplementing orbital satellite data


Scaling Beyond the Grid
Strategic partnerships shatter the limits of remote data extraction.
3. Orbital Backhaul (SpaceX)
Utilizing Starlink satellite connectivity to seamlessly bridge remote sensor nodes directly to global conservation dashboards, bypassing terrestrial infrastructure limits entirely.
CELLULAR DEAD ZONE
NO CELLULAR SIGNAL
2. The Dead-Zone Bottleneck
Cellular networks are completely absent in deep-canopy and mid-lake operational environments.
1. Co-Design (NASA)
Collaborative engineering partnership to elevate the foundational sensor design to aerospace-grade reliability and precision.
REMOTE SENSOR NODE
Result: A continuously connected, globally scalable nervous system for the planet.


Value Addition: Transforming Ugandan Sand into Smart Electronics
Step 1: Silica Sand
An abundant, raw natural resource in Uganda.
Step 2: Metallurgical Grade Silicon
Processed via high-heat furnace (SiO2 + 2C -> Si + 2CO).
Step 3: Silicon Ingot
The purified, cylindrical crystal formation.
Step 4: Silicon Wafers
Sliced directly from ingots, forming the foundational canvas for semiconductor chips.

Ongoing: High-Tech City

05 | INFRASTRUCTURE INNOVATIONS

FOCUS:
coordinate and facilitate research, development, technology transfer, and commercialization of innovations for energy, railway, roads, airports, nanotech and minerals, materials, STI and communications infrastructure

GOAL: A developed Infrastructure Innovations Ecosystem Contributing 20% to Uganda's GDP by 2040

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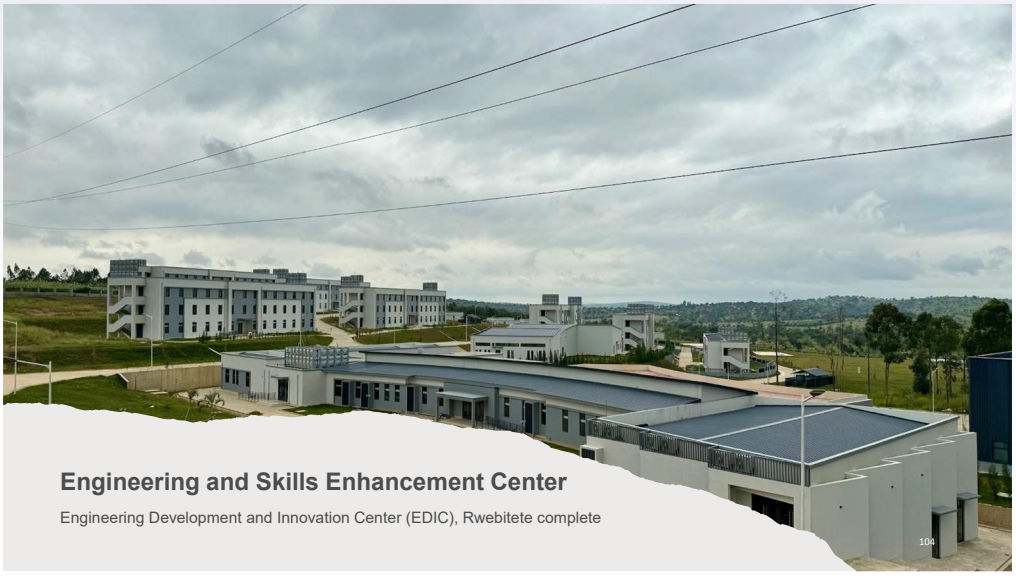

Engineering and Skills Enhancement Center

Engineering Development and Innovation Center (EDIC), Rwebitete complete

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ACHIEVEMENTS

- ✓ A state-of-the-art machine shop installed to revolutionize manufacturing in Africa
- ✓ **10** innovators supported
- ✓ **700** jobs created
- ✓ **Ugx. 6.7 Billion** generated in non-tax revenue
- ✓ **50** STI professionals trained under the innovative History Makers Programme
- ✓ **250** engineers retooled
- ✓ **8** nascent Uganda companies supported to participate in major national infrastructure projects

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UIRI: State-Of-The-Art Manufacturing and Machining Center, Namanve

06 | TRADITIONAL ECONOMY

FOCUS:
Coordinate and facilitate research, development, technology transfer, and commercialization of innovations targeting domestic production of goods and services, to reduce dependence on importation, and boost the value of exports while deepening value addition in the country

PIBID Pilot Plant

Commercialization of Products: Tooke

109

Ready for Market PIBID Products

110

Coffee Value Addition

Tertiary hub for last mile coffee value addition in Ntungamo (roasted, ground, instant, brew)

72,000 tonnes annually

Coffee Value Addition

Nonda-Ingaz Partnership

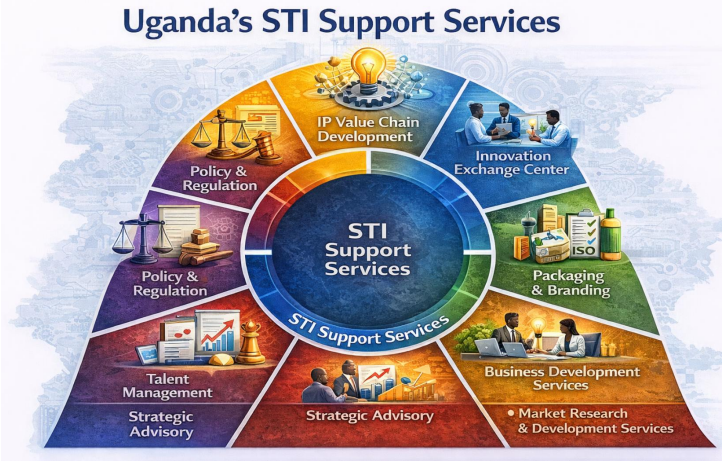
Nonda-Ingaz Coffee Park-Luweero

23 acres in Luweero Coffee Park, 140 million USD Investment (USD 100 million from Saudi Arabia, USD 40 million from Uganda); 1,200 direct jobs and 3,000 indirect jobs; USD 540 million annually from value-added exports

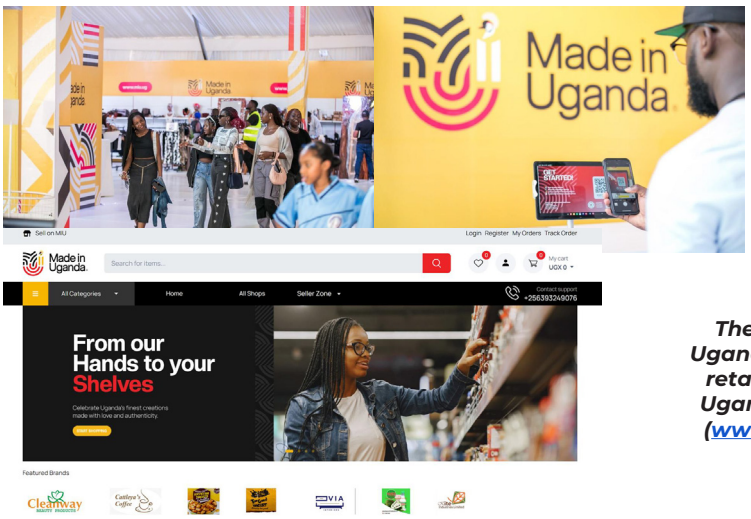
Ongoing: Agro-STI Parks

Region	Location
Eastern	Busitema University, Arapai Campus (200-300 acres)
Northern	Lira University (200 Acres)
West Nile	Muni University (200 acres)
Western	Mbarara University (200 acres)
Central	TBC

Uganda's STI Support Services



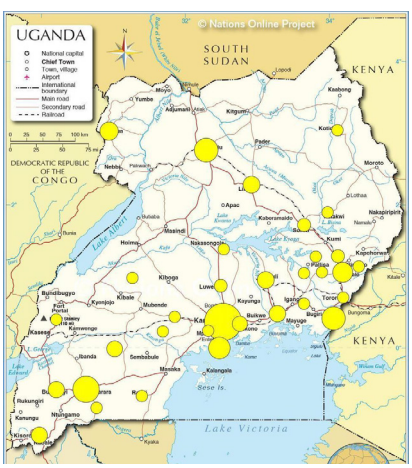
Market Development Initiatives: Made in Uganda (MIU) Marketplace



The Made in Uganda online & retail Made in Uganda Outlet (www.miu.ug)

FUNDING ON INNOVATIONS: NATIONAL INNOVATION FUND and PRESIDE

- Competitive grant funding mechanisms for researchers and innovators along the Idea-to-Market journey.
- Funds critical for the ignition of innovation in the population and institutions (both Government and Private) and translation of ideas into commercialize products, IDEs, and industries.
- Restructured to make less elitist
- More than 150 ventures supported throughout the country



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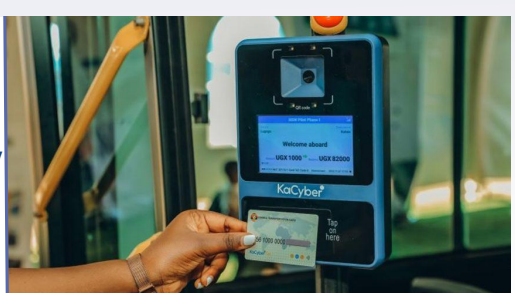
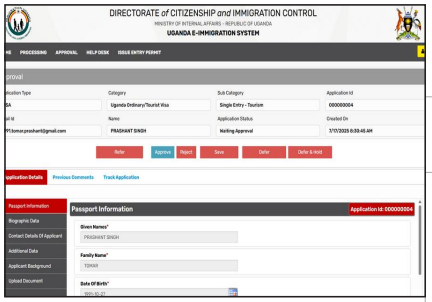
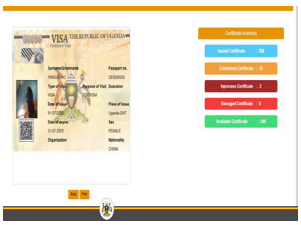
Enhancing the Efficiency and Accessibility of Public Transportation through the Deployment of Contactless Card Payment Technology (KaCyber Technologies)

- Launched during Science Week 2023 by Rt. Hon. Prime Minister
- Currently deployed on the Kayoola Buses operating in Jinja (E-Bus Xpress) with over 17,620 cards issued, processing over 82,000 transactions and collecting over UGX 549.6 Million in revenues since November 2024.
- Will be scaled to the train, ferries and other bus operators







Project Name	MDA Technology Support Project
Status	1. Successfully demonstrated the Unified Immigration and Border Control Platform 2. Validated the Custom One Stop Center solution 3. Engaged Ministry of Internal Affairs and STI-OP 4. Positioned as an import substitution solution for e-government systems
Next Steps	1. Deploy platform within Ministry of Internal Affairs 2. Scale solutions to additional MDAs

Project Name	Solanaceous Agro-Processing Automation
Status	1. Developed homogeneous automation prototype (10–50 kg/hour) 2. Validated with chili sauce manufacturers 3. Reduced post-harvest waste 4. Demonstrated Industry 4.0 application in agro-processing
Next Steps	1. Scale to full commercial manufacturing line 2. File national patents (URSB) 3. Expand automation to additional crop value chains

Project Name	Yunga Community Security Platform
Status	1. 2,000 households have been protected across 40 communities 2. 300+ crimes prevented 3. $270k revenue milestone has been achieved
Next Steps	1. Fully optimized DIY Yunga system ready for mass production. 2. Streamlined manufacturing process with optimized supply chain and reduced lead times. 3. Expansion into new African markets with 8,000 additional households onboarded. 4. Scaled mass production capacity with diversified security features integrated into the product.

Pombe Guard

Natural therapeutic that has anti-hangover and analgesic properties.
Supported clinical trial and establishment of pilot production infrastructure.

Biodegradable Hair from Banana Fiber

> USD 2 billion global market

124

Submersible Solar Water Pump development

GOAL
Solar-powered water pumps to for irrigation, and climate resilient agriculture.

STATUS (Phase 1)
Design of all water pump parts completed. Motor laminations production on going. Machining and assembly. Pump power controller developed and tested

Green steel from Iron ore pilot technology development

GOAL

Green technology for reduction of Iron Ore using Hydrogen to substitute imported coal.

Steel and Iron Import size: USD 578.6 million (UBOS 2021).

Target Market: Automotive, Construction and Infrastructure, Manufacturing and industrial machinery

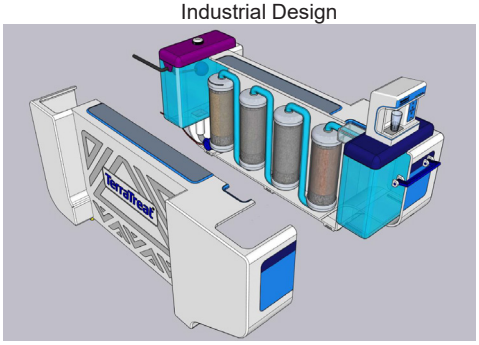
STATUS

Project completed Lab scale infrastructure for process identification. Fabrication of 500kg prototype with industrial partners

Iron Oxide Nanoparticles from Steel Waste for Water and Effluent Treatment

Lab-Scale Prototype

Industrial Design



VENTURE NAME: Pearl Breakfast Cereals - **LIRA UNIVERSITY**

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The Economic Scorecard: Performance at a Glance (2021-2026)

100,000
High-Quality Jobs Created

UGX 3.4 Tn
Investment Attracted

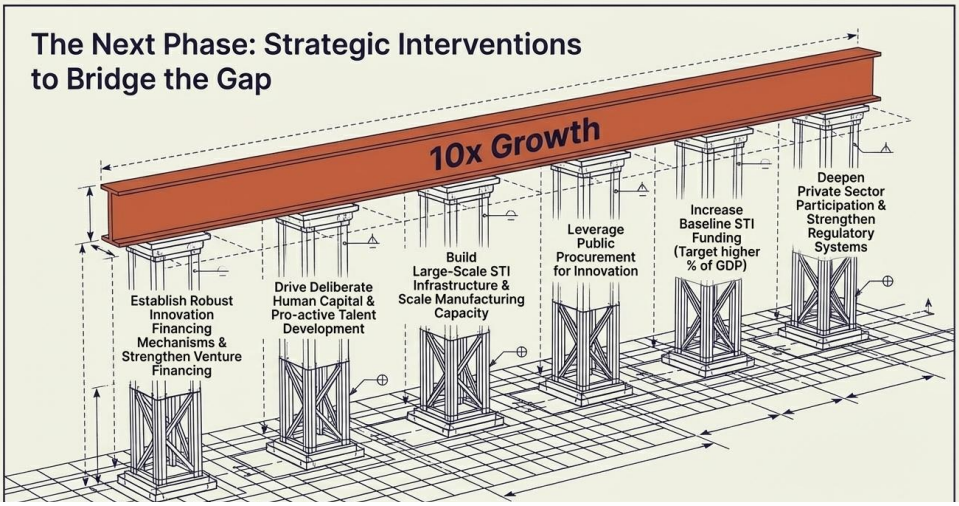
4,000+
Trained Industrial Scientists

Enterprise Growth:
120+ Innovation-Driven Enterprises (IDEs) supported at various stages.

Established Pathfinders:
- **Mobility:** Kiira Motors Corporation
- **Pathogens:** Dei Biopharma, Microhaem, Ndiyo Biosciences
- **Productivity:** PIBID/BIRDC, Inspire Coffee Park

NCHE

The Next Phase: Strategic Interventions to Bridge the Gap



NCHE

Pillar Group 2: Cultivating Elite Intellectual Capital

Drive Deliberate Human Capital Development

Systematically aligning university curricula and vocational training with the precise needs of prioritized industrial value chains.

Pro-active Talent Development

Identifying top-tier scientific talent early and providing accelerated pathways, mentorship, and international exposure to close the '40 vs 4,000

Diaspora Reintegration

Creating attractive incentives and opportunities for skilled Ugandans abroad to return and contribute their expertise to the national STI agenda.

NCHE

Thank You!

Let's Partner to engender a science led economy

info@sti.go.ug
sti.go.ug

NCHE

SESSION TWO:
CONFERENCE OPENING

Moderator:
Dr. Nora Mulira, Director ICT, Research and Innovation, NCHE

PANEL DISCUSSION ON FINANCING INNOVATIONS IN HIGHER EDUCATION

Hon. James Kubeketerya
Chairperson Education and Sports Committee

Hon. Martin Ojara Mapenduzi,
Public Service and Local Government

Hon. Agnes Kunihira,
Gender, Labour and Social Development

Hon. James Nsaba Buturo,
Chairperson, East African Community Affairs

Prof. Joy Kwesiga, Chairperson Council

The panel discussion was guided by two questions:

1. Regarding what policy and financing reforms are needed to sustainably fund innovation in higher education, the following were raised:
2. Adoption of strategic financing and institutional reforms, moving beyond traditional government subventions.
3. Establishment of a National Research and Innovation Fund, with a proposed allocation of at least 1 percent of GDP.

- Introduction of performance-based financing models, linking funding to outputs such as patents, innovations, and publications rather than student numbers.

1. Development of university venture capital mechanisms to support faculty and student-led start-ups.

2. Provision of targeted tax incentives for companies that host students and support problem-solving initiatives.
3. Institutionalization of mandatory industry advisory boards comprising of private sector practitioners.

- Promotion of Public-Private Partnerships to support innovation financing.
- Diversification of university income streams to enhance financial sustainability.

1. Strengthening of the National Intellectual Property Framework.

1. The second guiding question was about how Parliament can strengthen NCHE-university–industry linkages to translate higher education innovations into jobs and productivity. The following recommendations were raised:
2. Parliament should prioritize and adequately value research and innovation.
3. Establishment of a dedicated national fund for research and innovation.

- Deliberate and sustained investment in research and innovation activities.

1. On equitable distribution of the Research and Innovation Fund, the following recommendations were made:
2. Adoption of performance-based indicators to guide allocation.
3. Introduction of competitive grant systems to support high-impact innovations.

- Consideration of tax exemptions for research and innovation funds to enhance accessibility and impact.

At the end of the session, there was time for questions and answers. The following key issues were raised:

1. The national research fund that is provided for in NDP III and IV has not been implemented.
2. Training of innovators is a collaborative effort between institutions and industries.

SESSION THREE:

Adoption of Competence-Based Curricula and Innovative Pedagogical Reforms for the transformation of Higher Education

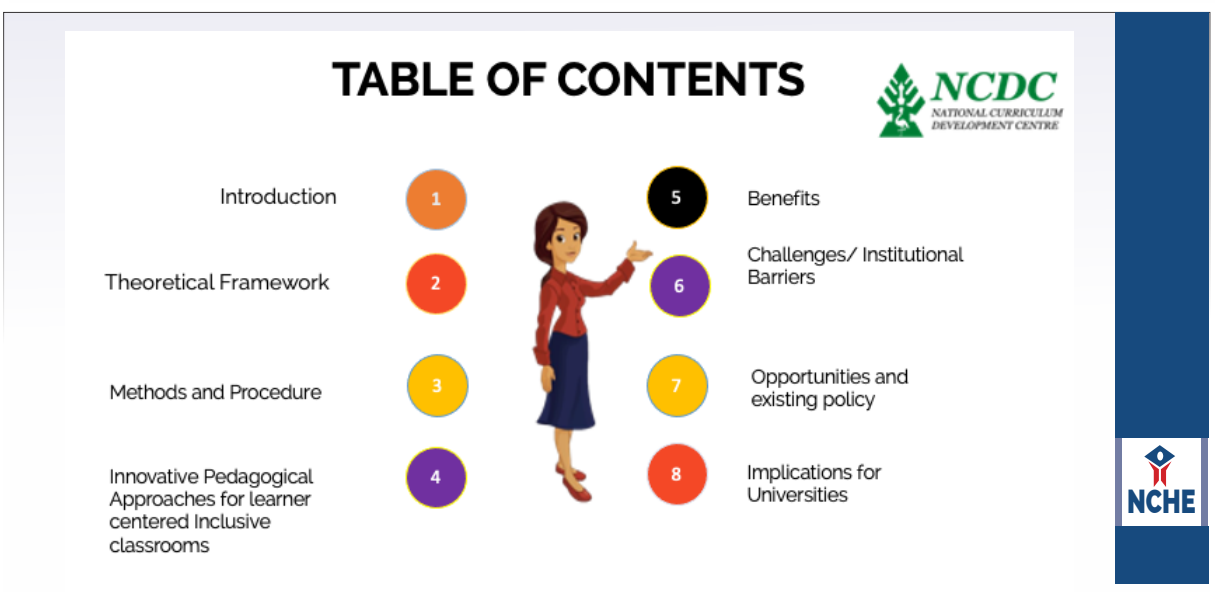
CHAIRPERSON:
Dr. Edward Obura Ag. Vice Chancellor All Saints University, Lango

Dr. Bernadette N. Karuhanga

Director, National Curriculum Development Centre

Presentation:

Innovative Pedagogical Approaches for Learner-Centered and Inclusive University Classrooms



INTRODUCTION

- Higher Education is rooted in acient civilization - Plato's Academy and Aristotle's Lyceum fostered philosophical and scientific inquiry, Middle East and Asia, centers of learning, such as the House of Wisdom in Baghdad (Bhardwaj et al, 2025).
- Since 2015, global higher education has transformed from Teacher Centered to the Student-Centered Instructional Model (Collins & Halverson, 2018).
- Led to a shift in how knowledge is conceived, conceptualized and delivered as well as the classroom structures.
- Emphasis is on embracing collaboration,fostering personalized learning,exploring alternative modes of instruction so as to produce competent professionals.

INTRODUCTION

- The shift towards learner-centered and inclusive education has become critical in higher education systems worldwide, driven by the global adoption of the Sustainable Development Goals (2030).
- Universities are characterised by diversity in student populations and capabilities (Gardner, 1986), autonomy, competition and cross border exchanges among others.
- increasing competition and changes in public demand – adoption of innovative methods of learning - competitive and relevant in the 21st century

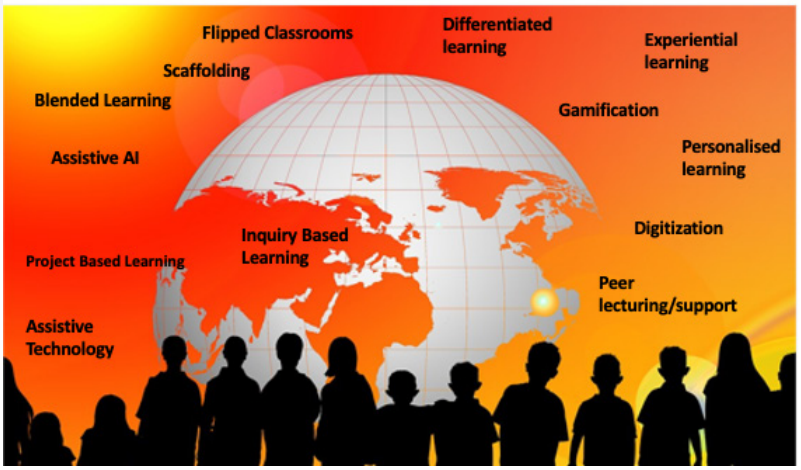
THEORETICAL FRAMEWORK

- The study adopted Jean Piaget (1954), Jerome Bruner (1966) and Lev Vygotsky's (1978) constructivist theory.
- The theory advocates for learners' ability to construct their own knowledge
- It relies on two models; the cognitive constructivism and social constructivism
- It assumes that learning is an active process, learners construct knowledge from their prior experiences, social interactions through guided discovery.
- Hence teachers should facilitate the process by providing real world context scenarios, scaffold learning and encourage inquiry-based exploration

METHODS AND PROCEDURE

- Descriptive documentary analysis design.
- Reviewed global and national literature related to innovative pedagogical approaches for learner centered and inclusive classrooms in higher education.
- Selection of the analysed documents based on: the internal and external consistency with the study, benefits of the data, and the dependability of the sources for ethical consideration, (Gall, Gall & Borg, 2003).

INNOVATIVE PEDAGOGICAL APPROACHES

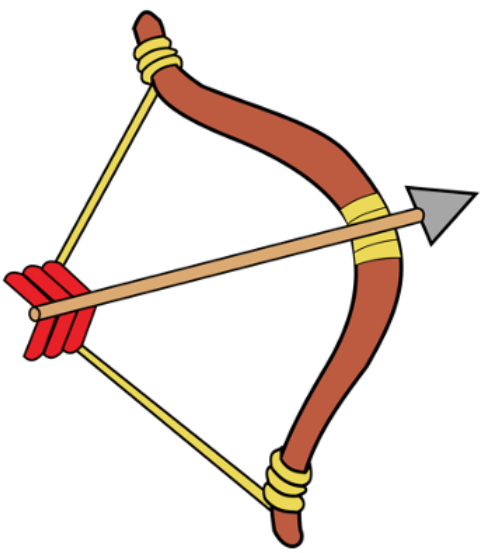


BENEFITS OF USING LEARNER CENTERED INCLUSIVE PEDAGOGIES

- Creates interactive dynamic learning that fosters knowledge sharing and builds supportive networks and relationships.
- Motivates students to feel connected to their peers and invested in one another's success
- Develops essential social and interpersonal skills, such as communication, teamwork, conflict resolution, and empathy
- Students become active contributors to the learning process – creativity, innovation, critical thinking and metacognition skills.
- Promotes self directed learning, individual research, individual projects, active participation

CHALLENGES

- Resistance from facilitators – mind set change,
- Digital divide,
- Limited instructor/lecturer readiness,
- Assessment modalities that are norm referenced – one size fits all,
- Resource constraints
- Misalignment in curricula and the labour market demands



Opportunities –For Uganda

- Digital Agenda - Equipping Educators with digital literacy
- Continuous Professional Development programs - UNITE
- Institutional Support – partnerships with industry - PPP
- Existing policy reforms: curriculum reforms, SDG4, TVET policy, NDPIV emphasis on HCD,

IMPLICATIONS…

- Adopt learner centered approaches that foster student autonomy, collaboration and self-directed learning;
- Emphasise Continuous Professional Development (CPDs)
- Institutional support – Leadership
- Policy reforms – review of curricula to integrate contemporary pedagogies
- Review assessment modalities to foster skills development
- Policies that facilitate easier transitions from education to employment, such as tax incentives for companies offering internships and apprenticeships
- investing in digital education and ensure equitable access to technology
- funding innovations and research in contemporary pedagogies

IMPLICATIONS…

- Need for a framework for higher education qualifications to ensure consistency across universities and programmes
- Awareness
- Continual adaptation, inclusivity, and innovation,
- Ensure a dynamic, stimulating and responsive learning environment
- Adopt quality assurance pedagogical relations
- Affirmative action for marginalised communities to address disparities in access to quality education

IMPLICATIONS…

- Promote interdisciplinarity and Integration of knowledge
- Emphasis on application, analysis, evaluation and creation
- Emphasis on classroom based/continuous assessment
- Extending the learning beyond the classroom (to community) for knowledge application in real world situations
- Promote experiential learning

CONCLUSION

- The increasing competition and changes in public demand require institutions of higher education to adopt innovative methods of learning if they are to remain competitive and relevant in the 21st century.
- Focus should be on use of pedagogies that promote differentiated, experiential and active learning

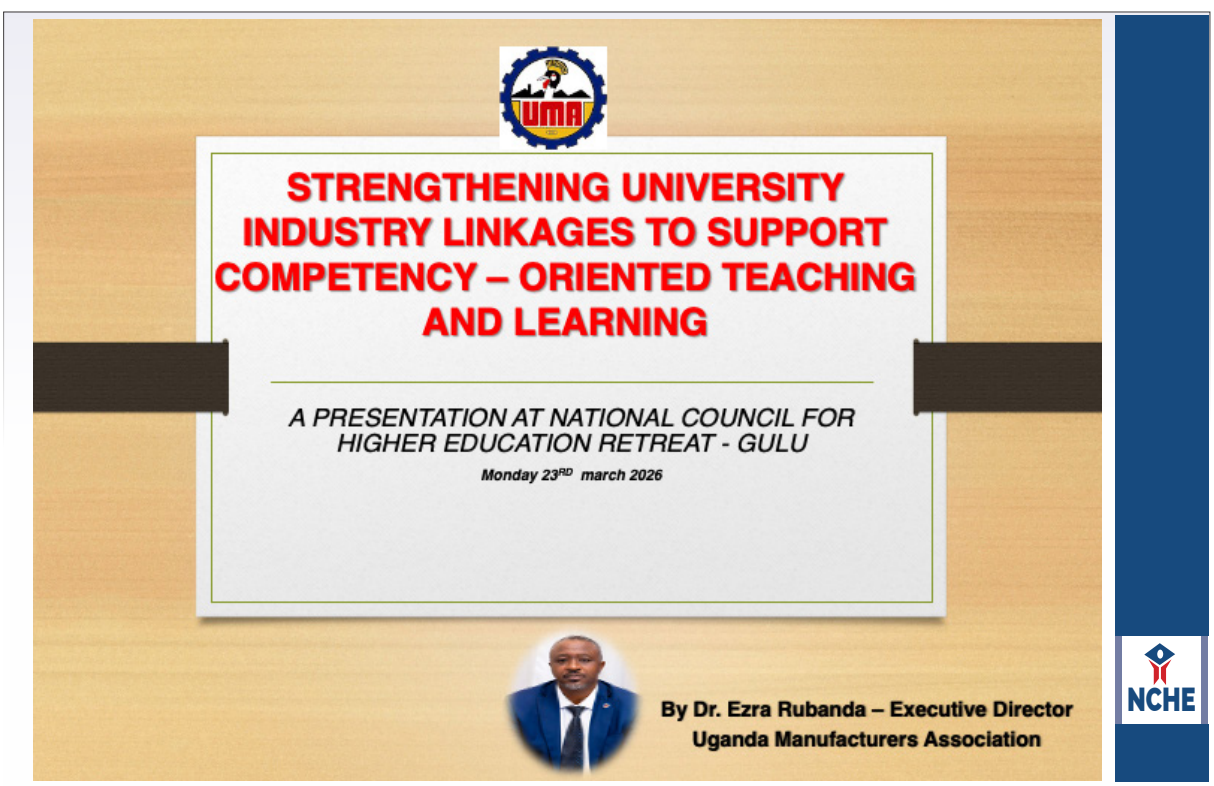
THANK YOU FOR LISTENING

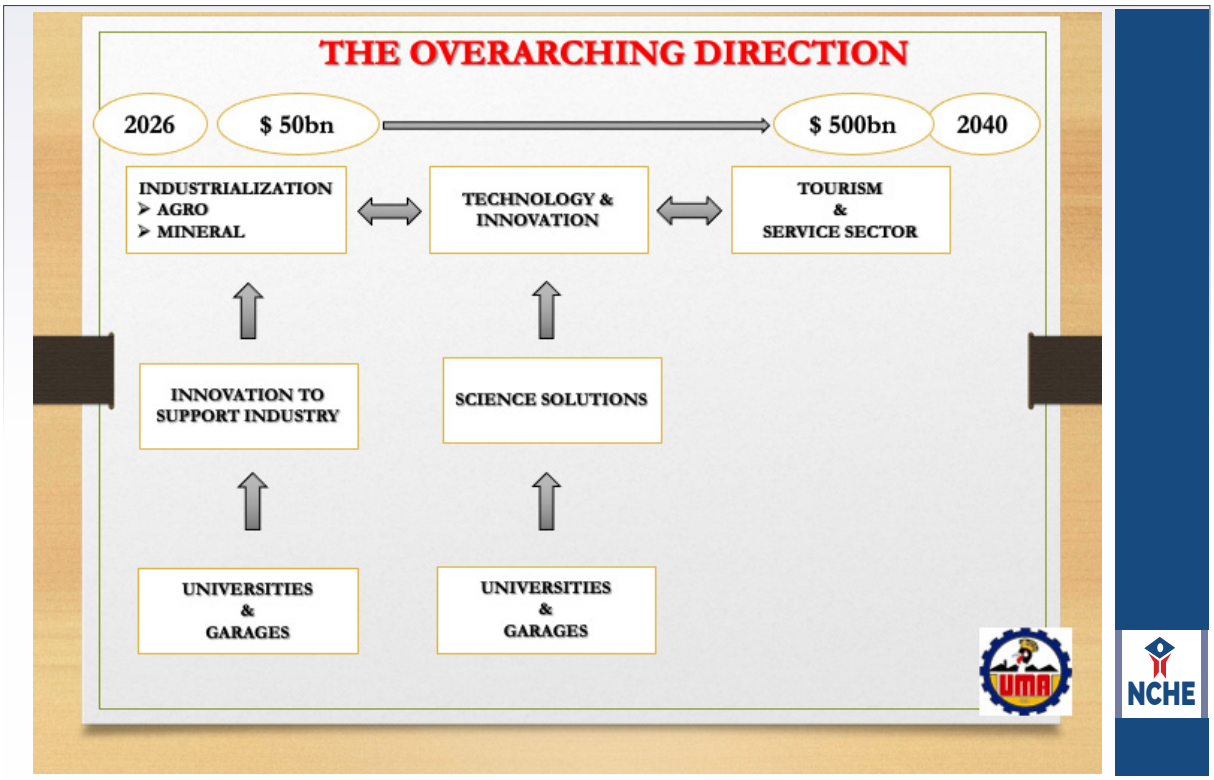
Dr. Ezra Muhumuza

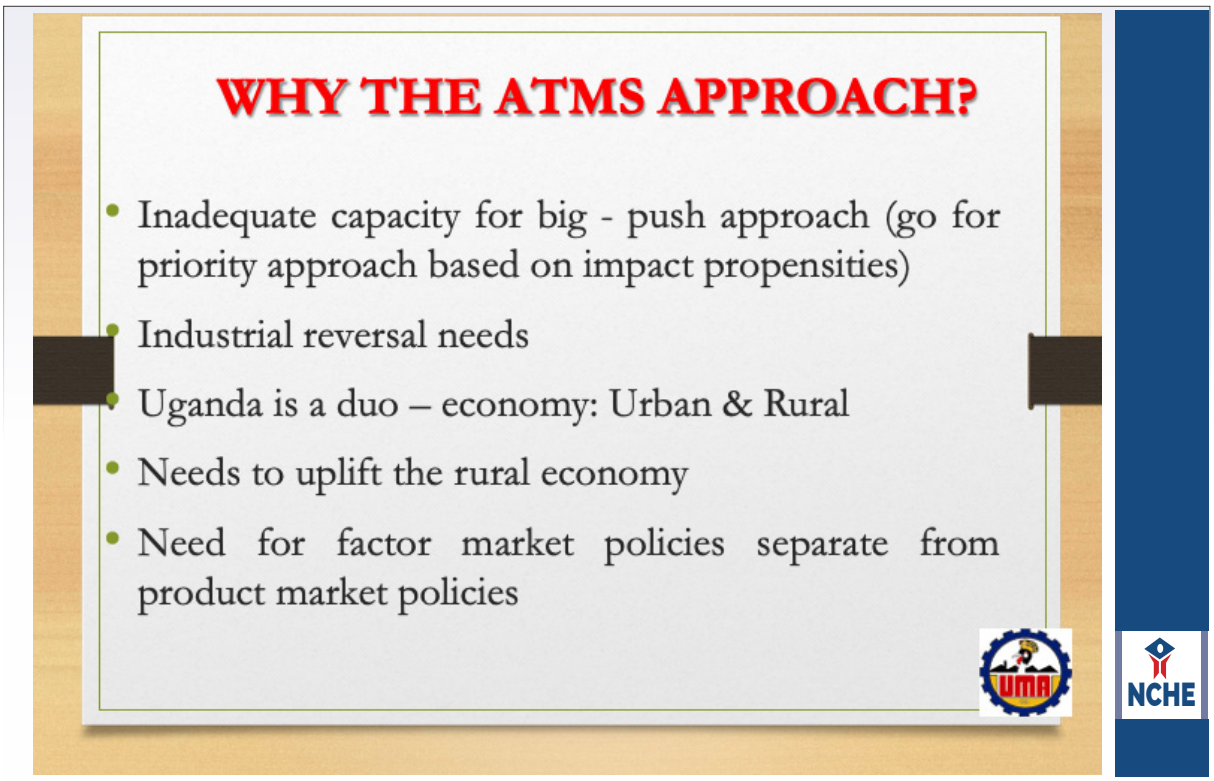
Executive Director Uganda Manufacturers Association

Presentation:

Strengthening University-Industry Linkages to Support Competency-Oriented Teaching and Learning




THE OVERARCHING DIRECTION
2026
$ 50bn
$ 500bn
2040
INDUSTRIALIZATION
➢ AGRO
➢ MINERAL
TECHNOLOGY & INNOVATION
TOURISM & SERVICE SECTOR
INNOVATION TO SUPPORT INDUSTRY
SCIENCE SOLUTIONS
UNIVERSITIES & GARAGES
UNIVERSITIES & GARAGES
UMA
NCHE


WHY THE ATMS APPROACH?
• Inadequate capacity for big - push approach (go for priority approach based on impact propensities)
• Industrial reversal needs
• Uganda is a duo – economy: Urban & Rural
• Needs to uplift the rural economy
• Need for factor market policies separate from product market policies
UMA
NCHE

INDUSTRY – UNIVERSITY LINKAGES

- Strategic direction synchrony
- Human capital skilling (supply side) – peer internship publication, tracking systems, incidental discoveries
- Demand side symmetries – sharing labor projections, labor stock taking
- Industry exit management
- Development and commercialization of innovations
- Research agenda (production of new knowledge)

WHY WEAK RELATIONSHIPS

- The universities have turned into money making rather than human capital development pillar
- Universities have become creators of job seekers rather than entrepreneurs
- Inferiority Syndrome for universities
- Industries have taken advantage of rampant unemployment (come to me)
- Over dependency on external solutions (labor experts, technology and innovations)
- The "*THEM*" Vs. "*US*" perceptions

SUGGESTIONS

- NCHE strengthens capturing of competence learning indicators
- Universities allocate budgets for industrial liaisons (15% - 20% of operations budget)
- Rethinking garage university relationship has to be informed
- Industry – universities annual dialogues
- Creating an industrial generation (Industrial education Pavilion)
- Provide informal labor solutions as armies for your graduates

INDUSTRY'S CURRENT DIRECTION

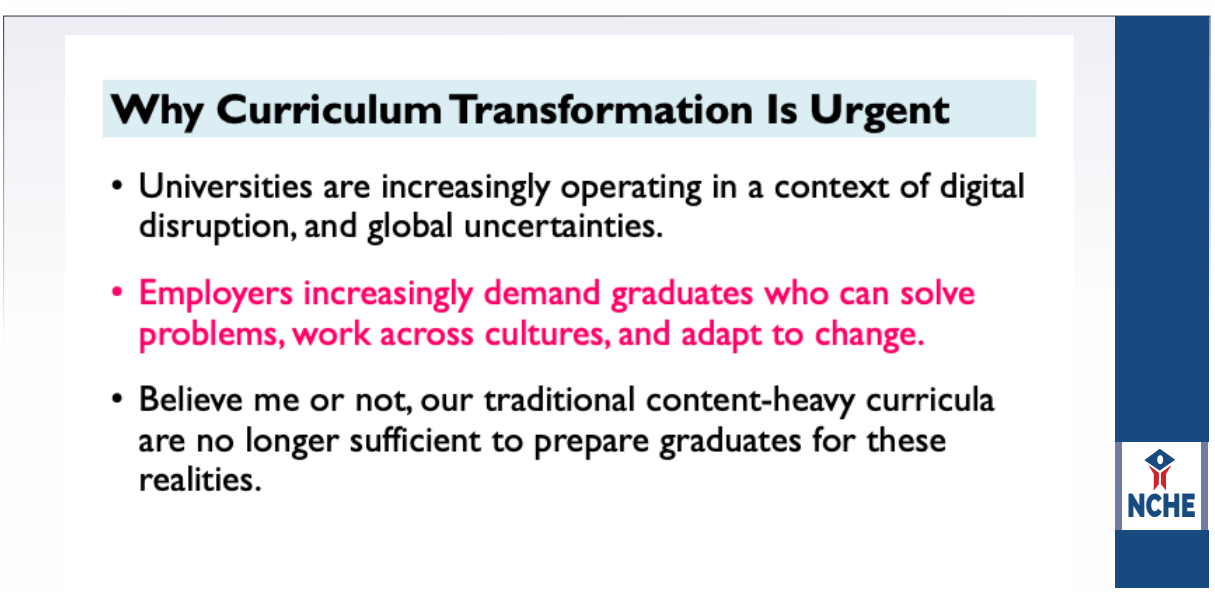
RURAL INDUSTRIALIZATION	UNIVERSITY ROLE
Value addition industries Aggregation centers Agglomerations	Creation of SAATs Coordination apparatus, testing kits Synchronized services, input – out put models
PETROCHEMICAL	
Textile Construction Packaging Fertilizers plastics	Innovations and Blended products
MINERAL BENEFICIATION Open cast Tertiary industries	Leveraging of wastes Mineral detection tools

"Universities is about why, industry is about how",
Kindly Think!!!

Prof. Jacob Godfrey Agea
Deputy Vice Chancellor, Muni University

Presentation:

Integrating Competence-Based Curricula and Innovative Pedagogies to Equip Graduates for Sustainability and Global Engagement



What Is Competence-Based Education (CBE)?

- Competence-Based Education focuses on what learners can demonstrably do with what they know.
- It integrates knowledge, practical skills, values, and professional attitudes.
- Progression and success are judged through performance and application, not time spent in class.

With CBC, We are Talking About a Shift From Knowledge Acquisition to Capability Dev't

- Because traditional curricula emphasize memorization (cramming) and hectic pressurised examinations.
- CBE emphasizes application, reflection, and real-world problem solving.
- Graduates emerge not just informed, but capable and confident.

What Then are the Core Competences for Future-Ready Graduates

1. Critical and systems thinking for complex sustainability challenges.
   - *Systems thinking ('Big Picture')- Views problems as part of a wider, interconnected system (e.g., ecosystems) where parts work together, allowing for the identification of leverage points for change.*
   - *Critical thinking ('Analytical Lens')- Rigorously evaluates assumptions, power dynamics, and evidence, questioning established norms to avoid superficial solutions that merely mask deeper issues.*

What Then are the Core Competences for Future-Ready Graduates…

2. Digital, data literacy, and communication skills for modern workplaces.
   - *Moving beyond basic digital literacy to actively using and managing for instance AI tools, and cloud computing.*
   - *The ability to synthesize and interpret data from multiple sources to make informed, evidence-based decisions.*
3. Ethical leadership, teamwork, and civic responsibility.

Sustainability as a Graduate Attribute

- Graduates must understand environmental limits, social equity, and economic resilience.
- Sustainability competence enables responsible decision-making at personal, professional, and policy levels.
- Universities therefore, play a central role in shaping sustainability mindsets of the graduates.

Global Engagement in Higher Education

- Global engagement develops intercultural competence and global citizenship.
- It prepares graduates to work effectively in diverse and international contexts.
- Global engagement can occur physically (e.g., student exchanges) or virtually through collaborative learning (via digital platforms, podcasts, and blogs).

Why Traditional Pedagogy Falls Short

- Lecture-dominated teaching limits student participation and creativity.
- Assessment often measures recall rather than applied competence.
- Students struggle to connect theory with real societal challenges.

Why Then Innovative Pedagogies?

- Innovative pedagogies place learners at the center of the learning process.
- They emphasize active engagement, collaboration, and reflection.
- Learning is connected to real-world challenges and contexts.

Experiential and Problem-Based Learning Pedagogy

- Students learn by working on authentic problems drawn from society or industry.
- Theory and practice are intentionally integrated.
- Learning outcomes include both technical competence and soft skills.

Interdisciplinary Learning Pedagogy for Sustainability

- Sustainability challenges cannot be solved within single disciplines.
- Interdisciplinary learning pedagogy integrates perspectives from science, social science, and humanities.
- Here community and indigenous knowledge systems enrich academic learning.

Digital Pedagogy and Global Classrooms

- Blended and online learning expand access and flexibility.
- Virtual exchange enables global collaboration without physical mobility.
- Digital tools support personalized and inclusive learning.

How Then Do We Embed Sustainability Across the Curriculum

- Sustainability should be mainstreamed across all programs, not confined to single courses.
- Curriculum mapping should be done to align learning outcomes with sustainability competences.
- Curriculum should include capstone projects to allow students to address real sustainability challenges.

Assessment in Competence-Based Curricula

- Assessment should focus on authentic tasks and real-world performance.
- Portfolios (curated collections of learners work, achievements, skills), projects, and presentations must replace rote examinations.
- Continuous feedback supports learning and improvement.

The Changing Role of Academic Staff

Under CBC:

- Lecturers become facilitators, mentors, and learning designers.
- Academic staff guide inquiry rather than transmit content.
- Continuous professional development is essential.

Institutional Enablers of Curriculum Innovation

Under CBC:

- Leadership commitment and supportive policy frameworks are critical.
- We need to invest in digital infrastructure to enable innovative pedagogy.
- Our institutional quality assurance systems must align too with competence-based approaches.

Partnerships for Relevance and Impact

Under CBC dispensation:

- We need industry partnerships to ensure labor-market relevance of our graduate.
- We need continuous community engagement to grounds learning in local realities.
- We also need relevant international partnerships to enhance global exposure of our learners.

How Do We Measure Impact and Quality under CBC

- Periodically conduct graduate tracer studies to assess employability and relevance of our learners.
- Gracefully receive employer and community feedback to inform curriculum improvement.
- Conduct evidence-based reviews to ensure continuous enhancement the curriculum.

Strategic Pathways for Universities

- Start with pilot innovative pedagogy models and scale successful models.
- Invest in staff capacity and learning infrastructure.
- Strengthen the research–teaching–industry–community nexus.

A Call to Action

- Competence-based curricula are essential for sustainability and global engagement.
- There is no doubt that innovative pedagogies transform learning into societal impact.
- Universities must therefore lead the transition from knowledge transmission to transformation by employing innovative pedagogies.

Ms. Giovanna Lawino
Researcher, MUBS

Presentation:

Pedagogical Reforms and Adoption Readiness of Competence- Based Curriculum: The Moderating role of Supportive Resources among Public Universities in Northern Uganda

Presentation Outline

- Background to the Study
- Statement of Problem
- Purpose of the study
- Objectives of the study
- Theoretical Underpinning
- Methodology
- Results
- Conclusion, Recommendations, & Implications

Background to the Study

- Education systems globally are undergoing significant transformation to meet the demands of the 21st century, characterized by rapid technological advancement, dynamic labour market needs, and the growing emphasis on competence-based learning (Zou et al., 2025).
- However, several studies suggest that public universities in Uganda face challenges in aligning their pedagogical practices with the CBC framework, resulting in varying degrees of adoption readiness among institutions and faculty members as only a few public universities have trained facilitators on CBC implementation across limited faculties (Owuor, 2022; Kasozi, 2021). Adoption readiness refers to the extent to which an institution is prepared and willing to implement a new curriculum or innovation effectively.

B/g Cont'd

- Universities with adequate resources are more likely to implement innovative teaching methods and align with CBC principles. According to MacLellan (2019), northern Uganda presents a unique context due to its history of educational disruption, resource limitations and ongoing recovery efforts, as well, adoption readiness of CBC is still very low among public Universities in northern Uganda with only a few facilitators trained in the employment of the competence-based curriculum.

Statement of Problem

The move from content based curriculum to competence based curriculum was an attempt to improve quality of education by enabling learners to develop the required competences relevant in different spheres of life (Komba & Mwandaji, 2016).). In July 2025, the Minister of Education and Sports, Janet K. Museveni, issued a directive emphasizing the urgency of this transition mandated to begin with the academic year 2027/2028 in Public Universities.

Statement of the problem contin...

however adoption readiness is still very low among the public Universities in northern Uganda with only a few facilitators trained in the employment of the competence based curriculum (Kitasse & Ssembatya, 2024). This state is worrying because universities are left with only two academic years to admit the first cohort of the students from A level under the new secondary curriculum and might risk failing our young generation to attain the competencies for the 21st century for which the CBC was majorly introduced therefore the study seeks to examine whether this low adoption readiness could be attributed to lack of pedagogical innovativeness strengthened by resource constraints

Purpose of the Study

- The purpose of this study is to examine the effect of Pedagogical Reforms on adoption Readiness of Competence- Based Curriculum while considerating the Moderating role of Supportive Resources among Public Universities in Northern Uganda.

Objectives of the Study

- To examine the relationship between pedagogical reforms and Adoption readiness of the competence-based curriculum among Public Universities in Northern Uganda.
- To establish the level of supportive resources among public universities in Northern Uganda
- To determine the moderating effect of supportive resources on the relationship between pedagogical reforms and adoption readiness of the competence-based curriculum among public Universities in Northern Uganda.

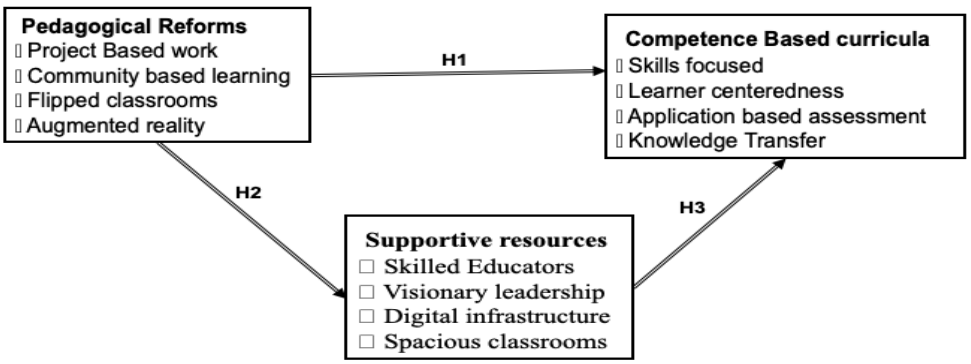
Research Hypotheses

H1: *There is a positive and significant relationship between* pedagogical reforms and Adoption readiness of the competence-based curriculum among Public Universities in Northern Uganda.

H2: *Supportive resources has a positive association with adoption readiness in public universities in northern Uganda.*

H3: *The* moderating effect of supportive resources has a positive effect on the relationship between pedagogical reforms and adoption readiness of the competence-based curriculum among public Universities in Northern Uganda.

The Conceptual Framework



Theoretical Framework

Theory	Author	Year	Gist of the theory	Relevancy	
Diffusion of innovation theory 2003.	Roger	2003	The process by which an innovation is communicated through certain channels over time among the members of a social system.	Innovation, Communication channels, time, social system.	

Methodology

- We used a cross-sectional research design.
- The target population are the three public universities in Northern Uganda, namely Gulu University, Lira University and Muni University.
- The unit of inquiry, however, comprises the individual staff members within these institutions, specifically top management, Heads of Departments and academic staff.

Methodology Cont'd

- Data was collected using a five-point Likert scale questionnaire.
- This study adopted a three-stage analysis process. That is descriptive, correlation and regression analysis were performed.

Results Cont'd

Pearson correlation coefficients

Variables	Pedagogical reforms	Supportive resources (moderator)	Adoption readiness
Pedagogical reforms	1.000		
Supportive resources (moderator)	.497**	1.000	
Adoption readiness	.236**	.331**	1.000

***. Correlation is significant at the 0.01 level (2-tailed).*

Results

Regression analysis

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.494	.114		21.830	.000
Pedagogical reforms	.044	.032	.095	1.354	.177
Supportive resources (moderator)	.181	.044	.284	4.067	.000
R Square = .117, Adjusted R Square = .109, Stdr error=.17454 , Sig.= .000					

Results Cont'd

Decisions on the hypotheses

Label	Hypothesis	P-Value	Decision
H1	*There is a positive and significant relationship between* pedagogical reforms and Adoption readiness of the competence-based curriculum among Public Universities in Northern Uganda.	β = .095, P = .177 (P >.05)	Not Supported
H2	*Supportive resources have a positive association with adoption readiness in public universities in northern Uganda.*	β = .284, P = .000 (P < .05)	Supported
H3	*The* moderating effect of supportive resources has a positive effect on the relationship between pedagogical reforms and adoption readiness of the competence-based curriculum among	R Square = .117, Adjusted R Square = .109, Sig.= .000	Supported

Conclusion and Recommendations

- In a nutshell, operationalizing pedagogical reforms and employing supportiv resources strengthens the readiness towards adoption of the competence-base curriculum.
- It is recommended that universities ought to institutionalize these reforms throug departmental teaching policies, National council for Higher education should organiz national symposia, training workshops, and benchmarking tours for lecturers an administrators across public universities. Ministry of education and sports shoul increase funding allocations for CBC implementation, MOEs should expand teache education reforms to integrate competence-based pedagogical skills.

Implications of the study

- This study will generate empirical data that can be used as a benchmark for future investigations on curriculum reform, institutional readiness and resource adequacy in higher education.
- For university leaders and curriculum planners, the study will highlight which pedagogical reforms that strongly influence CBC adoption readiness .
- By identifying the moderating effect of supportive resources, the study will guide MOEs in designing strategies and allocating resources that enhance CBC implementation at the tertiary level.

Limitations of the study

- A cross-sectional approach was undertaken- this prohibits studying the sequential aspects of the issue.
- The standardized questionnaire used limits respondents' ideas. A qualitative study with in-depth interviews could have given more insights.

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End of Presentation

Thank You

Contributions are most welcome!!

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SESSION FOUR:

Transformative Research and Innovation in STEM for National Research and Development

CHAIRPERSON:
Prof George Ladaah Openjuru, Vice Chancellor Gulu University

Prof. Simon Anguma Katrini
Vice Chancellor Muni University

Presentation:

Harnessing STEM Research for Climate Resilience and Sustainable Development in Uganda

MUNI UNIVERSITY

NCHE National Council for Higher Education
Ensuring Quality for Excellence

Harnessing STEM Research for Climate Resilience and Sustainable Development in Uganda

The 7th Annual Higher Education Conference, 23rd – 24th March, 2026
Acholi Inn Hotel, Gulu City, Northern Uganda

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Background & Context

Uganda's dev't is highly dependent on climate-sensitive natural resources.

This makes the country vulnerable to increasing climate shocks such as floods, droughts, & heat stress.

These challenges underscore the urgent need for science-driven, innovative solutions to enhance resilience & support sustainable dev't.

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Climate Change Challenges in Uganda

- Reduced crop yields & livestock losses due to climate variability.
- Increasing droughts & floods disrupt water availability & infrastructure.
- Rising climate-sensitive diseases & degradation of fragile ecosystems
- Climate shocks undermine incomes, food security, & economic growth.

What is STEM?

- Science, Technology, Engineering, & Mathematics.
- Foundation for innovation & evidence-based decision-making.
- Driver of sustainable dev't solutions.

Why STEM Matters for Climate Resilience

- Advanced climate models & prediction improve forecasting of extreme weather events.
- Innovative STEM technologies enhance resilience & adaptations in agriculture, energy, & infrastructure.
- Real-time data supports proactive planning , decision-making & disaster preparedness (early warning systems).

Policy & Dev't Frameworks for STEM Research in Climate Resilience & Sustainable Dev't

- Uganda Vision 2040 emphasizes science-led industrialization.
- NDP IV mainstreams climate adaptation & innovation across priority sectors
- SDGs advances climate action, food security, clean energy, & ecosystems.

STEM in Climate-Smart Agriculture

- Dev't of resilient, high-yielding, climate-tolerant crops & livestock breeds.
- Use of data, sensors, & analytics optimizes inputs & sustain soil health (precision agriculture)
- Dev't of climate-smart irrigation technologies to cope with climate variability.

STEM & Natural Resource Management

- GIS spatial data & remote sensing supports evidence-based planning & zoning for sustainable land mgt.
- Digital tools makes it easy to track deforestation, guide reforestation, & improve forest governance.
- Biodiversity digital monitoring technologies support species protection & ecosystem mgt strategies.

STEM in Water & Disaster Risk Management

- Digital tools for easy prediction of flood risks & timely preparedness & response actions.
- Water quality monitoring technologies (sensors & analytics) ensure safe water & detect contamination early.
- Climate-resilient engineering designs & infrastructure reduces damage to roads, bridges, & settlements

STEM in Renewable Energy & Green Technologies

- Solar, biogas, & small hydropower innovations expands clean, reliable energy access for communities & enterprises.
- Energy-efficient technologies reduce energy consumption, costs, & emissions across sectors.
- STEM technologies have reduced reliance on biomass fuels thereby lowering deforestation, indoor air pollution, & climate impacts.

STEM Research in Health & Climate

- Climate-sensitive disease surveillance systems track malaria, cholera, & emerging climate-related diseases.
- Heat stress & public health innovations/technologies reduce heat-related illness & improve community health resilience.
- Env'tal health monitoring tools assesses air, water, & sanitation risks affecting public health.

STEM & Indigenous Knowledge (IK) in Climate Resilience & Dev't

- Integration of IK in STEM ensures insightful and effective resilience systems & dev't.
- Integration of IK in STEM promotes community ownership & long-term sustainability of STEM technologies.
- Integration of IK in STEM leads design of interventions that are tailored to local env'ts, cultures, & needs.

Gender & Youth in STEM for Climate Action

- Empower women and youth innovators to strengthen their participation in climate solutions.
- Strive for inclusive STEM education to build skills & capacity for diverse climate-resilient innovations.
- Expand green jobs & entrepreneurship to create sustainable livelihoods & drive low-carbon economic growth.

STEM Research in Technology Transfer & Innovation Systems

- It translates scientific findings into actionable policies & community solutions.
- It supports innovation, prototype dev't, & commercialization of STEM technologies.
- It fosters public–private partnerships/collaboration, scale solutions, and mobilizes resources for climate resilience.

Financing STEM Research for Climate Resilience

- Government & donor funding to support STEM research & innovation initiatives.
- International climate funds e.g., Green Climate Fund (GCF), Adaptation Fund, Global Env't Facility (GEF).
- Targeted grants & competitive research funding for projects with clear climate resilience outcomes.

Financing STEM Research for Climate Resilience…..

- PPP to pilot innovations & commercialization of climate-smart technologies.
- Blended finance mechanisms combining concessional funds, grants, & commercial investment to scale innovations.
- Capacity-building investments (scholarships, research infrastructure & technology transfer programs) to strengthen local STEM expertise.

Challenges Limiting STEM Research Impact for Climate Resilience & Sustainable Dev't

- Limited funding & infrastructure constrains research capacity, technology deployment, & innovation scaling.
- Weak research–policy linkages reduces the impact of scientific findings on decision-making.
- Skills gaps & brain drain limits availability of trained STEM professionals for climate resilience solutions.

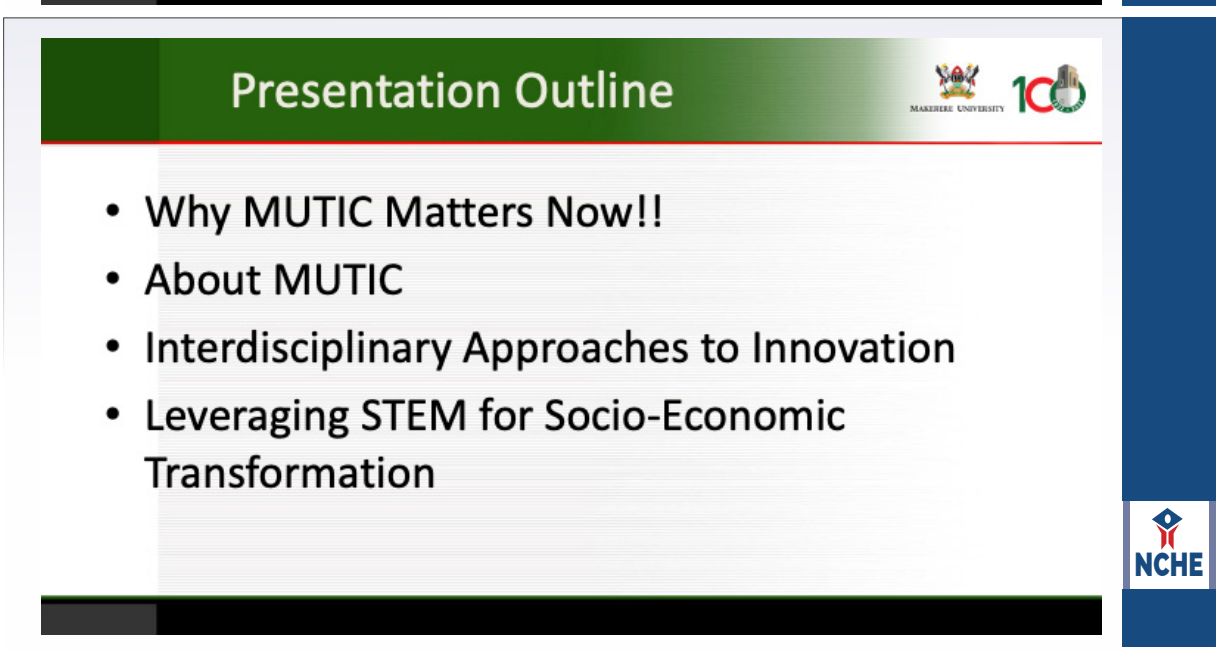
Way Forward

- Mainstream STEM research in climate policy & planning- Integrate STEM research into national & local climate strategies.
- Support innovation ecosystems- Foster hubs, networks, & institutions that drive STEM's technology dev't & adoption.
- Scale up successful pilot STEM technologies- Expand proven STEM solutions to broader communities & sectors for greater impact.

Prof. Winston Tumps Ireeta
Board Chairman, Makerere University Technology and Innovation Centre (MUTIC)

Presentation:

Interdisciplinary Approaches to Innovation: Leveraging STEM for Socio-Economic Transformation



Why Innovation Platforms Matter for African Universities

- Universities Produce Research but **few Innovations reach Industry**
- Unemployment remains high
- Weak Commercialization Systems in many African Institutions
- Limited collaboration between academia, industry, and government

MUTIC was Created to Bridge this Gap

About MUTIC

- Makerere University Technology and Innovations Center (MUTIC)
- State-of-the-art-Multidisciplinary Innovation pod
- Established in August 2022 and formalized as a company limited by guarantee in 2025
- **Platform to Provide Support Mechanisms for Commercialization of Innovations Towards Sustainable Industrialization**

MUTIC's Mandate

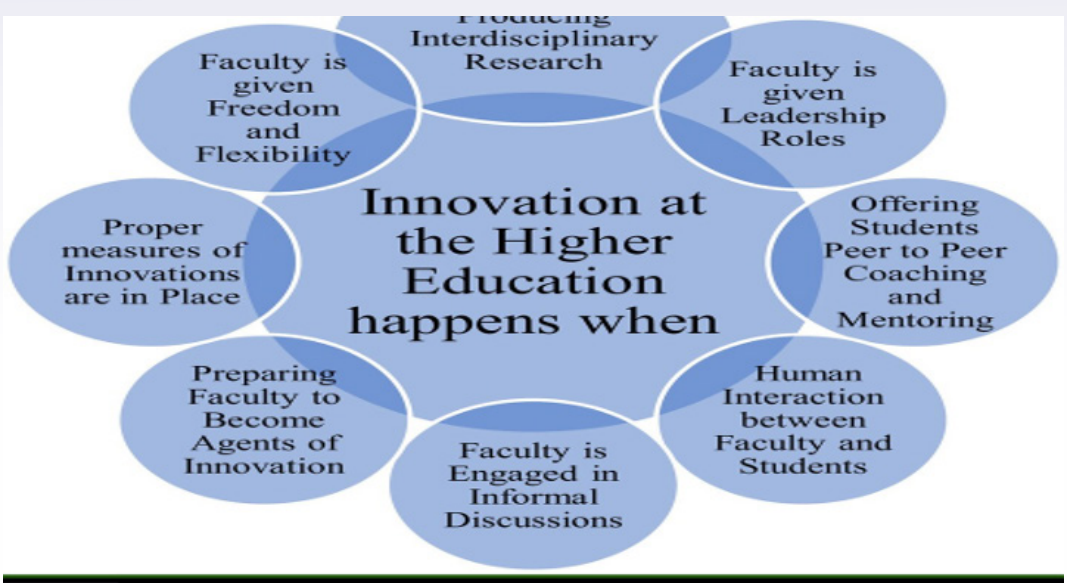
1) To promote innovation within all units of the University and among the University's stakeholders and the community
2) To provide framework and procedures for guiding and supporting innovation at Makerere University
3) To foster a coordinated innovation culture among students, faculty and staff.
4) To provide guidance on innovation mentoring and benchmarking with international best practices.
5) To facilitate strong links between the University and her stakeholders particularly industry and government
6) To facilitate the Protection of Intellectual Property arising from research by staff and students as well as the University's stakeholders who partner with the University for purposes of innovation.
7) To facilitate the incubation and commercialization of goods and services arising out of innovation by students, staff and University's partners
8) To facilitate the registration of companies and businesses arising out of innovations by students, staff and partners.

MUTIC Innovation Pipeline

- **Idea generation**
  - Student and faculty research
- **Prototyping**
  - Innovation labs and maker spaces
- **Incubation**
  - Mentorship, design thinking, testing
- **Intellectual Property Protection**
  - Patent filing and licensing
- **Commercialization**
  - Startup creation / industry partnerships

Interdisciplinary approaches to Innovation

- Involve Breaking Down Traditional, Siloed Disciplinary Boundaries
- Combine Knowledge, Methodologies, and Perspectives from Multiple Fields
- Driven by the need to Address Complex, real-world Problems—such as Climate Change, Sustainability, and Technological Advancement—that cannot be solved within a single discipline



Innovations Supported by MUTIC

- AI-driven Health Diagnostics
- Agricultural Technology Solutions
- Renewable Energy Prototypes
- Digital Education Tools
- Smart Manufacturing Concepts

Early Impacts of MUTIC

- 52+ Innovation Labs at Makerere University
- 120 Innovations Incubated
- 300 Student Innovators Supported
- 4 Industry Partnerships
- 20 Startups Emerging from University Research

Leveraging STEM for Socio-Economic Transformation

Pedagogical innovation	•Design Thinking •Problem Based Learning •Interdisciplinary team teaching •Buildbase degrees
Institutional and structural aspects	• Labs and innovation centers: 52+ at Mak •Interdisciplinary research centers. MUTIC is the largest with 10 spaces •Academic entrepreneurship: KMC+ MUTIC industry model
Drivers	•Digital transformation •Industry Partnerships •Appropriate Infrastrcature

Industry Collaboration Model

- Kiira Motors Corporation
- Manufacturing Sector Partners
- Technology Startups
- Government Innovation Programs
- International Research Networks

Challenges and Lessons Learned

Challenges

- Limited Commercialization Funding
- Weak Patent Culture in Academia
- Need for Stronger Industry Engagement
- Scaling Prototypes to Market

Lessons

- Innovation must be Interdisciplinary
- Universities must Support Entrepreneurship
- Partnerships are Essential.

Future Direction of MUTIC

- Expand Innovation Incubation Programs
- Strengthen University–Industry Collaboration
- Support Student-led Startups
- Position Makerere University as **East Africa's Innovation Hub**

MUTIC Vision

Transforming Makerere University into a Leading Innovation Engine for Africa by Translating STEM Research into Real Solutions for Society

"Research Must not Remain in Laboratories, it Must Transform Lives"

We build the future

Thank you for Listening!

Dr. Harriet Ayiorwoth
Researcher, UMI

Presentation:

Challenges and Prospects of Academic-Practitioner Knowledge-Sharing: Insights from Uganda Management Institute

Challenges and Prospects of Academic-Practitioner Knowledge-Sharing: Insights from Uganda Management Institute

Harriet Ayiorwoth

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Department of Political and Administrative Sciences, School of Management Sciences

Uganda Management Institute

&

David Onen

Email: donenotoo@gmail.com

C/o East African School of Higher Education Studies and Development

College of Education and External Studies, Makerere University

A Paper Presented at the 7th Annual NCHE Conference on "Harnessing Innovations in Higher Education for Accelerated Economic Transformation", held on 23rd -24th March 2026 in Acholi Inn, Gulu

Presentation Outline

- **Introduction**
  - ➢Background,
  - ➢Study context,
  - ➢Statement of the Problem
  - ➢Research objectives and questions)
- **Methodology**
- **Findings**
- **Discussions**
- **Conclusions and Recommendations**

Background of the Study

- Importance of Collaboration
  - ➢Critical for national innovation & economic development (e.g. Morrison & Pattinson, 2020)
  - ➢Drives: (1) New knowledge creation, (2) Product and service innovation, (3) Innovative pedagogies, and (4) Enhanced research relevance.
- Existing Gaps
  - ➢Weak collaboration linkages, especially in emerging economies.
  - ➢Evident in Sub-Saharan Africa (SSA) (Outamha & Belhcen, 2020).
- Key Challenges
  - ➢Resource constraints.
  - ➢Structural and institutional bottlenecks.
  - ➢Limited coordination mechanisms.
  - ➢Emerging Opportunities
  - ➢Structural and policy reforms.
  - ➢Better configuration of national & institutional resources.
  - ➢Strengthening partnerships between academia and practitioners.

Study Context: Why UMI?

- Institutional Status
  - ➢National HEI for management training, consultancy & research in Uganda.
- Mission Focus
  - ➢Develop practical managerial and leadership capacity.
- Experience
  - ➢Over 50 years of engagement with practitioners.
- Collaborative Practices
  - ➢Experience-sharing during class sessions.
  - ➢Joint curriculum development.
  - ➢Public dialogues and stakeholder engagements→ Reflect recognition of practitioners as co-producers of knowledge.
- Relevance to Study
  - ➢These characteristics make UMI an ideal context for examining knowledge-sharing challenges and prospects.

Statement of the Problem

- Global perspective:
  - ➢There has been extensive research on knowledge-sharing & collaboration (e.g., O'Dwyer et al., 2023; Kleiner-Schaefer & Schaefer, 2022).
  - ➢Mainly focused on developed countries, with limited consideration of developing country contexts.
- Ugandan context:
  - ➢Few studies available (e.g., Eritu et al., 2026; Kitagaana, 2021).
  - ➢However, these have been limited in scope and applicability, e.g., Eritu et al. (2026) focus on manufacturing firms, while Kitagaana (2021) focuses on faculty perceptions only.
- Contextual gap:
  - ➢HEIs (including UMI) are expected to: (1) generate knowledge, (2) share knowledge with practitioners, and (3) support national development.
  - ➢However, there is limited evidence on knowledge-sharing challenges & prospects at UMI
- Thus, existing contextual and knowledge gaps necessitate this study!

Research Objectives and Questions

➢Main objective:

➢ To explore the challenges and prospects of academic-practitioner knowledge sharing at UMI.

➢Specific objectives:

1. To examine the challenges of academic-practitioner knowledge-sharing at UMI.
2. To explore the prospects of such knowledge-sharing at the Institute.

➢Research Questions:

1. What are the challenges of academic-practitioner knowledge-sharing at UMI?
2. What are the prospects of such knowledge-sharing at the Institute?

Study Methodology

Research Approach & Study Design
- Qualitative
- Single Case Study

Population & Sampling
- 12 academic staff purposively selected,
- 14 practitioners selected through snowball

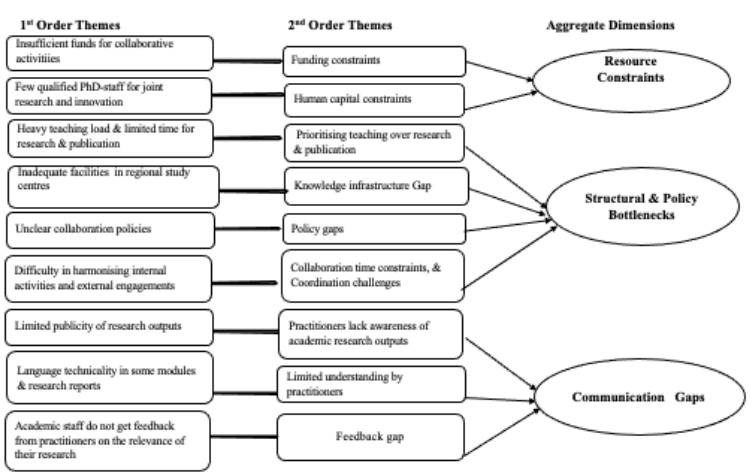
Data Collection Methods and Instruments
- Semi-structured interviews using interview guides

Quality Control
- Member checking
- Researcher Reflexivity

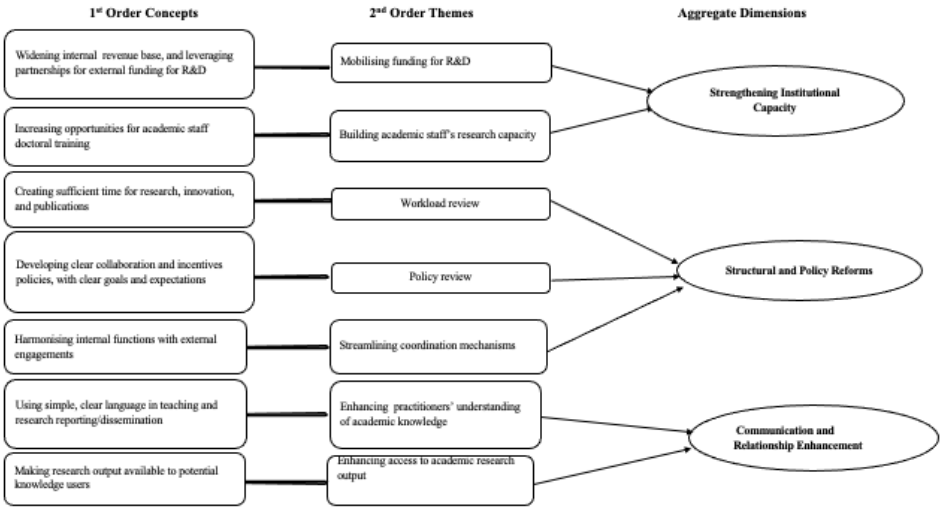
Data Analysis
- Thematic analysis using Gioia et al's (2013) methodology

Ethical Considerations
- Informed Consent
- Anonymity
- Confidentiality
- Safety of life

Key Findings on the KS Challenges at UMI



Key Findings on the KS Prospects at UMI



Discussion

CHALLENGES	PROSPECTS
Systemic Constraints	**Policy & Structural Reforms**
• Resource & funding gaps	• Clear collaboration policies
• Structural bottlenecks	• Incentives for collaboration
• Communication gaps (Adegbile et al., 2021)	• Better coordination mechanisms
Funding & Capacity Gaps	**Capacity Building**
• Underfunded joint R&D	• Doctoral training (PhDs)
• Few PhD-qualified staff	• Research capacity strengthening
Weak research output	• Quality assurance (NCHE)
Structural Limitations	**Institutional Support**
• No clear policies	• Strategic leadership support
• Weak incentives	• Formalized partnerships
• Informal engagements	• Communities of Practice (CoP)
Workload Constraints	**Workload & Engagement Reforms**
• Heavy teaching loads	• Adjusted workloads
• Limited engagement time	• Time for collaboration
• Practitioner time limits	• Flexible engagement models

Conclusion & Recommendations

- **Conclusion:**

➢ Systemic, funding, structural, and workload limitations constrain current research and collaboration efforts. However, emerging policies, capacity-building initiatives, institutional support, and workload reforms provide strong avenues to enhance research output, collaboration, and impact.

- **Recommendations:**

1. Policy & Structural Actions – Implement clear collaboration policies, incentives, and coordination mechanisms.
2. Capacity Development – Invest in PhD training, research capacity strengthening, and quality assurance systems.
3. Institutional Support – Promote formal partnerships, strategic leadership backing, and Communities of Practice.
4. Workload Optimization – Adjust teaching loads, allocate dedicated collaboration time, and introduce flexible engagement models.

THANK YOU

DAY ONE: 24TH MARCH 2026

SESSION ONE:
CONFERENCE OPENING

Master of Ceremony:
Dr. Nora Mulira, Director IRI & Mr. Arthur Babu Muguzi, Director FPA, NCHE

KEYNOTE SPEAKER

Mr. Stephen Asiimwe

Chief Executive Officer,
Private Sector Foundation of Uganda

Presentations:

Transforming Higher Education through Competence-Based Learning, Innovation Ecosystems, and Strong University-Industry Partnerships

The keynote presentation on *"Transforming Higher Education through Competence-Based Learning, Innovation Ecosystems, and Strong University–Industry Partnerships"* was delivered virtually by Steven Asiimwe, Chief Executive Officer of the Private Sector Foundation Uganda.

In his presentation, Mr. Asiimwe provided an overview of PSFU as an umbrella body representing over 340 business associations across key sectors of Uganda's economy. He noted that the foundation operates through micro, small, and medium enterprises (MSMEs) as well as corporate entities, making a significant contribution to national development and government revenue.

He outlined PSFU's four core mandates, namely policy advocacy informed by evidence-based research, capacity building, trade facilitation, and the promotion of partnerships and regional integration. He further highlighted the organization's strong engagement with government, particularly its role in influencing national policy and contributing to the national budget framework.

Mr. Asiimwe commended the National Council for Higher Education for creating a platform to strengthen dialogue between academia and industry. However, he noted that limited linkages and information asymmetry between the two sectors remain critical challenges.

He emphasized the importance of the "triple helix model," which brings together government, academia, and industry to drive innovation, employment creation, and economic transformation. He assured participants of PSFU's commitment to supporting higher education institutions through policy advocacy, facilitation of funding linkages, and partnerships with financial institutions and international organizations.

In conclusion, he reaffirmed PSFU's dedication to fostering collaboration, supporting innovation, and creating platforms that translate academic research into practical and scalable business solutions at national, regional, and global levels.

SESSION TWO:

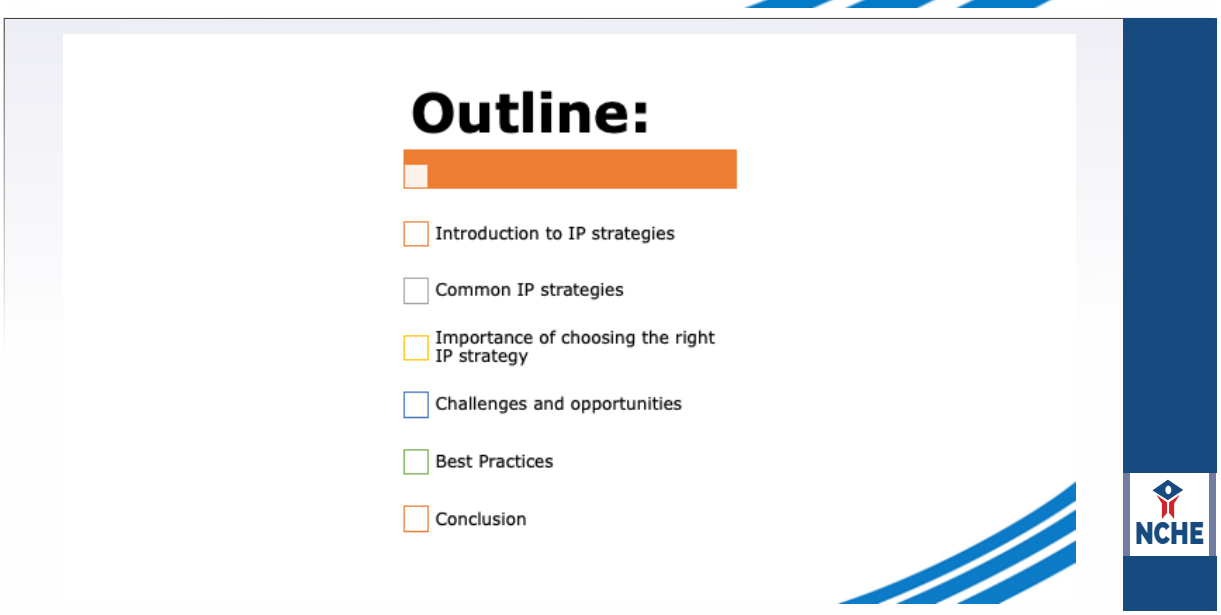
Strengthening University-Industry Linkages and Knowledge Transfer

CHAIRPERSON:
Rev. Fr. Dr. Jino O Mwaka, VC, University of the Scared Heart, Gulu

Mr. Abraham Onyait Ageet
Senior Patent Examiner
Uganda Registration Services Bureau (URSB)

Presentation:

From Research to Market: Intellectual Property Management and Commercialization Strategies in Higher Education



Intellectual Property(IP)

Intellectual Property(IP) refers to the creations of the human mind.

Common IP rights include:

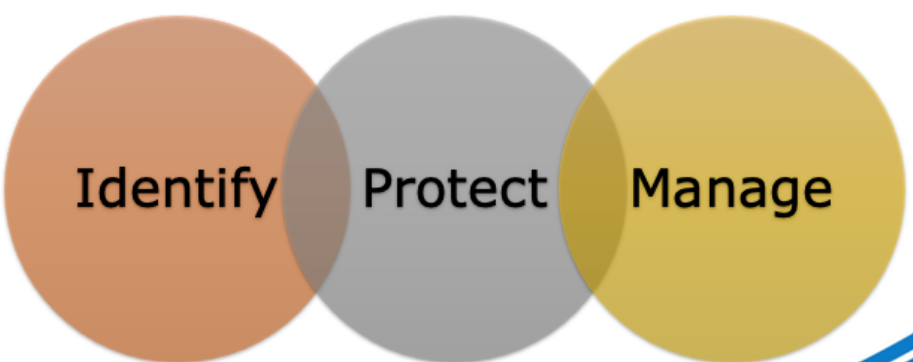
- Patents
- Trademarks
- Copyright
- Traditional Knowledge and cultural expressions
- Trade Secrets

Intellectual property (IP) is a critical component of academia more so the academia-industry collaboration, where innovation and research drive the development of ground breaking knowledge.

Effective IP strategies can help institutions and companies protect their investments, maintain market exclusivity, and generate revenue.

An intellectual property (IP) strategy is a comprehensive **plan** that outlines how an organization will protect, manage, and leverage its intellectual property assets to achieve business objectives.

The IP strategy feeds into the broader business strategy!



Common Strategies:

- Patent Strategy
- Trademark Strategy
- Trade Secret Strategy
- Licensing Strategy
- Contract Manufacturing

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Patent Strategy:

- Filing patents for novel compounds, formulations, and manufacturing processes to protect innovations and prevent generic competition.

Trademark Strategy:

- Developing and protecting brand identity through trademark registration to distinguish products from competitors. This helps build brand recognition and customer loyalty.

Contract Research and Manufacturing Services:

- Partnering with other companies to conduct research and manufacturing activities, leveraging cost advantages and WHO-approved facilities.

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Importance of IP Strategies

1. Market Exclusivity:

IP protection allows pharmaceutical companies to maintain market exclusivity and recoup investments.

2. Revenue Generation:

Licensing and partnerships can generate significant revenue.

3. Incentivizing Innovation:

IP protection encourages innovation and investment in research and development.

4. Competitive Advantage:

Effective IP strategies can provide a competitive advantage in the market.

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Challenges and Opportunities

3. Technological Advancements: New technologies, require adapted IP strategies.

2. Globalization: IP protection varies across countries, requiring strategic planning.

1. Institutional Policies: Universities face challenges of absence of institutional IP policies.

Best Practices

Develop a Comprehensive IP Strategy:
- Align IP strategy with university's objectives.

Monitor and Enforce IP Rights:
- Regularly monitor for infringement and take enforcement action.

Collaborate with Stakeholders:
- Engage with stakeholders, including researchers, investors, and regulatory agencies.

Effective IP strategies are crucial for institutions to protect their investments, maintain market exclusivity, and generate revenue. By understanding the importance of IP and implementing best practices, companies can navigate the complex IP landscape and achieve success in the academia-industry partnership.

THANK YOU

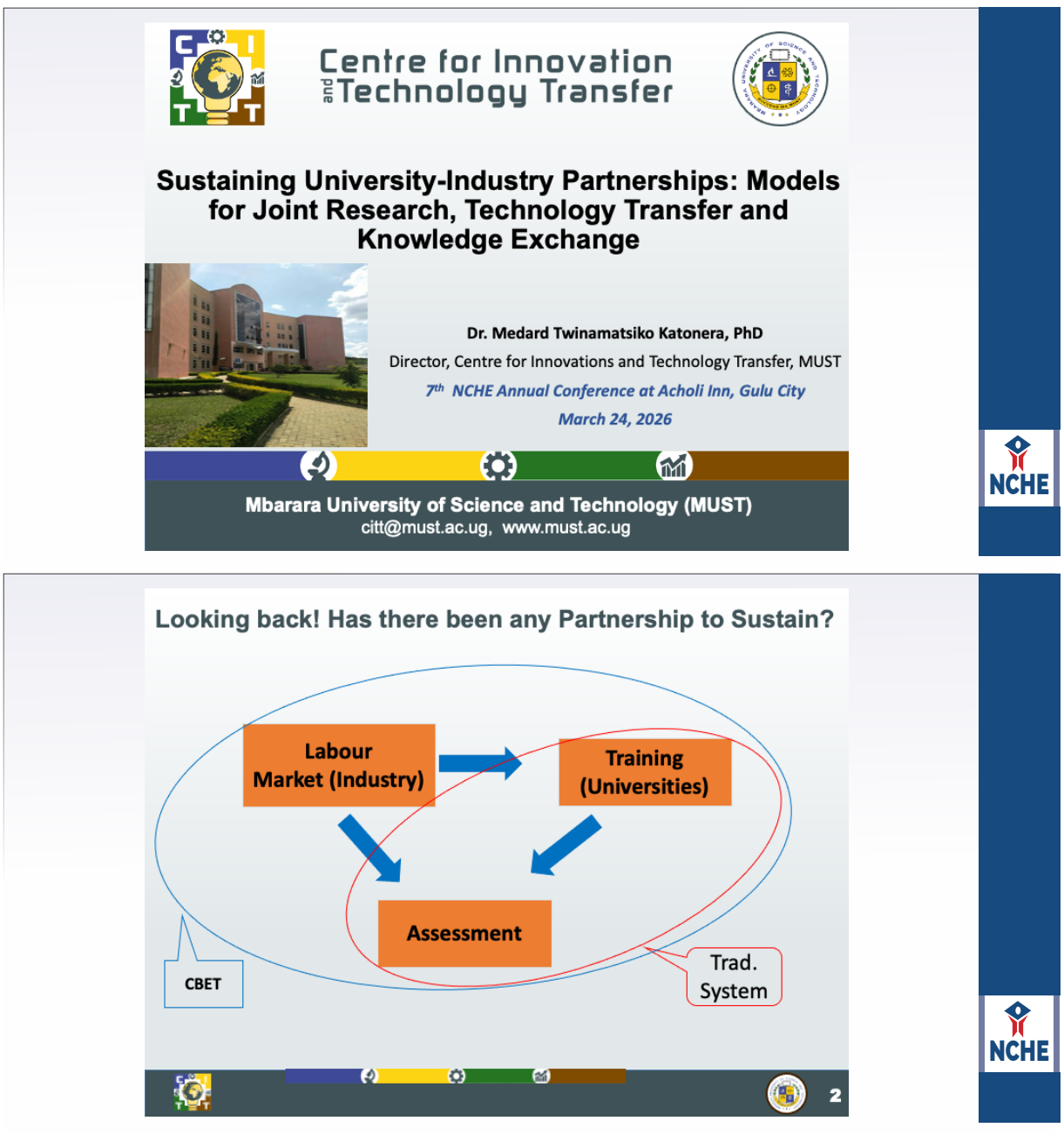
UGANDA REGISTRATION SERVICES BUREAU
Uganda Business Facilitation Center Plot 1 Baskerville Avenue, Kololo.
Plot 5 George Street, Georgian House,
P. O. Box 6848, Kampala, Uganda.
Posta Uganda Main office, Kampala Road Booth 2 & 3
Ministry of Justice and Constitutional Affairs
Mbale - Plot 3, Park Crescent.
Mbarara- Plot 1, Kamukuzi Hill
Gulu – Plot 6B Princess Road
Arua – Plot 42/44 Packwach road

Dr. Medard Twinamatsiko

Director for the Centre for Innovations and Technology Transfer (CITT) - MUST

Presentation:

Sustaining University-Industry Partnerships: Models for Joint Research, Technology Transfer, and Knowledge Exchange



Looking back! Has there been any Partnership to Sustain?

African innovations are rooted in precolonial era and the knowledge-industry nexus;

- Making fire
- Hand axe
- Fish hooks
- Black smiths outputs
- Math and astronomy (counting using bones and sticks)
- Stone circles known as Adams calendar (44000 years)....

3

Uganda's focus on University-Industry Nexus!

- The **STI secretariat philosophy** focus on ATMs (Industrialization, Technology and Innovation & Tourism and Service Sector)

MAKING UGANDA THE BEST

- National STI policy (2016)-building Uganda's STI capacity in various aspects in the area of technology generation, transfer and application
- The NDP IV, Vision 2040 & Agenda 2063
- **The NCHE framework on Competence-Based Education and Training**

4

Uganda's focus on partnerships contd.

- University-industry partnerships are vital for building innovation ecosystems

- Partnerships ensure research is relevant to real-world needs, enable technology transfer, and foster knowledge exchange
- Universities seen as engines of innovation, but partnerships remain underdeveloped compared to the global north

5

Global Comparisons with Uganda

Country	Model	Key Features	Outcomes
Uganda	Emerging Universities Industry Collaborations	Government support, TTOs	Growing but fragmented
South Africa	Triple Helix Model	Strong government-industry-university ties, Government-led innovation councils	Advanced biotech & mining innovations, and increased youth employment
India & China	Incubation Centers	University-led startups to drive biotech & mining innovations, university incubators linked to venture capital	Scalable technology transfer & venture capital – increased GDP
USA	Bayh-Dole Act & the Silicon Valley model	IP ownership by universities, legal frameworks enabling commercialization	Robust commercialization & patents, and the largest Venture Capital leader-GDP

Why a weak or no partnership??? –Insights from MUST Labour Market Analysis (2022)

- Curriculum - labour market demands disconnect
- Global capitalism driven by profit maximization – commercialization of **education & industry**
- Unskilled youths graduated every year but do not match the labour market demands- job seekers not entrepreneurs
- Limited or no engagement due to **Trust**- operating in silos (both universities and industry) & fear of IPs loss
- The funding gap/poor financing mechanism
- Limited or no incentives for the partnerships

7

Why a need for University-Industry partnerships?

- **Enhance research-innovation relevance-** addressing pressing needs of society –most critical needs
- **Drive technology transfer-** creating global competitiveness, making use of youth potential and imaginations
- **Promote knowledge exchange** -addressing industrial needs and labour market demands

8

Why a need for University-Industry partnerships?

- **Joint research-innovation projects- e.g** joint vaccine and diagnostic research with pharmaceutical companies

- **Internship and student placements-** creating job opportunities for the youths
- **Support for the Technology Transfer Offices** (TTOs)- e.g MUST, Mak, UCU

9

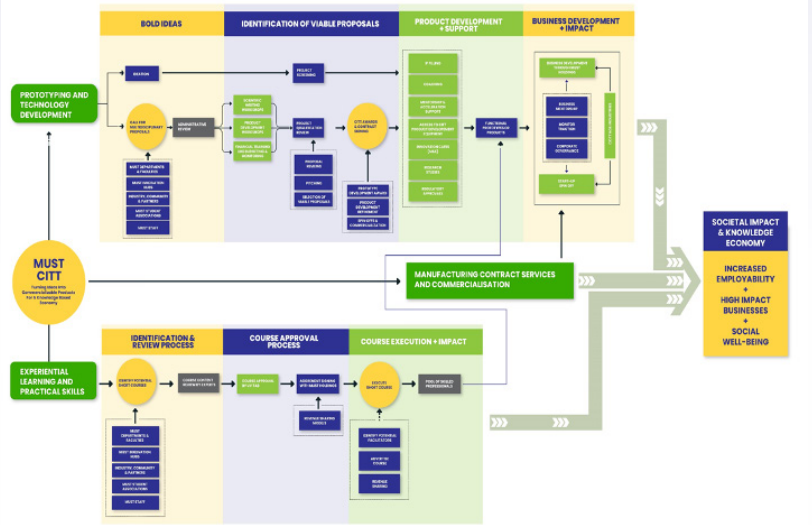
What are practical models for joint research, technology transfer & knowledge exchange?

S/N	Approach	Key Features	Outcomes
1.	Open innovation communities such as; University-industry Barazas, hackathons, bootcamps, open days etc	Problems to solutions not Vise Versa!!	Reduces time wastage and motivates industry to fund research
2.	Public Private Partnership model	Innovation financing, incubation of start-ups, IPs licencing etc	Addresses long term funding gaps & increases the endowment fund
3.	Invest and Build capacity in TTOs	Infrastructure support e.g small manufacturing, SAATs, 3-D Virtual or industry sponsored labs, IPs, spins-offs	Intellectual property (IP) protection and management
4.	Invest in Micro-Credentials/Experiential learning	Engage industry in the design thinking process and linkages to the job market	Labour market-driven outcomes

What are practical models for joint research, technology transfer & knowledge exchange?

S/N	Approach	Key Features	Outcomes
5.	Spin-offs from academic research &innovations	University incubators working with industry commercialize research & innovation products	Increases venture capital
6.	Purposive personnel mobility and networking	Movement of researchers from their comfort zones	Increased student/staff opportunities for placements & retooling
7.	Collaborative research and innovation projects	Innovators/researchers work together on joint grants	Focused outputs needed by both society and industry

MUST CITT INNOVATION PATHWAY



Has the Model worked for MUST? Yes, it is working!

SN	Outputs	Total	Description
1	Youth- led Start-up companies formed	73	Innovation based companies that are solving societal challenges, creating jobs and contributing to Uganda's GDP.
2.	Start-up-based jobs	761	Jobs created in the last 12 years both direct and indirect.
3.	Registered Intellectual Property (IP)	26	National and international IPs awarded to MUST.
4.	International and local partnerships	80	We have created partnerships through our innovation ecosystem since 2012.
5.	Critical evidence-based studies	40	These are studies conducted to gather evidence and ground truth on technologies developed through the ecosystem
6.	Prestigious awards received – national and international	28	Awards received by our innovators both nationally and internationally.
8.	Extra-mural funding secured	19	This represents the number of external funders we have worked with in the ecosystem
9.	Models and policy briefs generated	9	Aiding policy review

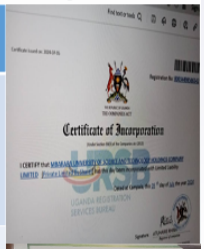
- MUST | Innovations| Business Incubation| Start-ups | IP Generation | Industry

How to sustain the university-industry partnerships?

S/N	Approach	Key Features	Outcomes
1.	Strengthen policy and regulatory frameworks	Alignment with the strategic plans, Research and Innovation agenda, IP rights, research funding, MoUs	Creates an enabling environment
2.	Joint curriculum development and implementation	Integration of industry job market demands (Increased efficiency & competencies)	Employable graduates with life long learning skills
3.	Incentivize industry investment in R&D	Scholarships, recognitions, joint grants writing etc	Innovation uptake by industry and sustained interest
4.	Foster strategic regional collaborations and partnerships	Multiperspectivism, tech fellowships, Internships and apprenticeships	Resource optimization

How to sustain the University-Industry partnerships?

S/N	Approach	Key Features	Outcomes
5.	Bring industry in the commercialization arms for universities e.g Holdings Company Models	Creation of University business arms	Financial sustainability
6.	Ensure demand and supply nexus	What is needed in the market and what should be produced?	Addresses skills gap
7.	Radical change management-changing demographics (VUCA), digital revolution e.g AI etc	Changing demographics (VUCA), digital revolution e.g AI etc	Economic competitiveness



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Thank You!

Apwoyo matek

Mwebare Munonga!

16

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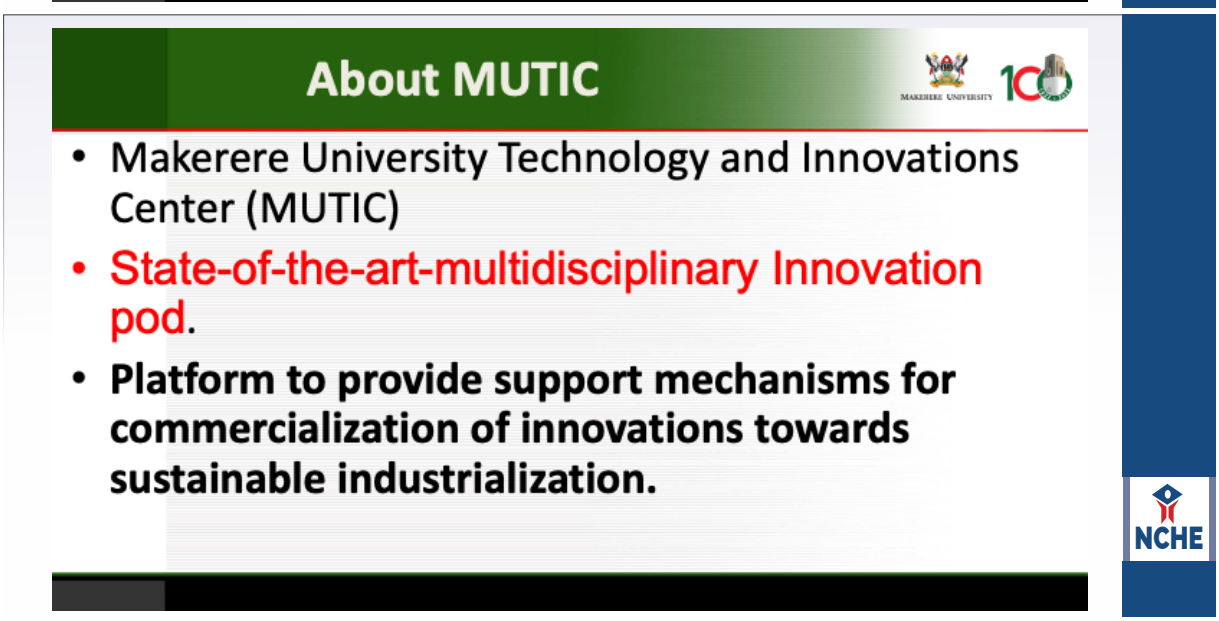
Dr. Cathy Ikiror Mbidde

Manager, Makerere University Technology and Innovations Center

Presentation:

Embedding Entrepreneurship in University Curricula: Strategies for Cultivating Innovation-Driven Graduates



MUTIC Journey

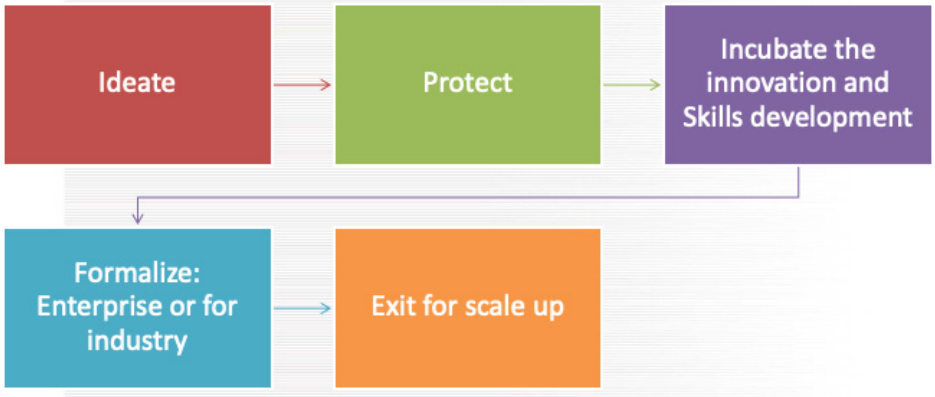
Why we exist

- Dwindling formal employment opportunities
- High graduate unemployment levels
- High research outputs shelved
- Need to transform knowledge into products and services (*Knowledgeable Not skilled*)
- Existence of expertise and experience at Mak
- Emerging Societal problems

Innovation and Entrepreneurship

- An **innovation** is the process of developing something new or an improvement in a product, service, system, process and is accepted by the client/society. Therefore an innovators starts to innovate by understanding the problem the client/society is faced with.
- The innovator applies their skill (Intellectual, Management, Technical and Soft) to develop a product or service needed by the client or society leading to **Entrepreneurship**
- Hence Impacting the future

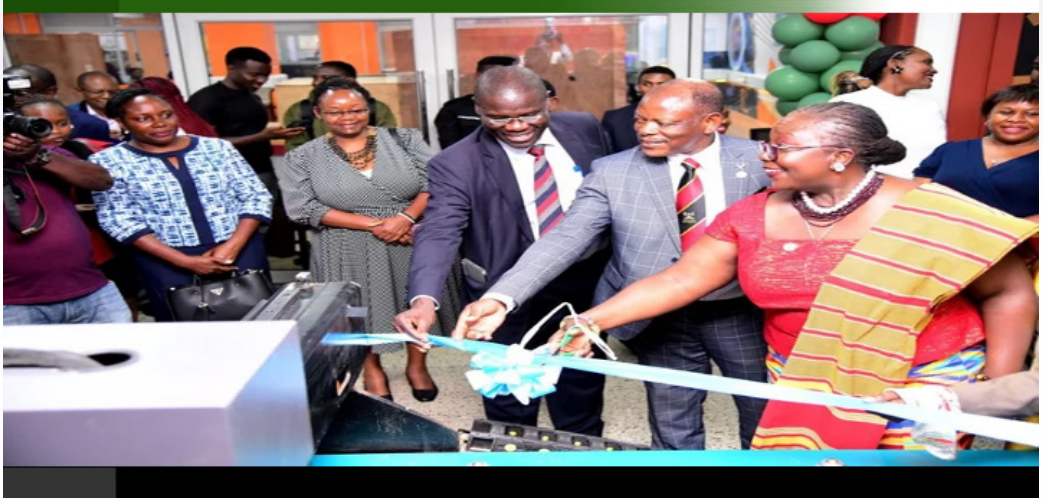
Innovation to Entrepreneurship path



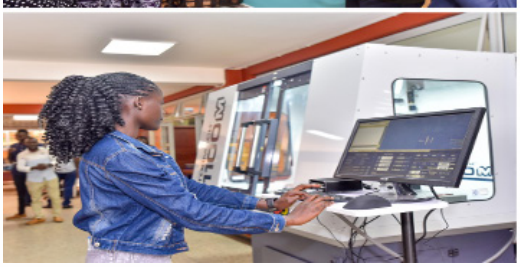
Strategies for Cultivating Innovation-Driven Graduates

- Multi-disciplinary innovation center
- Intellectual Property Management
- Strategic Partnerships
- MUTIC has ten Marker spaces
- Research to Commercialization Support
- Access to funding
- Industry Linkages
- Incubation support
- Business Development Support services
- Celebrate spinoffs

Commissioning of the MUTIC-Unipod



The Launch

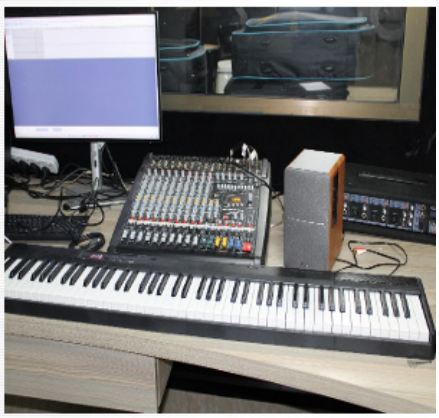


10 Makerspaces for innovation and skilling

1. Design Lab
2. Rapid Prototyping (3D Printing and Laser Cutting) space
3. Audio-Visual studio, Visual Reality space
4. Computer Aided Design rooms 1& 2
5. Computerized Numerical Control space (Wood and Metal workshop)
6. Electrical and Fab Lab space
7. Textile and Embroidery
8. GreenTech
9. Food Tech
10. Knowledge Transfer office

Electrical Markerspace: Fab Lab, 3D printers, Renewable energy platform, EV Battery system

Multimedia Studio: Photography, Production, Virtual Reality, Music/Sound



Audio studio: music, podcasts, videos

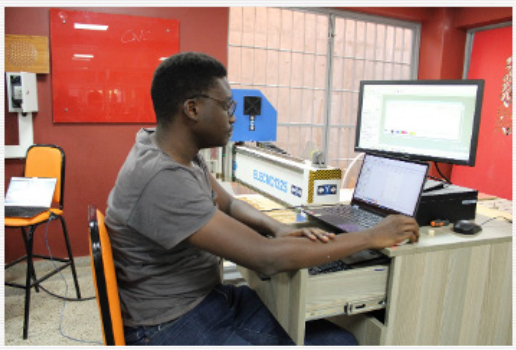
Computerized Numerical Control workshop: Wood/Furniture, Glass, Plastic, Metal fabrication, Plastic shredder

Textile and Embroidery

Food Tech

15 Commercialization innovations accessed Ugx 2.7b from MakRIF- 2024	8. Graduate IR-Hub
1. EduSenga- Mentoring programme	9. AliNutra Poultry Feeds
2. Emuriat Breweries	10. Ganda Biomedical Technologies
3. Educ Technologies Ltd- Mutimedia	11. Redvers E-mobility
4. Akajulo Foods	12. Sci-Connect: Access to science practicals
5. Hybrid Solar drier	13. Great Lakes- Risk Briquette facility
6. Mak-Digital Achival Access	14. Empafu Wine
7. Smart Irri-Kit	15.Osyrx Technologies

CNC model design impression



Intellectual Property status

IP certificates- 21

- Trade marks -8
- Copyrights- 13

IPs in the Process- 22

- Patents- 10
- Utility model-1
- Copyrights- 8
- Trade marks- 2
- Industrial design- 1

Selected BRANDS

MAT Water Solutions

Peacock

PhytoGold

REDVERS electric

1. Mat Water Solutions

Mr. Matia Ategeka.
B. Water and Irrigation Engineer

The Spiral Water Wheel Pump

Details

- Was a student's research project
- Patenting still ongoing
- Graduated in 2024
- Registered a company
- Looking for partners to scale

2. Maisha Malaria Syrup

Mr. Joel Felix Ochom, 4th B.Pharmacy Student at Mak

Details

- Started conducting research in 2022 out of curiosity
- Still undergoing patent examination
- Registered a company
- Clinical trials at Mulago hospital
- NDA has issued requirements
- In his final year
- Looking for partners to scale up

3. Raven Cock Wine

By Paul a student. B. Forestry

Details

- Registered a Trade mark
- Student registered a company
- Currently in the market
- Not a student's research project
- Looking for investors to set up a processing plant

4. Redvers Electric

Mr. Daniel Senkungu

Details

- Mr. Daniel Senkungu
- Retroverted 100 bikes
- One swapping station
- One battery covers 175km per charge
- 15,000/= per full charge
- Currently looking for investors to scale up production

Industry Linkages with Kiira Motors Corporation

- One year programme
- 25 students
- Mec, Elec, Biome, CE, Physics, Soft WE
- 12 Female, 13 Male
- Internship at KMC
- Research and Innovate for KMC
- Associates at KMC

Industry 4.0 Skilling Programme

Innovation and Skilling interventions

- Ideating during a Hackathon

Main Challenges

- Venture fund
- Innovation Mindset
- Investment readiness
- Operationalization issues
- Sustainability not incorporated in innovation aspect

We build the future

Thank you for Listening!

Our contacts

- www.tic.mak.ac.ug
- tic@mak.ac.ug
- +256701365586
- CTF Yusuf Lule Building ground level, Makerere University

The National Social Security Fund

Presentation:

Preparing for Financial Security: The Role of Higher Education in Promoting Social Security Awareness and Retirement Planning in Uganda

A compliant employer is one that fulfills the following conditions

- Pays monthly contributions by 15th of the following month.
- Pays for all eligible staff.
- Pays their contributions based on total emoluments.
- Ensures that all its employees have registered and possess valid NSSF numbers.

Benefits Of Compliance

- Motivated staff
- Avoid penalties
- Hope for better retirement
- Good Brand image
- Easy to obtain clearance
- Avoid litigation

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Common Areas Of Non-compliance

- Age
- Salary/ Wage threshold
- Expatriates i.e. Residents VS Non-Residents
- Interns
- Probation period
- Consultants
- Volunteers
- Casuals
- Contracts Vs Non-Contract.
- Contract of service vs contract for service

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Retirement Planning and Prudent Financial Mgt

NSSF

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Start with the end in mind- determine your lifestyle needs vs income

Longevity

Life expectancy at birth
68.5 Years

The total population of Uganda from the National Housing and Population Census 2024 was **45.9M**

Life expectancy after retirement
18 years

SOURCE: URBRA - Annual Retirement Benefits Sector Report 2022

You're likely to live longer post-retirement **(18-20 years on average)**

Implications:
Your savings/investment might not be sufficient to take you through this period.

Begin saving early and consider taking on additional individual voluntary savings plans beyond your employer-based plan.

Consider matching your employer contribution for mandatory savings plans to benefit more from the effect of interest compounding.

Retirement and Parenting

Changing patterns around Retirement and dependency. What is the chance that your children will look after you in old age?

Implications/Tips

- If possible, have children early in your career,
- Avoid getting children in retirement except if it can't be avoided
- Expect no one to support you (Children and Government
- Plan for huge long term expenses like fees early if you get children late in your career

High dependency rates and Community Expectations (Social Media era)

You will need to determine which causes to contribute to (You can't solve all problems of the world)
Supporting a great cause should not leave a huge hole in your retirement package

High Cost of Med-care (aging complications)

Plan for Medical costs.
Leverage social groups to bring down the cost of medical insurance through group cover. There is power in numbers.
Adopt healthy habits that minimize lifestyle illness-Start now

Retirement Fraudsters

Look out for fraudsters in the name of get rich schemes. These have been on the rise in recent years/months and people including pensioners/retirees have lost money.

Anything too good to be true is probably a scam

Tips:
Seek professional advice regarding investment of retirement funds.
Don't withdraw your savings until you have a solid plan.
Take partial withdrawal options if you're uncertain of the investment and gradually increase

Pay Off Long-Term Debt

- Pay off long-term debt early except if you have the income or business to continue debt servicing

Tips:

- Identify high-interest, long-term debts. Prioritize paying them off to save on interest.
- Retain low-interest debt if manageable and invest surplus funds for higher returns.
- Ensure consistent income to service debts comfortably if choosing not to pay off early
- Avoid additional liabilities without a strong income base.

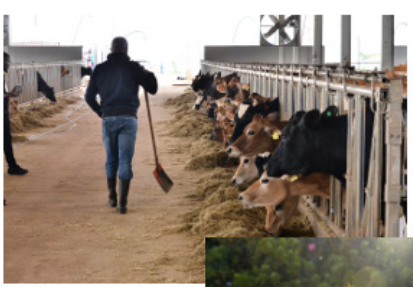
Retirement Home

Retirement home: Be modest and don't blow your retirement pot on a dream house

Tips:

- Align your retirement home purchase with your overall retirement savings and expected income.
- Avoid over-committing to high costs that could drain your retirement fund.
- Choose a home that meets your needs, not extravagant desires.
- Opt for a smaller, affordable space that matches your lifestyle.

Deciding Your Retirement Living Arrangement



- Determine where and with whom you want to retire-Trend changing towards staying in cities

Tips:

- Decide whether you prefer the convenience of city living, the peace of rural areas, or a suburban lifestyle.
- Consider proximity to family, friends, healthcare, and amenities.
- Research retirement-friendly communities that cater to your interests and needs.
- Evaluate whether the lifestyle suits your preferences and health needs.

Smart Asset Diversification for Retirement Stability

- Asset diversification. Gradually move toward near cash passive assets as you age. You might struggle to sell off land and houses in case of an emergency with high liquidity needs.

Tips:

- Gradually transition a portion of your portfolio to near-cash assets like fixed deposits, money market funds, or treasury bills.
- These assets ensure you have funds readily available for emergencies or unexpected needs.
- Retain some tangible assets, like land and property, for long-term value but ensure they don't dominate your portfolio.
- Diversify into income-generating passive assets like dividends, bonds, or rental properties with stable returns.
- Maintain an emergency fund equivalent to at least six months of your expenses in easily accessible accounts.

Planning for a Stable Retirement with Lifetime Annuities

- If not pensionable-consider investing in a lifetime annuity-Certainty creates peace of mind

Tips:

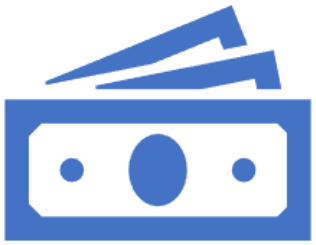
- A lifetime annuity provides a guaranteed income for the rest of your life in exchange for a lump-sum investment.
- It acts as a personal pension plan, offering predictable income regardless of market fluctuations.
- Calculate your essential expenses and determine the portion of your retirement savings to allocate to an annuity.
- Ensure it covers basics like housing, utilities, healthcare, and daily living costs.
- The earlier you invest in an annuity, the higher the potential payouts due to compounding.
- Consult a financial advisor to determine if an annuity aligns with your retirement goals and overall portfolio.

The Power of Social Connections in Retirement

- Belong to a social group with purpose and fun. These will provide you much needed social support and sometimes business opportunities.

Tips:

- Engage with groups that align with your hobbies, values, or passions.
- Look for organizations where you can contribute meaningfully, like volunteer groups or community associations.
- Include recreational clubs or groups that focus on activities you enjoy, such as travel clubs, book clubs, or fitness classes.
- Make time for activities that bring you joy and relaxation while fostering social bonds.
- Join business-oriented groups to stay active and explore new ventures.



Nssf SmartFlexi

Voluntary goal-based savings plan

- Save for defined periods and goals of your choice.
- based on a voluntary membership principle
- Gives one the power to choose how much to save, when to save, for how long to save
- You earn competitive monthly return which is accrued daily

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NSSf Smartflexi-Why Sign up

- Opportunity to save for the short and medium-term financial needs e.g education, buying land, building a house
- minimum amount one can save at any onetime is **UGX 5,000** with no limit to the maximum
- Interest earned daily and credited at end of month
- There is no penalty or fines charged at exit.
- An engaging experience through digital goal-based wallets & inbuilt tools keep members on track of their savings

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THANK YOU

Retirement can be the best time of your life **BUT** you must deliberately plan for this outcome. It can also be the very worst if not well planned. Seek professional advice and don't leave your retirement to chance.

THANK YOU!

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SESSION THREE:

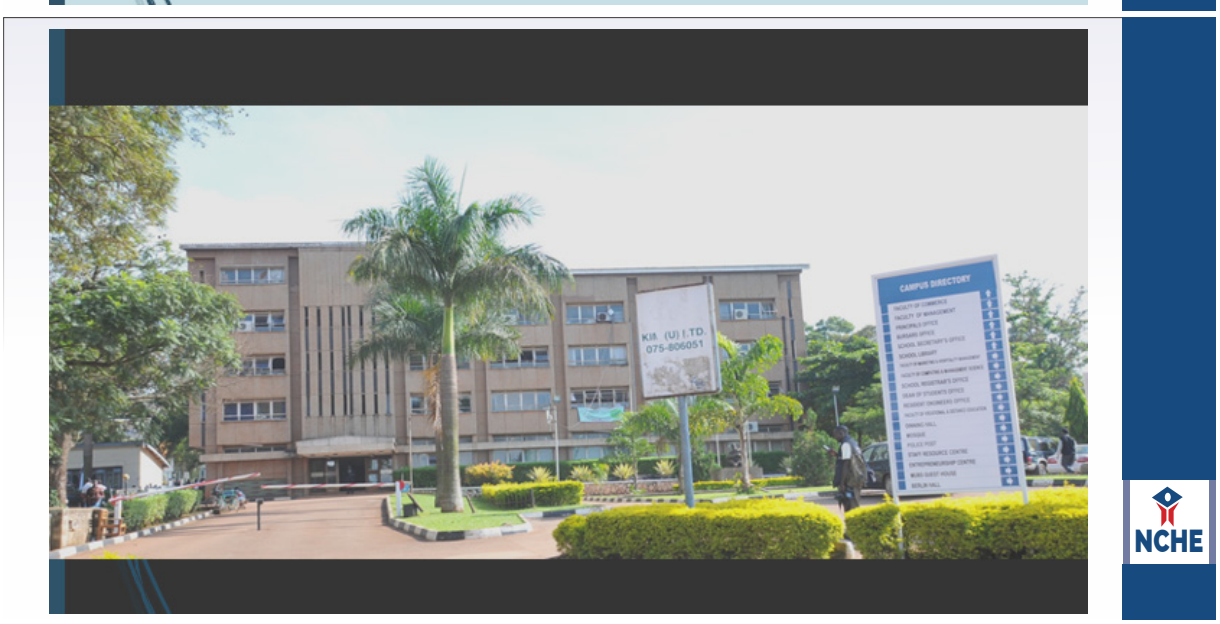
Fostering Innovations, Entrepreneurship, and Start-Up Ecosystems in Higher Education

CHAIRPERSON:
Dr. Christine Okurut, Deputy Vice Chancellor Kumi University

Prof. Moses Muhwezi
Principal Makerere University Businces School

Presentation:

Lessons from Long-Standing University Innovation Hubs: The MUBS Experience



Outline

- About MUBS
- The MUBS EIIC
- 5 Pillars of the MUBS Experience
- The Dual Path Strategy
- Building the Pipeline at MUBS
- Lessons
- Recommendations

ABOUT MUBS

- Makerere University Business School (MUBS) is a Government tertiary institution of higher learning
- Mandate to develop business and management education in the country at all levels
- Conducts teaching for the award of Makerere University degrees, but awards Diplomas under its Faculty of Vocational and Distance Education
- Actively involved in research and consulting projects for both public and private sectors
- It affiliates colleges and other institutions to award diplomas

THE MUBS EIIC

- Established in 1998 as the Small Business Development Centre
- Links the School with the private, other public institutions, and NGO sectors
- In 2005, evolved into the Entrepreneurship Centre
- Transformed into the Entrepreneurship, Innovation, and Incubation Centre in 2017 with support from the African Development Bank

5 Pillars of the MUBS Experience

Business Incubation

- Sourcing and nurturing ideas for business startup

Award Ceremony for Refugee Entrepreneurs with the Stanford University Refugee Entrepreneurship Programme, February 2026

Training

- Conducting competence - based learning for entrepreneurs in the community

Entrepreneurship Training with the Stanbic Business Incubator, 2021

Research

- Conducting applied research to understand Ugandas's entrepreneurial landscape to inform policy and programming

Provision of Information

- Providing information to entrepreneurs for them to make business decisions

Consultancy

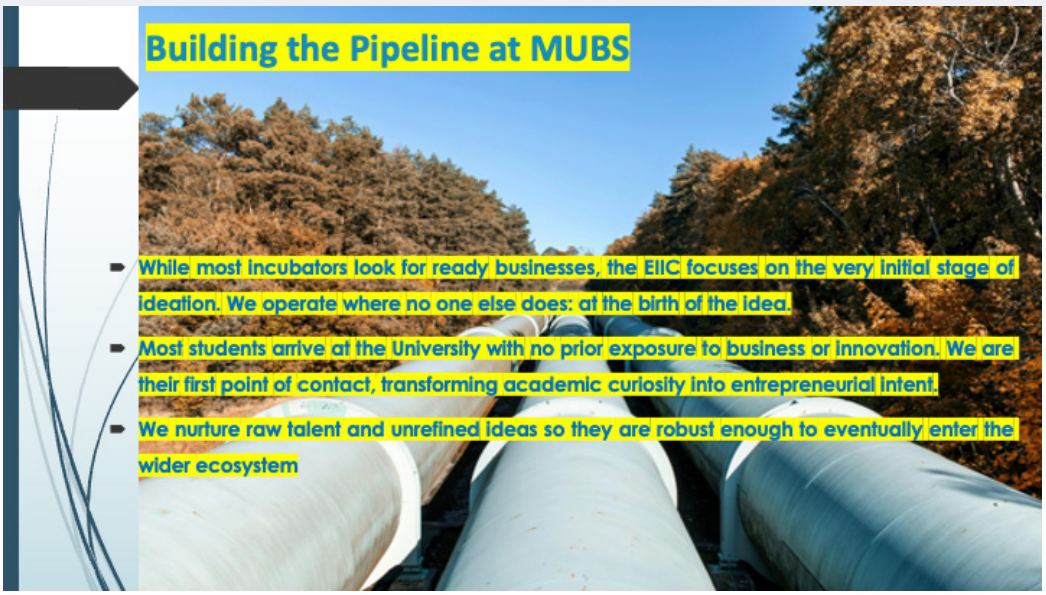
- Linking academic expertise to industry problems

Recruitment and Management of Contract Staff in MTN Uganda

The Dual Path Strategy

- Young people struggle to find employment after graduation from HEIs
- Not every student is able to start a business
- Pathway A - The MUBS EIIC runs an ideation programme to support students with innovative ideas at all levels
- The Centre supported by the School provides mentorship to the young innovators
- Pathway B – The Centre equips final year and fresh graduates with work-readiness skills, including an entrepreneurial mindset, for them to be innovative employees at the workplaces

Building the Pipeline at MUBS



- While most incubators look for ready businesses, the EIIC focuses on the very initial stage of ideation. We operate where no one else does: at the birth of the idea.
- Most students arrive at the University with no prior exposure to business or innovation. We are their first point of contact, transforming academic curiosity into entrepreneurial intent.
- We nurture raw talent and unrefined ideas so they are robust enough to eventually enter the wider ecosystem

Students and Community Entrepreneurs Supported (2009 –2026)

No.	Programme	No. of People Supported	Partner (s)
1	Business Incubation	9,528	Simba Group of Companies Kafeero Foundation , MasterCard Labs, NSSF, Outbox, Thomas University of Applied Sciences
2	Graduates into Employment Programme (GIEP)	2567	None
3	I - Upshift Training	770	UNICEF
5	Training for Women Entrepreneurs under the GROW Project	3820	MSGLD and the World Bank
6	Other Entrepreneurship Training Programmes	14,447	ILO, MGLSD, UDB, UIA, IYF, PSFU, MTN Foundation, MTN Uganda, National ICT Innovation Hub, Living Earth Uganda
7	The Monthly Business Clinic	543	CBS Radio, Orient Bank

Nature of Businesses and Ideas Supported by the MUBS EIIC

- Light manufacturing
- Agri-businesses
- Digital economy
- Fashion and design
- Crafts/artisanal
- Content creation
- Energy
- Events management
- Education
- Waste management

Funding for Businesses Under Business Incubation

- 38 Companies under the NSSF Hi-Innovator Programme unlocked USD 760,000 for acceleration
- 5 Companies under the NSSF Hi-Innovator Programme unlocked USD 150,000 for acceleration
- 36 Youth under the I-Upshift programme unlocked USD 3600 to start their enterprises
- 2 Youth received seed funding amounting to USD 4000 from MasterCard Labs Kenya

Lessons

- Students often graduate and take any job just to survive, leaving their business ideas behind.
- Innovation needs seed capital. We need mechanisms to help students bridge the gap between graduation and their first sale.
- If a student has an idea but no capital, we must link them to Venture Capitalists, Business Angels and Micro Credit Institutions
- You must know everyone in the ecosystem to find the right partner for the right student at the right time, e.g., a common user facility
- You need a dedicated team to mentor students, and there is a need to incentivize them
- When students must leave campus to use specialized equipment elsewhere, theuniversity's role in the ideation-to-prototype phase often becomes invisible.

Partners

- Ministry of Gender, Labour and Social Development
- UNICEF
- NSSF
- World Bank
- Food and Agriculture Organization
- Thomas More University of Applied Sciences, Belgium
- Private Sector Foundation Uganda
- Stanford University
- Aspire Education, UK and Germany
- Uganda Development Bank
- Outbox Uganda Limited


THE REPUBLIC OF UGANDA
MINISTRY OF GENDER, LABOUR & SOCIAL DEVELOPMENT
unicef
for every child
NSSF
a better life
THE WORLD BANK
Food and Agriculture Organization of the United Nations
FAO
outbox
THOMAS MORE
University of Applied Sciences
Stanford University
UDB
Inspiring Development
psfu
PRIVATE SECTOR FOUNDATION UGANDA
Business growth is our business
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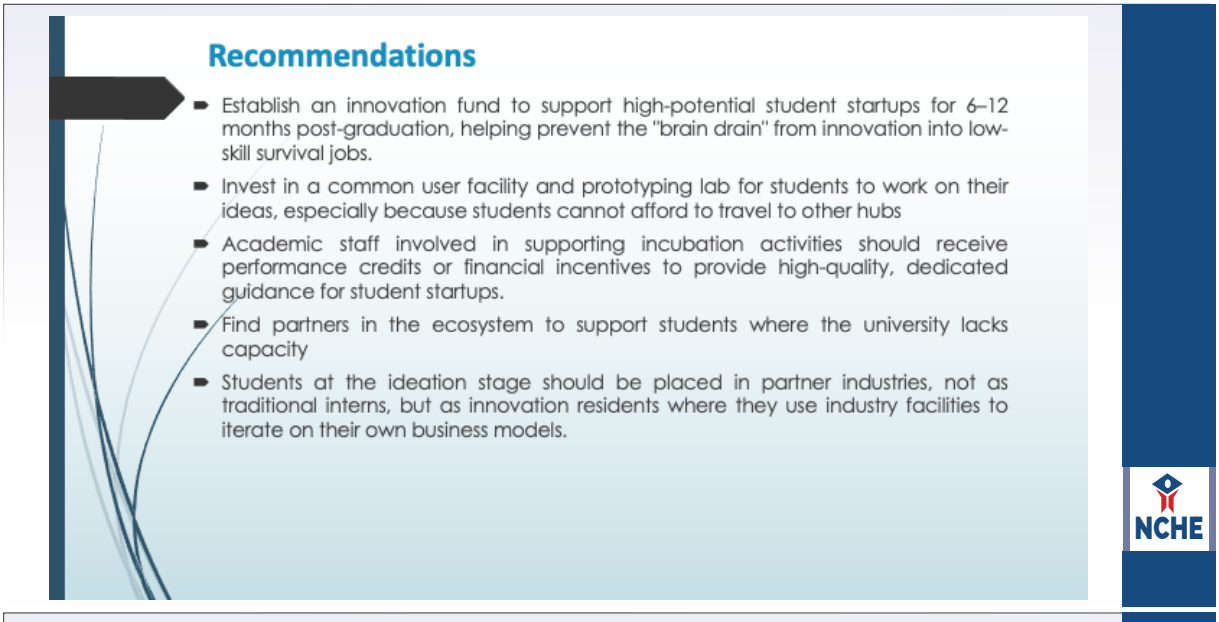
Recommendations
Establish an innovation fund to support high-potential student startups for 6–12 months post-graduation, helping prevent the "brain drain" from innovation into low-skill survival jobs.
Invest in a common user facility and prototyping lab for students to work on their ideas, especially because students cannot afford to travel to other hubs
Academic staff involved in supporting incubation activities should receive performance credits or financial incentives to provide high-quality, dedicated guidance for student startups.
Find partners in the ecosystem to support students where the university lacks capacity
Students at the ideation stage should be placed in partner industries, not as traditional interns, but as innovation residents where they use industry facilities to iterate on their own business models.
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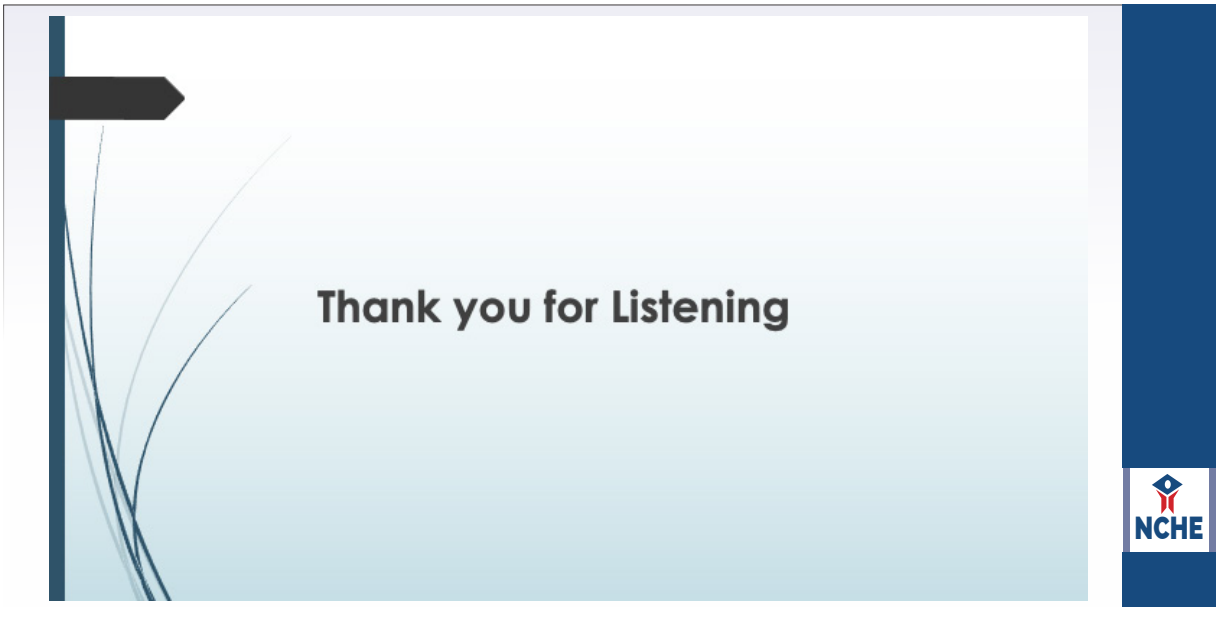
Thank you for Listening
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Mr. Orace Tom David
Researcher, Gulu University

Presentation:

From Survival to Innovation: How Loan Adequacy Influences STEM Graduates' Innovation Capacity in Uganda

From Survival to Innovation: How Loan Adequacy Influences STEM Graduates' Innovation Capacity in Uganda

By

Tom David Orace

Joseph Rwothumio

David Onen

7TH HIGHER EDUCATION CONFERENCE, ORGANIZED BY NCHE,
GULU CITY, MARCH 2026

NCHE National Council for Higher Education
Ensuring Quality for Excellence

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INTRODUCTION AND PROBLEM STATEMENT

- Uganda Vision 2040 & NDP III STEM innovations (GoU, 2015; MoFPED, 2020).
- STEM is a driver for the development of competencies, innovation, and the workforce (OECD, 2020; UNESCO, 2021)
- Participation in innovation-related activities, finance = engagement activities lacking (Manzi-Puertas et al., 2025).
- HESFB (2014), access and enrolment in STEM disciplines, 70%. Little empirical research (Adeyemi & Ogunleye, 2022).
- Access Vs Innovation. Enrolment up innovation is neglected (Barnett, 2019)

- Hence, Constraints reduce opportunities for innovation
- Scarcity (Mani et al., 2013); Capability-based perspectives theories (Ibrahim & Alkiraime, 2021)

Orace et al, (2026).

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STUDY QUESTIONS

Do STEM students perceive their loans as adequate?

How does financial precarity affect a student's academic experience and innovation opportunities?

What is the relationship between loan adequacy and programme completion?

March 2026

Literature Review: Financial Foundations & Innovation Outcomes

Financial Resources & Student Focus

- **Adequate funds** → **Student focus on studies** (Burns, 2019)
- **Financial investments** → **Retention & graduation** (Marshall, 2021; Wang, 2025; Zimmirmen et al., 2025)
- **High debt** → Performance pressure, dropout, job-seeking

Funding & Innovation-Based Learning

- **Sufficient funding** → Innovation experiences
- **Project research, internships, start-ups** → Advanced STEM competencies (Grote et g., 2021)
- **Economic restrictions** → Paid jobs over learning

Cognitive Cost & Contextual Gap

- Financial strain depletes cognitive resources, creativity (Pollard et al., 2019; Meuris & Gladstone, 2023; Reid, 2024)
- **Sub-Saharan Africa gap**: Few mixed-methods studies on financing → innovation outcomes
- This study fills **theoretical & empirical gaps**

METHODOLOGY

Research Procedure	Methods of data collection	Data analysis
Conducted in 4 universities **Research design-** Convergent Parallel Mixed-Methods design. ***Approach:*** Mixed-methods approach integrating quantitative and qualitative data. **Study population and sampling** Approx population of students between 2022-2024 were 729. 482 STEM loan recipients **(n) = 482 Krejcie & Morgan (1970)** **430 took part in the survey** **12=administrators=Purposive sampling for key informants** **8 FGDs**	**Quantitative:** Questionnaire survey from 430 STEM loan recipients. The questionnaire was administered online and in person **Qualitative:** 12 in-depth interviews with university/HESFB administrators. (KII, 8 GFDs with 61 students)	**Quantitative:** SPSS, Descriptive statistics Frequencies, percentages and Correlation & simple linear regression to show association **Qualitative** data from interviews and FGDs were analyzed using thematic analysis The mixed-methods integration occurred during the interpretation stage.

RESULTS

RQ 1: How sufficient do STEM students perceive their loans to be in meeting their academic financial requirements?

Table 1: Descriptive statistics on the adequacy of student loans

Source: Field data

Note: SD=Strongly Disagree; D= Disagree; A= Agree and SA= Strongly Agree

Item	Valid N=430	SD freq. (%)	D freq. (%)		A freq. (%)	SA freq. (%)		M	Standard Deviation
The loan adequately covers tuition and related academic expenses, such as textbooks, supplies, and technology.		140 (32.6%)	165 (38.4%)	71%	93 (21.6%)	32 (7.4%)	29%	2.04	.92
The students' loans are adequate and allow them to address unexpected financial challenges.		95 (22.2%)	140 (32.6%)	54.8%	136 (31.6%)	58 (13.6%)	45.2%	2.36	.97
The loan adequacy gives me confidence in managing my financial obligations.		23 (5.4%)	80 (18.6%)	24%	258 (60.1%)	68 (15.9%)	76%	2.86	.74

RESULTS

RQ 2: How does financial precarity influence STEM students' academic experiences and opportunities for innovation?

- Financial precarity significantly shapes STEM students' academic experiences and professional development opportunities.
- As shown in Table 1, 71% of students reported that the loan does not adequately cover essential academic costs, including textbooks, specialized learning materials, and technology required for practical training.
  - *The loan barely scratches the surface of what we need,"* (FGD-UnivB-P1) while another explained *"we students often share one set of manuals or equipment among several classmates*" (FGD-UnivA-P2).

March 2026

RESULTS

4.3 Test of hypothesis on the relationship between loan adequacy and completion of STEM programmes

- Ho_1 (Null): Loan adequacy has no significant relationship with the completion of STEM programmes.
- Ho_2 (Alternative) Loan adequacy has a significant relationship with the completion of STEM programmes.

Table 2: Simple Linear Regression Model of Completion of STEM-Based Programmes on Loan Adequacy

Model		Unstandardized Coefficients B	SE	Standardized Coefficients β	T	P	Collinearity Statistics Tolerance	VIF
	(Constant)	2.49	0.08		29.49	.000		
	Adequacy	0.23	0.03	0.32	7.13	.000	1.00	1.00

Dependent Variable: Completion of STEM-Based Programme in selected public universities in Uganda.

Adjusted R^2: 0.104; F(1,428) =50.9, p-value <. 0.001.

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Discussions

Loan insufficiency	Loans cover tuition but exclude experiential costs	Orace et al., 2025b
Scarcity Theory	Financial scarcity reduces cognitive bandwidth	Mani et al., 2013; Shah et al., 2018
Financial security impact	Stabilizing support increases confidence	Ibrahim & Alkire, 2021
Hidden curricula of innovation	Theory becomes practice when barriers removed	Welton et al., 2023

Financial precarity limits STEM competence - Reform is investment, not cost

March 2026

Conclusion

- Loan structure limits innovation: It's a structural impediment to STEM participation in innovative activities; no experiments face trade-offs.
- Financial security enables academic focus = stabilizing, demonstrating confidence, managing debt, and creating psychological wellness.
- Rethinking loan adequacy metrics = STEM Financing = Innovation capacity, beyond access and programme completion.

Policy discussions must account for the educational conditions that foster innovation-oriented engagement.

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Study Limitations

- The study is partly based on self-reported beliefs about loan adequacy.
- Second, despite the regression analysis finding a statistically significant result, the model accounts for only 10.4% of the variance.
- Centres on student experiences within a few universities and, consequently, findings may not be generalizable to all universities in Uganda.
- Although the study investigates how financial conditions affect involvement in innovation activities, it does not directly assess national, research, or macroeconomic innovation outputs.

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Recommendations

1 EXPAND COVERAGE

- Learning materials
- Technology & labs
- Hands-on instruction

2 FUND EXPERIENCES

- Internship stipends
- Industry placements
- Practical training aid

3 ALIGN WITH STI POLICY

- Integrate loan & innovation frameworks
- Link financing to learning quality
- Measure competency outcomes, not just completion

Key note:

- *Empirically, enabling both educational participation and experiential learning within loan schemes strengthens the broader impact of Uganda's STEM education system.*

Acknowledgement

Listeners

Co-authors

Kyambogo & Gulu University fraternity
&
NCHE

Thank you!

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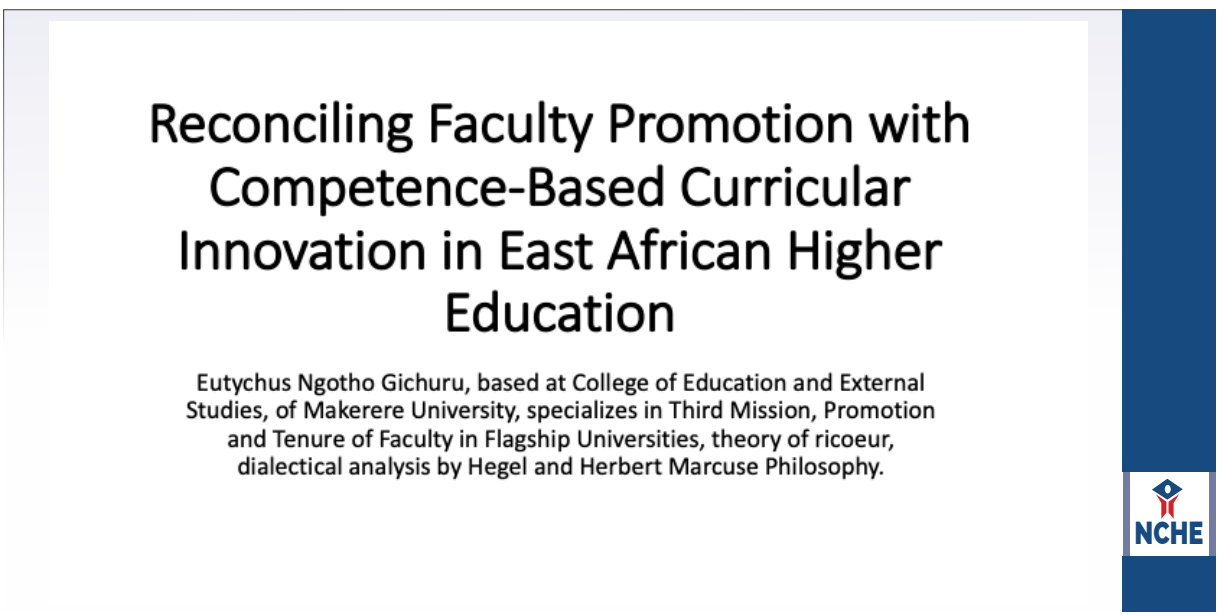
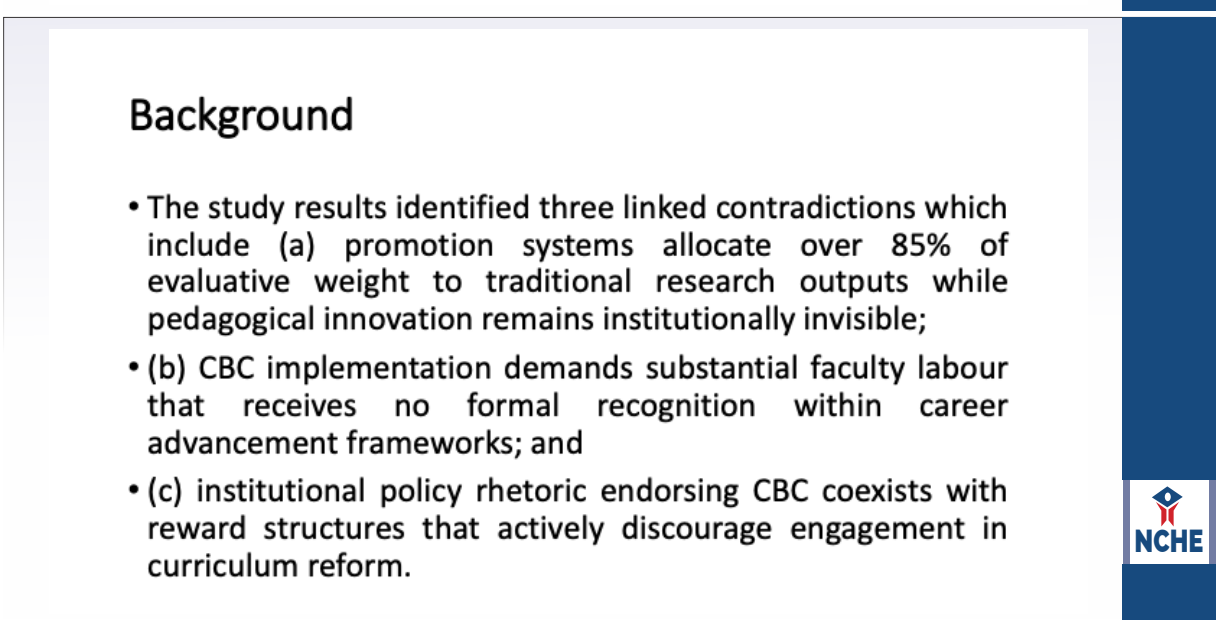
March 2026

Mr. Eutychus Ngotho Gichuru
Researcher, Makerere University

Presentation:

Reconciling Faculty Promotion with Competence-Based Curricular Innovation in East African Higher Education





Introduction

- The current needs of knowledge-based economies and mass education together with globalization requirements, now force institutions to meet international standards which enable them to compete on a global level (Cloete et al., 2015).
- Scholarship of Teaching, Learning, and Curriculum Innovation (STLCI).

Theoretical Framework

- The thesis for this research study demonstrates how academic promotion systems exist to support traditional research outputs and internationally recognized impact metrics. The antithesis includes the increasing demand for competence-based pedagogical innovation which economic transformation agendas and socio-economic pressures create. The institutional contradictions, which emerge from this tension, become evident through symbolic compliance and faculty ambivalence and uneven reform outcomes.

Literature Review

- According to Slaughter and Rhoades (2004), academic capitalism describes the process through which universities develop their institutional goals together with their research programs and teaching methods based on market demands and their need to compete economically. The model requires universities to produce new knowledge while proving their financial value and social impact from both public and private funding sources.
- The supporters of CBC learning outcomes argue that the program creates results which precisely match the requirements of both the job market and society for this reason the program improves employment opportunities and academic value of its graduates (Ayonmike et al., 2014).

Problem

- The research promotion systems create reverse effects which lead to negative teaching outcomes and negative changes in curricular development. The faculty members who started their teaching careers choose to devote their working hours to the educational activities which institutions value the most, which results in teaching innovation being neglected (Blackmore & Kandiko, 2011).
- Bridging the Gap: Scholarship of Teaching and Learning

Participant Distribution by Institution and Category

Institution	Country	Junior Faculty	Senior Faculty	HODs/Deans	Senior Administrators	Total
Uni A	Tanzania	4	3	3	2	12
Uni B	Uganda	5	4	4	2	15
Uni C	Kenya	5	4	5	4	18
Total		14	11	12	8	45

Trustworthiness Strategies Employed

Criterion	Strategy Employed	Implementation
Credibility	Triangulation	Multiple data sources (documents, interviews across three institutions and participant categories)
	Member checking	Findings summaries shared with 12 participants (27%) for verification
	Peer debriefing	Regular meetings with three higher education researchers not involved in study
Dependability	Audit trail	Detailed documentation of data collection, coding decisions, and analytical memos
	Reflexive journaling	Weekly researcher reflections on assumptions, positionality, and emerging interpretations
Confirmability	Negative case analysis	Systematic examination of disconfirming evidence
	Data retention	Full encrypted archive of transcripts, documents, and analysis records
Transferability	Thick description	Detailed contextual, institutional, and participant information
	Case study protocols	Standardized documentation enabling replication

Comparative Weighting of Promotion Criteria Across Institutions

Promotion Criterion	Uni A (Tanzania)	Uni B (Uganda)	Uni C (Kenya)	Mean Weight
Peer-reviewed journal publications	45%	50%	48%	47.7%
Research grants	25%	20%	22%	22.3%
Postgraduate supervision	15%	12%	15%	14.0%
Subtotal: Research	85%	82%	85%	84.0%
Teaching evaluation scores	8%	10%	7%	8.3%
Curriculum development	3%	4%	3%	3.3%
Community engagement	2%	2%	3%	2.3%
Administrative service	2%	2%	2%	2.0%
Subtotal: Non-Research	15%	18%	15%	16.0%
Total	100%	100%	100%	100%

Faculty Perceptions of CBC Work Recognition

Dimension of CBC Work	Reported Time Investment	Institutional Recognition	Promotion Weight
Competency matrix development	2–4 months	None / "service" category	<3%
Outcome–industry mapping	1–3 months	None / informal	<2%
Performance assessment design	2–5 months	None / undocumented	<2%
Course content revision	3–6 months	Minimal / teaching eval.	<8% (aggregate)
Industry partnership development	Ongoing	None / "community engagement"	<3%
Pedagogical documentation	1–2 months	None	0%

Participant-Proposed Synthesis Elements

Proposed Element	Description	Frequency	Institutional Support
STLCI Portfolio	Formal promotion portfolio documenting CBC design, implementation evidence, student outcomes, peer review, and pedagogical dissemination	38/45 (84%)	Emerging discussion in 2 universities
Weighted Teaching Criteria	Explicit 30–40% weighting for teaching and curriculum innovation in promotion calculations	35/45 (78%)	Limited; policy inertia
Applied Research Equivalency	Recognition of CBC community projects and industry partnerships as equivalent to applied research outputs	32/45 (71%)	Pilot programs in 1 university
Peer Review of Teaching	Structured peer observation and evaluation of CBC implementation	28/45 (62%)	Quality assurance units exploring
Teaching–Research Integration	Recognition of pedagogical publications, teaching case studies, and curriculum scholarship	26/45 (58%)	Minimal; undefined metrics

Dialectical Tensions in Faculty Promotion and CBC Implementation

Domain	Thesis (Research Meritocracy)	Antithesis (CBC Demands)	Core Contradiction	Synthesis Possibilities
Evaluation Criteria	Publication counts, journal impact factors	Competency development, skills outcomes	Measurable outputs vs. developmental processes	STLCI portfolios with equivalent weighting
Time Horizon	Short-term publication cycles	Long-term curriculum transformation	Immediate productivity vs. sustained engagement	Recognition of longitudinal pedagogical work
Knowledge Form	Abstract, decontextualized, generalizable	Applied, contextual, practice-based	Global legibility vs. local relevance	Multiple scholarship forms equally valued
Primary Audience	International academic peers	Students, employers, communities	External legitimacy vs. societal accountability	Dual accountability frameworks
Faculty Identity	Researcher–discoverer	Educator–innovator	Competing professional selves	Integrated scholar–practitioner
Institutional Logic	Global ranking position	National development contribution	Isomorphic mimicry vs. strategic adaptation	Contextualized excellence models

Faculty Agency Responses to Dialectical Tension

Response Type	Description	Observed Frequency	Career Implications	Institutional Outcome
Strategic Decoupling	Symbolic CBC compliance while maintaining traditional pedagogy	High (widespread across ranks)	Maintains research productivity; minimal CBC investment	Policy compliance without transformation
Selective Engagement	Limited CBC involvement in specific courses/modules	Moderate (primarily teaching-focused faculty)	Mixed career outcomes; potential marginalization	Incremental, isolated innovations
Active Resistance	Explicit refusal to engage with CBC requirements	Low (predominantly senior faculty)	Protected by rank/tenure; minimal career impact	Perpetuates status quo
Advocacy–Integration	Active participation in reform efforts while pursuing research	Low–moderate (early adopters, champions)	High risk; uncertain recognition	Innovation without reward
Exit	Departure to institutions with more aligned systems	Low but noted	Individual career advancement	Institutional capacity loss

Conclusions and Recommendations

- The analysis argues that academic promotion procedures need more than just new requirements for teaching because they must establish a system that treats all research disciplines as equivalent and should use three interconnected methods to accomplish this goal.
- Institutions should establish fair research development pathways which connect teaching advancements to research work through STLCI portfolios that use evidence standards and peer assessment, they should implement evaluation frameworks which assess CBC project effects instead of relying on citation metrics for academic research assessment, and they should use participant-informed and context-specific methods to help African universities create their own excellence standards instead of using external merit-based systems (Mamdani, 2018).

Further Readings

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SESSION FOUR:
Gender Inclusive participation in Science Technology and Innovation

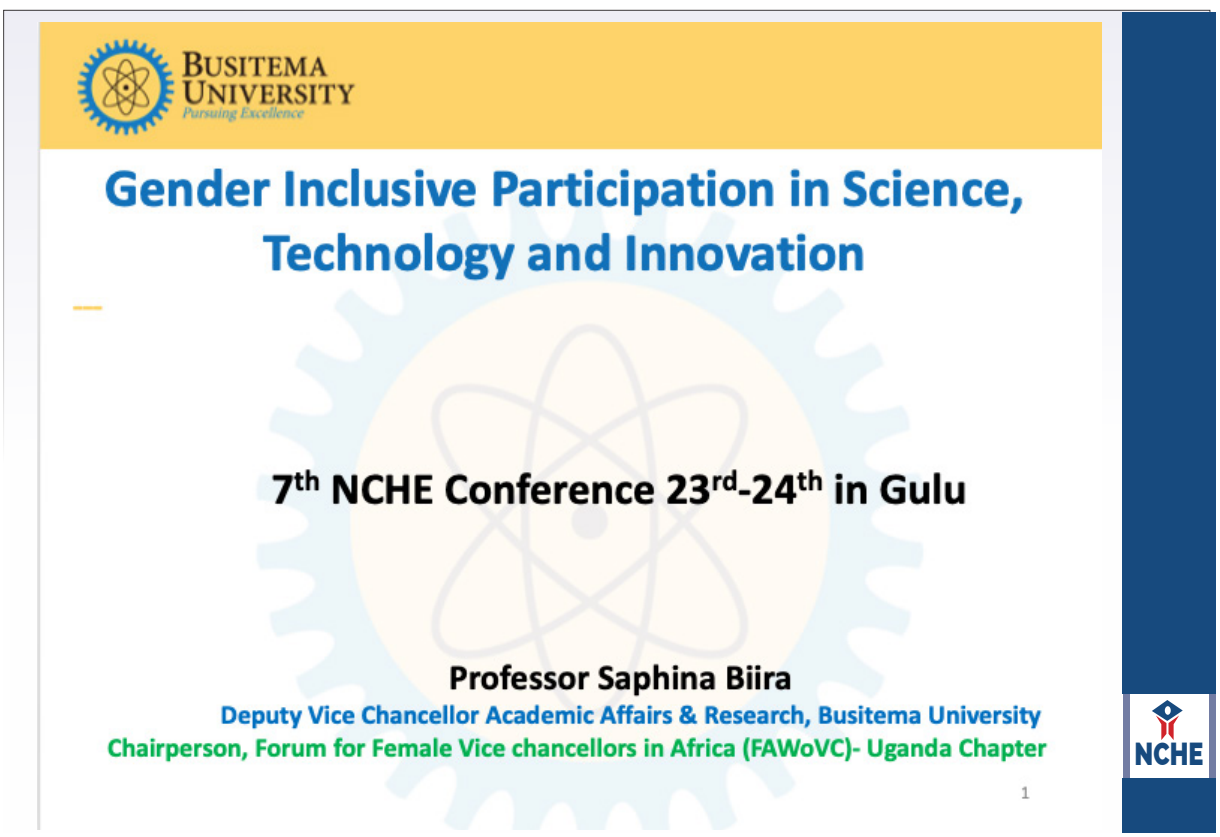
MODERATOR:

Dr. Maria Nakachwa Ssemakula, Principal Statistics and Data Management Officer, NCHE

Prof. Saphina Biira
Deputy Vice Chancellor Busitema University

Presentation:

Gender Inclusive participation in Science Technology and Innovation



Presentation Outline

1. Introduction & Context
2. Gender Inclusion and Sustainable Development (SDGs)
3. Gender Gaps in STI
4. System Failure: Leaky Pipeline & Barriers
5. Why Inclusion Matters (Economic & Innovation Impact)
6. Universities & the Innovation Ecosystem
7. Leadership & Strategic Response
8. Call to Action & Way Forward

2

Why Gender Inclusion in STI Matters

- STI is globally recognized as the engines of economic growth.
- Countries that invest in STI systems achieve:
  - Higher productivity
  - Stronger industrial sectors
  - Faster technological advancement
- Universities (Higher Education) sit at the centre of this system and are responsible for:
  - Producing skilled human capital
  - Generating knowledge
  - Driving research and innovation ecosystems
- However, the efficiency of this system depends on one fundamental factor—how inclusive it is."
- No country can achieve innovation-led growth without fully utilizing both men and women (~50%).

3

Gender Inclusion as a Catalyst for Achieving the SDGs

- By expanding access to education, resources, and economic opportunities (Reduces poverty and inequality: SDGs 1, 5, 10)
- Through increased participation of women in science, research, and service delivery (Improves health, education, and well-being outcomes: SDGs 3, 4)
- By strengthening inclusive research, technology, and entrepreneurship (Drives innovation, industry, and infrastructure development: SDGs 8, 9)
- Through diverse, inclusive solutions to environmental challenges (Enhances sustainable resource management and climate action: SDGs 6, 7, 12, 13, 14, 15)
- By promoting equity, accountability, and collaborative development (Strengthens partnerships, governance, and inclusive institutions: SDGs 16, 17)

Gender Gaps in STI (Are We Fully Utilizing Our Human Capital in STI?)

- Globally, women represent only about 30% of the STEM workforce
- Africa reflects similar trends, with persistent gaps in research and innovation systems
- In Uganda, although progress has been made, participation remains low in high-impact fields such as engineering and ICT
  - ~30% of STEM graduates are female
  - ~17% in engineering fields (Low participation in engineer
  - ~25% in ICT-related disciplines
  - ~30% of researchers are women
  - ~13% of inventors are women

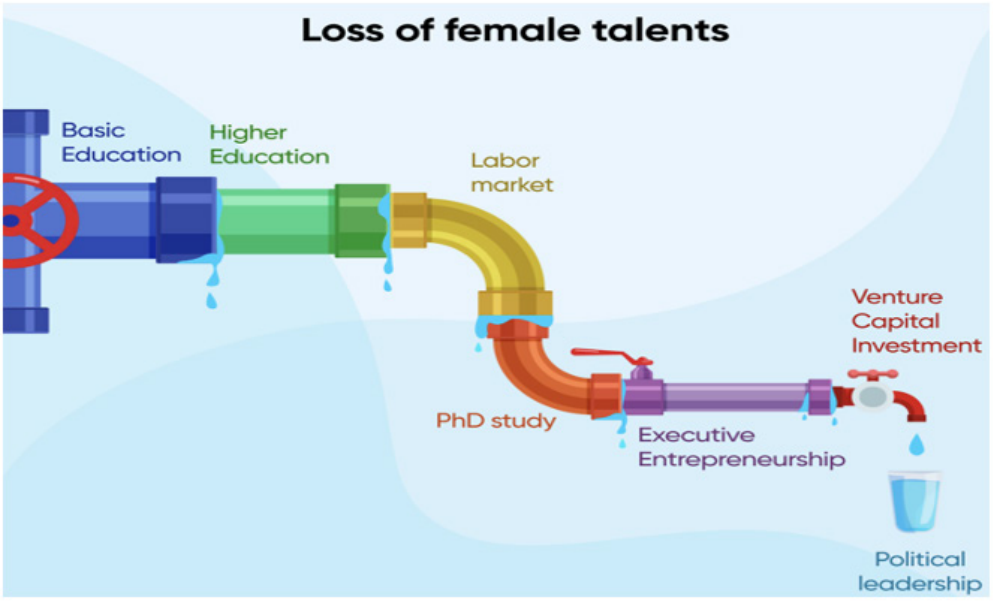
- Low representation in research leadership & innovation systems
- Women are underrepresented at every stage of the STI system
- The Systems operate below optimal capacity
- Inclusion is an economic and development imperative

This is not just inequity. it is inefficiency.

5

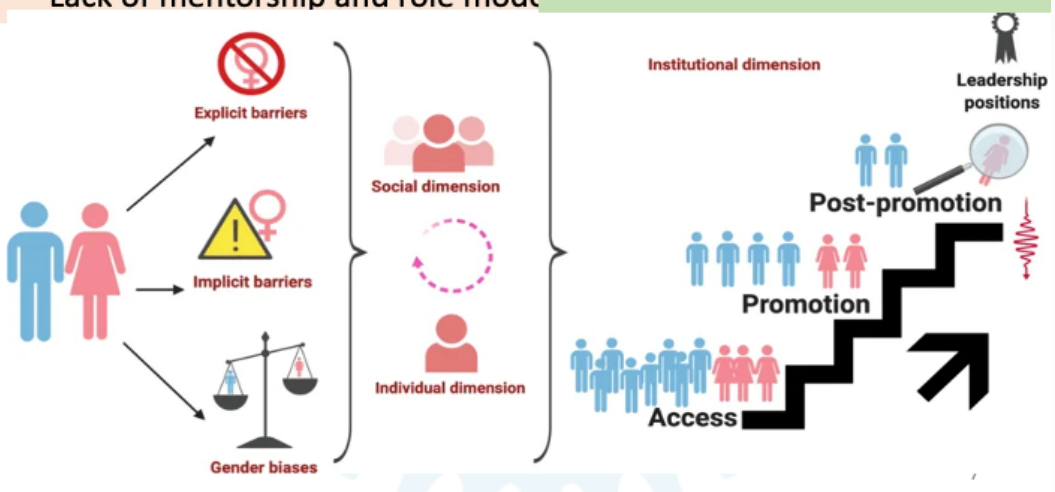
"The Leaky Pipeline"

Bringing more girls and women into STI alone is not effective, unless we tackle the systematic problems along the "pipeline"



Busitema University — Systemic Barriers to Gender Inclusion

- Limited early STEM access
- Socio-cultural stereotypes
- Gender bias in institutions
- Lack of mentorship and role mode
- Work–life balance constraints
- Weak policy enforcement
- Limited access to funding and networks



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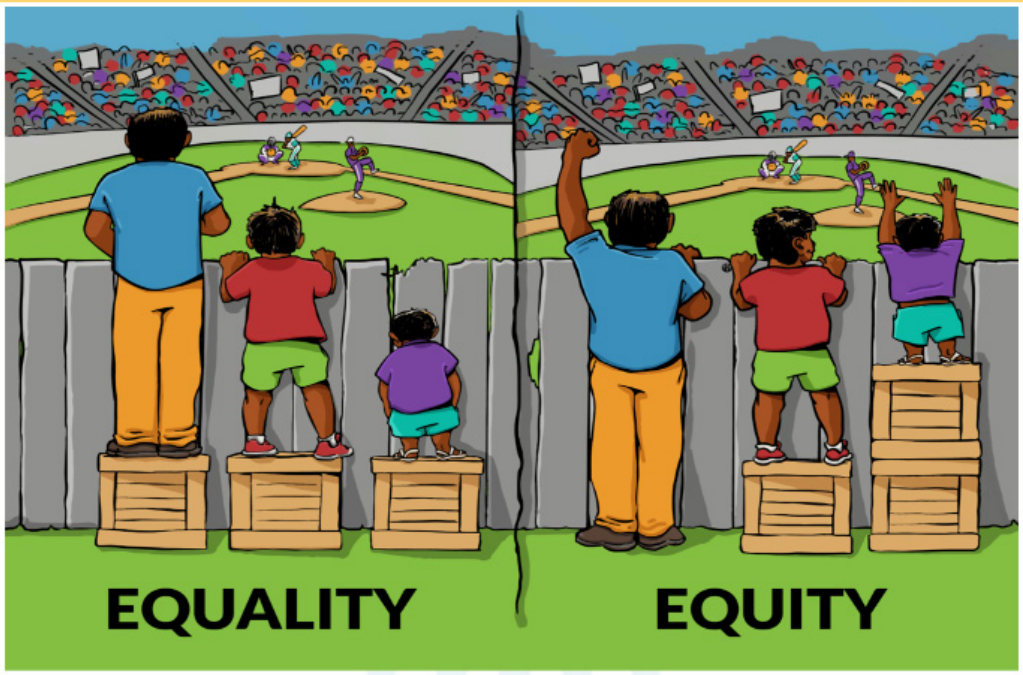
Equality and Equity



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WHY INCLUSION MATTERS (Economic Transformation)

- Gender-inclusive STI systems directly contribute to economic transformation:
  - ✓ Expands the talent pool and innovation capacity
  - ✓ Enhances creativity and diversity of ideas
  - ✓ Improves research quality
  - ✓ Produces inclusive technologies
  - ✓ Strengthens problem-solving
  - ✓ Increases productivity
  - ✓ Growth of technology-based enterprises
  - ✓ Accelerates economic growth
  - ✓ Job creation

- Countries that close gender gaps have experienced faster economic growth
- Therefore gender inclusion is a **macroeconomic strategy**."

9

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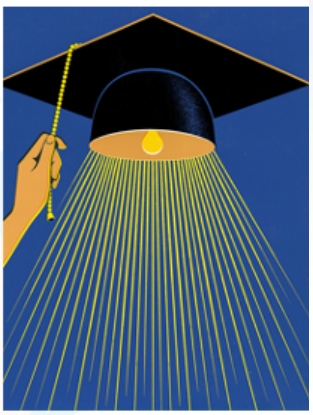
Universities as Catalysts for Inclusion

- Shape the STEM pipeline
- Design inclusive curricula
- Promote equitable research systems
- Support mentorship and leadership
- Enable innovation and entrepreneurship
- Strengthen partnerships
- Institutionalize gender-responsive policies



Gender inclusive participation in STI is not only an issue of social justice but also a strategic driver of national development.

10

Innovation Ecosystem and Interventions

Gender Inclusion Across the Innovation Ecosystem

- STI operates as a system: education → market
- Gender gaps exist across all stages
- Limited access to research funding
- Low participation in innovation ecosystems
- Weak industry integration
- Policy gaps persist
- Inclusion requires coordinated action

Strategic Interventions

- Strengthen early STEM education
- Promote gender-responsive curricula
- Increase funding for women in STEM
- Establish mentorship programmes
- Enhance participation in innovation
- Develop and enforce policies
- Strengthen partnerships

11

Women Leading the Way

- We already have strong examples of women leading in STI: Globally, Across Africa and Within Uganda
- Organizations such as FAWE, FAWoVC, UNESCO, OWSD are supporting this agenda.
- Role models are critical because:
  - They change perceptions
  - They inspire the next generation

Visibility matters.

12

Forum for Female Vice chancellors in Africa (FAWoVC

- FAWoVC is Driving Transformation in Africa
- Continental platform for women leaders
- Champions gender-responsive policies
- Promotes women's leadership in STI and governance
- Strengthens mentorship and capacity building
- Advocates for funding access
- Builds partnerships
- Drives coordinated system transformation

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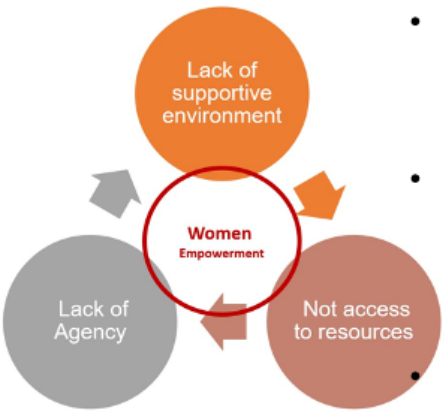
Gender Inclusion Theory of Change



- Provide access to resources including education, finance, and technology, networks and information
- Build enabling environment by fostering inclusive, supportive systems and policies that eliminate discrimination and promote equal participation and advancement.
- Offer capacity building by strengthening skills and competencies through training, mentorship, and continuous support they need to excel.

14

Skills Requiring to be Enhanced

15

Call for Action

Universities
- Mainstream gender in curricula
- institutionalize inclusion
- Strengthen mentorship systems
- Promote women to leadership

Government
- Fund women in STI
- Enforce gender-responsive policies
- Strengthen national innovation systems
- Leaders: champion change

Industry
- Support women innovators
- Invest in inclusive ecosystems
- Enable commercialization opportunities

- Inclusive science is better science
- Inclusive innovation is faster innovation

16

Key Messages and Way Forward

- Gender inclusion drives innovation and growth
- Current gaps reduce system efficiency
- Pipeline losses must be addressed
- Barriers require systemic solutions
- Universities are central actors
- Partnerships are essential
- Leadership must drive change

The question is not what to do—the question is how fast we act

17

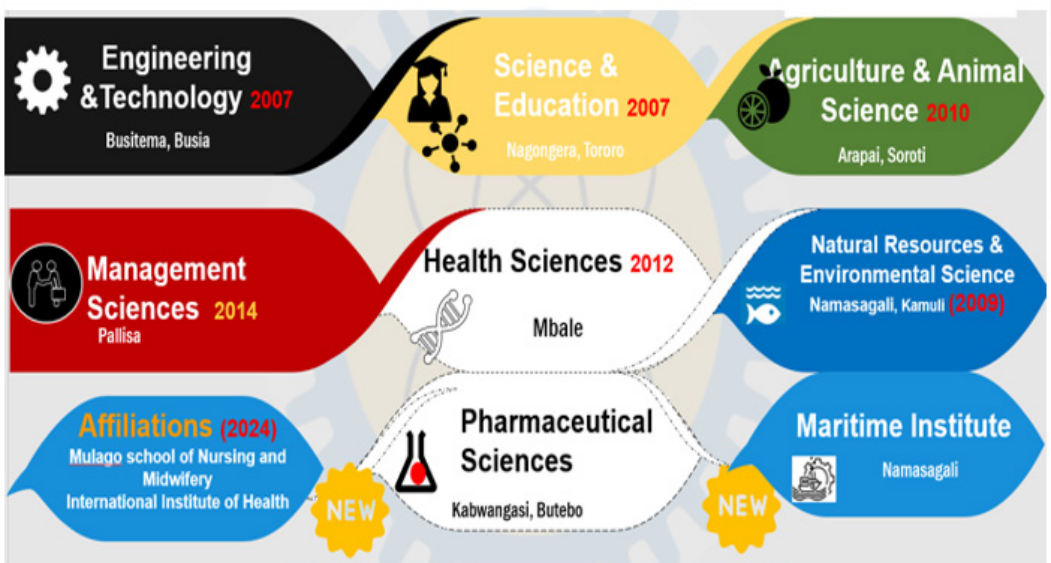
CONCLUSION

- Prioritise strengthening the STI pipeline for girls
- Increase women's participation in leadership
- Support women-led innovation and entrepreneurship
- Align gender inclusion with national development strategies

- Uganda has an opportunity to build a future-ready, inclusive innovation system.
- Change will not happen automatically; it requires leadership.

18

Multi campus University



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RESOLUTIONS FROM THE 7TH NCHE ANNUAL HIGHER EDUCATION CONFERENCE 2026

S/N	Action	ResponsibleStakeholders	Time Frame
1	Establish a National Research and Innovation Fund as proposed in NDP IV to ensure sustainable financing for research and innovation.	• MoES • MoFPED, NPA • NCHE	2026 – 2029
2	a) Develop a framework for accessing the National Research and Innovation Fund by both private and public Higher Education Institutions b) Increase the gross domestic expenditure on research and development (GERD) from 0.4% to 1.0% in the next 5 years.	• MoES • NCHE • Parliamentary Committee on Education and Sports • MoFPED	2026 – 2028
3	Align existing Higher Education Institution (HEI) curricula with Competence-Based Education and Training (CBET) frameworks, with NCHE providing standards, guidelines, and capacity-building support, and Government and other promoters ensuring provision of the necessary CBET resources and infrastructure.	• MoES • NCHE • HEIs • MOFPED • Professional Bodies	Immediate
4	Strengthen university, industry and community partnerships to ensure that research and innovations are demand-driven and responsive to national needs.	• MoES • HEIs • PSFU • NCHE • Professional Bodies	2026 – 2030
5	Develop a management framework for intellectual property and commercialization strategies for Higher Education and integrate it with private sector forum guidelines	• URSB • PSFU • HEIs • NCHE	2026 – 2030
6	Develop a framework for the establishment and operationalization of Innovation Hubs within HEIs to support incubation, commercialization, and scaling of innovations.	• NCHE • HEIs • Industry Partners	2026 – 2030
7	a) Research and Innovations conducted in HEI's should be aligned with Uganda's national development priorities, particularly those outlined in Vision 2040, with a strong emphasis on advancing industrial development and economic transformation. b) Promote Basic and Applied Research as a springboard for Research and Innovations in Higher Education Institutions.	• MoES • HEI • NCHE	2026 -2028
8	Prioritize strengthening the Science, Technology, and Innovation (STI) pipeline for women by promoting inclusive participation and encouraging men and women to actively serve as allies in advancing gender equity	• MoES • HEIs, NCHE • MGLSD • Parliamentary Committee GLSD	2026 -2028

CLOSING REMARKS BY THE EXECUTIVE DIRECTOR, NATIONAL COUNCIL FOR HIGHER EDUCATION

PROFESSOR MARY J.N. OKWAKOL

The Chairperson and Members of Council present,

Vice Chancellors and Principals present,

Distinguished Keynote Speakers,

Principals and representatives of universities and other higher education institutions,

Distinguished participants,

Ladies and Gentlemen.

It is my great honour and privilege to address you this afternoon as we come to the close of this very enriching Conference. I would like to express my sincere appreciation to all of you who have contributed to its success.

Since yesterday, we have gathered here as a cluster of scholars, policymakers, innovators, and practitioners united by a shared commitment to advancing higher education and its role in national development. We have engaged in thoughtful discussions, shared valuable research findings, and exchanged ideas on the critical issues shaping the future of higher education.

On behalf of the NCHE Management, I wish to express my sincere appreciation to all participants especially our Chief Guest yesterday Hon. Nobert Mao, our Keynote Speakers Hon. Dr. Monica Musenero and Prof. Timothy Waema, and Members of Parliament, who have contributed their insights, experiences, and perspectives during this conference. Your active engagement throughout the sessions as participants has made this conference not only meaningful but also impactful.

The conference, has no doubt, provided a platform for scholars, policymakers, innovators, and practitioners to reflect on the evolving role of higher education in addressing national and global challenges. The insightful presentations and stimulating panel discussions have deepened our understanding of how universities and other higher education institutions can strengthen research, foster innovation, and contribute meaningfully to socio-economic transformation.

The conference has demonstrated the power of collaboration in advancing higher education and innovation agendas, reaffirmed that education systems must continuously evolve to respond to technological change and societal needs, as emphasized in global education dialogues. Through the discussions we have had since yesterday, we acknowledge that nations that invest in relevant and innovative education systems are better positioned for sustainable development

I am convinced that we are leaving this conference not only inspired, but committed to action so that the ideas shared during this conference translate into meaningful change in our institutions and in the lives of the learners we serve. The conference is not an end, but a beginning of sustained action and collaboration.

I would like to extend our heartfelt appreciation to our distinguished keynote speakers / presenters, and Chairpersons. Your insights, expertise, and thought provoking presentations have not only inspired us but greatly enriched our discussions and provided us with fresh perspectives on harnessing innovations in higher education for accelerated economic transformation and also challenged us to think critically and act innovatively in our respective fields.

To the partners and sponsors, we say thank you very much for the support towards organization of the Conference. Special appreciation goes to NSSF.

To the organising committee, let me commend your meticulous planning, dedication, and tireless efforts which have made this event not only possible but also highly successful.

As we return to our respective institutions and places of work, I appeal to each of you to carry forward the knowledge, and inspiration and connections you have gained here. Let the conversations in this conference be the spark for collaboration, innovation, and positive change in our respective institutions and fields.

Please take note that the value of this conference is not just in what we have learned, but in what we *do* with it. Reach out to your colleagues, pursue the partnerships that were sparked here, and continue to challenge yourselves to transform ideas into meaningful outcomes.

Let us continue to strengthen collaboration, advance research and innovation, and work collectively towards improving the quality and relevance of higher education in our country and beyond.

As NCHE, we pledge to remain committed to supporting universities in implementing reforms and maintaining standards. Going forward, it is our hope that:

3. All Higher Education Institutions will adopt the Competence Based Education and Training (CBET) to ensure compliance.
4. Each institution should have;
    a) An Innovation Management Office
    b) Appoint an innovative and entrepreneurial staff to take charge of the office
    c) Set up innovation hubs
    d) Integrate entrepreneurship in the innovation efforts
    e) Promote Gender inclusive programming in STI

As I listened to Mr. Abraham Onyait from the Uganda Registration Services Bureau (URSB), I felt that each Higher Education Institution will benefit from inviting URSB to interact with researchers and innovators to be guided further on how your may move from Research to market by employing intellectual Property Management and Commercialisation strategies.

Ladies and Gentlemen, thank you once again for your participation, your dedication, and your passion. May we meet again in even greater collaboration and achievement. I urge you to participate in the 13th Annual Higher Education Exhibition to be held in Gulu University from 26th to 28th March 2026.

It is now my pleasure to invite our Chief Guest to deliver the closing remarks and officially close the conference.

Thank you for your attention.

Professor Mary J.N. Okwakol

EXECUTIVE DIRECTOR

CLOSURE:

The conference was closed by
The Chairperson, National Council For Higher Education
Professor Joy C. Kwesiga

The Hon. Members of Parliament present,

The Members of Council present,

The Executive Director, NCHE

Heads of Government Departments and Agencies present,

Vice Chancellors,

Management and Staff of the NCHE,

Scholars, Researchers, Innovators,

Distinguished Guests,

Ladies and Gentlemen,

It gives me great pleasure and deep satisfaction to stand before you as we come to the close of this important Higher Education Conference 2026. On behalf of Council, I wish to express my sincere appreciation to all participants who have dedicated their time, knowledge, and experience to the rich discussions we have witnessed since yesterday.

This Conference brought together some of the various minds in higher education, research, and innovation, all united by a shared commitment to advancing the role of higher education in driving national development. Therefore, this conference has not only been a platform for dialogue but also a moment for reflection on how collectively we can strengthen our higher education systems to better contribute to sustainable development and economic transformation.

During this period, we have listened to well researched presentations, engaged in discussions, and exchanged valuable ideas on how our institutions of higher learning can better respond to the demands of a rapidly changing world. The insights shared here have reaffirmed the critical role that universities and other higher education institutions play in generating knowledge, nurturing talent, and fostering innovation for societal transformation.

As we are all aware, the theme for this conference is; **Harnessing Innovations in Higher Education for Accelerated Economic Transformation. This conference** was convened at a very critical time when higher education systems across the world are being urged to respond more decisively to complex societal and economic challenges of our time. It is therefore a reminder to us that, universities and other tertiary institutions must not only generate knowledge but must also translate that knowledge into practical solutions that transform societies and economies.

Through the various presentations, we have noted that innovation is no longer optional but a necessity for national development and competitiveness. There is need therefore to strengthen research, promote innovation ecosystems, and foster stronger partnerships with government, industry, and communities. We also noted that we must seek funds beyond our traditional sources in order to overcome our current financial constraints.

We should take note that the challenges such as unemployment, technological challenges, climate change or industrial development, among others cannot be addressed solely by individual institution un aided, but it requires strong partnership spanning institutions, disciplines, and sectors. Emphasis should be put on collaborations.

This Conference brought together key stakeholders from academia, government, industry, and development partners. This has created a vital platform for sharing knowledge, exchanging ideas, and building networks and collectively charting the way forward for higher education in our country.

As we leave this conference, I wish to appeal to all participants not to leave all the ideas, recommendations, and insights generated here confined to conference halls or reports but to translate them into concrete actions within your institutions. The rich discussions, insightful presentations, and valuable exchanges we have witnessed over the past the two days must not end within the walls of this conference hall but I encourage each one of you to carry forward the ideas and commitments that have emerged here.

The responsibility of strengthening higher education, promoting innovation, and addressing the complex challenges facing our society rests with all of us. I therefore urge you to return to your respective institutions as ambassadors of the insights gained here, championing collaboration, research, and innovative solutions that can drive national and regional development. HEIs must remain at the forefront of knowledge creation, innovation, and societal transformation by working together to ensure that our institutions become engines of creativity, productivity, and transformation.

From the regulatory point, I urge all stakeholders to align your efforts with the evolving policy frameworks such as the Competence Based Education and Training, that seek to strengthen quality, relevance, and accountability in higher education. Let this conference mark a renewed commitment to evidence-based decision-making and strategic collaboration.

The National Council will remain committed to supporting higher education institutions in creating an enabling environment for research, innovation, and quality assurance. In collaboration with our partners in government and the private sector, we shall continue to promote policies and frameworks that enable our universities and other tertiary institutions to contribute meaningfully to national development.

Distinguished participants, as we draw the curtain on this conference, let us carry forward not just ideas, but actionable innovations that will redefine our universities and shape the future of our nation. The responsibility now rests with all of us to turn these insights into impact. Let us reaffirm our collective resolve to build a higher education system that is innovative, policy-responsive, and deeply connected to national development.

I wish to conclude these remarks on a note of appreciation. Let me commend the organizers; the National Council for Higher Education, under the leadership of Prof. Mary Okwakol, for convening this Conference. On behalf of the Council, I wish to express appreciation for the team work exhibited by the staff of the NCHE.

I wish to thank all of you for turning up in big numbers. I wish to appreciate the fact that this Conference was attended by more Vice Chancellors, than has been previously. Please continue to support and grow your Council through your participation. As indicated yesterday, I am particularly happy about the diversity of participants because that means that the gospel of the conference will be spread wider and wider. We need to thank presenters for sharing their knowledge, and for their time. Our two members of Parliament have been exceptional. Thank you for your commitment and timely advice and guidance.

It is now my great pleasure and honor to declare the **Higher Education Conference 2026 officially closed.**

Prof. Joy C. Kwesiga

CHAIRPERSON-NCHE

END OF CONFERENCE

Appendix 1

THE 7th NCHE ANNUAL HIGHER EDUCATION CONFERENCE

Venue: Acholi-Inn, Gulu City
Date: 23rd & 24th MARCH 2026

THEME: Harnessing Innovations in Higher Education for Accelerated Economic Transformation

CONFERENCE PROGRAMME

DAY ONE	23rd March 2026	
Time	**Activity**	**Responsible**
7:00 - 9.00:	Arrival and Registration	Ms. Susan Nanyombi, Ms. Eva Nankabirwa, Ms. Naomi Turyahabwa & Dr. Ovia Kyatuha
SESSION ONE: CONFERENCE OPENING		
Master of Ceremony:	**Dr. Nora Mulira, Director IRI & Mr. Arthur Babu Muguzi, Director FPA, NCHE**	
9:00 - 9:05	Opening Prayer	Rev. Canon. Dr. Alex M. Kagume, Deputy Executive Director, NCHE
	Anthems: National and East African Anthem	Mr. Arthur Babu Muguzi Director FPA, NCHE
9:05 - 9:15	Welcome Remarks	Professor Mary J.N Okwakol, Executive Director, NCHE
9:15 - 9:25	Opening Remarks	Professor Joy C. Kwesiga Chairperson, NCHE
9:25 - 9:45	Official Opening	Hon. Norbert Mao, Minister for Justice and Constitutional Affairs

	KEYNOTE SPEAKER PRESENTATION	
9:45 - 10:25	Keynote Presentation 1 Reimagining Higher Education as an Engine for Innovation-Led Economic Transformation	Prof. Timothy M. Waema, Professor of Information Systems at the University of Nairobi.
10:25 - 11:25	Keynote Presentation 2 From Knowledge to Innovations: Positioning universities at the Centre of Innovation and Knowledge-Transfer.	Hon. Dr. Monica Musenero, Minister of Science, Technology and Innovation
11:25 - 11:35	Question and answer	Plenary
11:35 - 12:00	BREAK	
SESSION TWO: Financing innovations in higher education to accelerate Uganda's economic transformation		
Moderator:	**Dr. Nora Mulira, Director ICT, Research and Innovation, NCHE**	
12:00 - 13:20	**PANEL DISCUSSION**	
	Guiding Questions	
	What policy and financing reforms are needed to sustainably fund innovation in higher education? How can Parliament strengthen NCHE-university–industry linkages to translate higher education innovations into jobs and productivity?	Hon. James Kubeketerya Chairperson Education and Sports Committee
		Hon. Martin Ojara Mapenduzi, Public Service and Local Government
		Hon. Agnes Kunihira, Gender, Labour and Social Development
		Hon. James Nsaba Buturo, Chairperson, East African Community Affairs
		Prof. Joy Kwesiga, Chairperson Council
13:20 - 14:20	LUNCH	
SESSION THREE: Adoption of Competence-Based Curricula and Innovative Pedagogical Reforms for the transformation of Higher Education		
CHAIRPERSON: Dr. Edward Obura Ag. Vice Chancellor All Saints University, Lango		
14:20 - 14:40	Innovative Pedagogical Approaches for Learner-Centered and Inclusive University Classrooms	Dr. Bernadette N. Karuhanga Director, National Curriculum Development Centre
14:40 - 15:00	Strengthening University-Industry Linkages to Support Competency-Oriented Teaching and Learning	Dr. Ezra Muhumuza, Executive Director Uganda Manufacturers Association

15:00 - 15:20	Integrating Competence-Based Curricula and Innovative Pedagogies to Equip Graduates for Sustainability and Global Engagement	Prof. Jacob Godfrey Agea Deputy Vice Chancellor, Muni University
15:20 - 15:35	Pedagogical Reforms and Adoption Readiness of Competence- Based Curriculum: The Moderating role of Supportive Resources among Public Universities in Northern Uganda	Ms. Giovanna Lawino Researcher, MUBS
15:35 - 16:00	Discussion: Question and answer	Plenary
SESSION FOUR: Transformative Research and Innovation in STEM for National Research and Development		
CHAIRPERSON: Prof George Ladaah Openjuru, Vice Chancellor Gulu University		
16:00 - 16:20	Harnessing STEM Research for Climate Resilience and Sustainable Development in Uganda	Prof. Simon Anguma Katrini, Vice Chancellor Muni University
16:20 - 16:40	Interdisciplinary Approaches to Innovation: Leveraging STEM for Socio-Economic Transformation	Prof. Winston Tumps Ireeta, Board Chairman, Makerere University Technology and Innovation Centre (MUTIC)
16:40 - 16:55	Challenges and Prospects of Academic-Practitioner Knowledge-Sharing: Insights from Uganda Management Institute	Dr. Harriet Ayiorwoth, Researcher, UMI
16:55 - 17:20	DISCUSSION: Question and answer	Plenary
17:20 -	**Cocktail**	
	END OF DAY ONE	

DAY TWO	24th March 2026	
SESSION ONE:	OPENING SESSION	
Time	Activity	Responsible
8:00 - 9.00	Arrival and Registration of Participants	Ms. Susan Nanyombi, Ms. Eva Nankabirwa, Ms. Naomi Turyahabwa & Dr. Ovia Kyatuha
Master of Ceremony: Dr. Nora Mulira, Director IRI & Mr. Arthur Babu Muguzi, Director FPA, NCHE		
9:00 - 9:02	Opening Prayer	Rev. Canon. Dr. Alex M. Kagume, Deputy Executive Director, NCHE
9:02 - 9:10	Welcome Remarks	Professor Mary J.N. Okwakol Executive Director NCHE

9:10 - 9:50	KEYNOTE SPEAKER PRESENTATION Transforming Higher Education through Competence-Based Learning, Innovation Ecosystems, and Strong University-Industry Partnerships	Mr. Stephen Asiimwe, Chief Executive Officer, Private Sector Foundation of Uganda
9:50 - 10:20	DISCUSSION: Question and answer	Plenary
10:20 - 10:40	BREAK	
SESSION TWO: Strengthening University-Industry Linkages and Knowledge Transfer		
CHAIRPERSON: Rev. Fr. Dr. Jino O Mwaka, VC, University of the Scared Heart, Gulu		
10:40 - 11:00	From Research to Market: Intellectual Property Management and Commercialization Strategies in Higher Education	Mr. Abraham Onyait Ageet, Senior Patent Examiner Uganda Registration Services Bureau (URSB)
11:00 - 11:15	Sustaining University-Industry Partnerships: Models for Joint Research, Technology Transfer, and Knowledge Exchange	Dr. Medard Twinamatsiko, Director for the Centre for Innovations and Technology Transfer (CITT) - MUST
11:15 - 11:30	Embedding Entrepreneurship in University Curricula: Strategies for Cultivating Innovation-Driven Graduates	Dr. Cathy Ikiror Mbidde, Manager, Makerere University Technology and Innovations Center
11:30 - 11:45	Building a Functional Innovation System in Uganda: The Role of Knowledge Transfer in Driving Inclusive Development	Mr. Opio Patrick Researcher
11:45 - 12:00	DISCUSSION: Question and answer	Plenary
12:00 - 12:20	Preparing for Financial Security: The Role of Higher Education in Promoting Social Security Awareness and Retirement Planning in Uganda	NSSF
SESSION THREE: Fostering Innovations, Entrepreneurship, and Start-Up Ecosystems in Higher Education		
CHAIRPERSON: Dr. Christine Okurut, Deputy Vice Chancellor Kumi University		
12:20 - 12:40	Lessons from Long-Standing University Innovation Hubs: The MUBS Experience	Prof. Moses Muhwezi, Principal MUBS
12:40 - 12:55	From Survival to Innovation: How Loan Adequacy Influences STEM Graduates' Innovation Capacity in Uganda	Mr. Orace Tom David Researcher, Gulu University
12:55 - 13:10	**Reconciling Faculty Promotion with Competence-Based Curricular Innovation in East African Higher Education**	**Mr. Eutychus Ngotho Gichuru** **Researcher, Makerere University**
13:10 - 13:30	DISCUSSION: Question and answer	Plenary
13:30 - 14:30	LUNCH	

SESSION FOUR: Gender Inclusive participation in Science Technology and Innovation		
Moderator: Dr. Maria Nakachwa Ssemakula, Principal Statistics and Data Management Officer, NCHE		
14:30 - 14:50	**Gender Inclusive participation in Science Technology and Innovation**	Prof. Saphina Biira, Deputy Vice Chancellor Busitema University
14:50 - 15:50	PANEL DISCUSSION	
	Guiding Questions How can higher education institutions promote gender-inclusive participation in Science, Technology and Innovation? What barriers limit gender inclusion in STI, and how can higher education address them?	Prof. David Okello Owiny, Deputy Vice Chancellor, Gulu University
		Mr. Richard Kityo, Principal Gender Office, Ministry of Gender, Labour and Social Development
		Dr. Charity Basaza Mulenga, Vice Chancellor King Ceasor University
		Prof. Pauline Byakika-Kibwika, Vice Chancellor, Mbarara University of Science and Technology
15.50 - 16:00	CLOSURE	Prof. Joy Kwesiga NCHE Council Chairperson

Rapporteurs:

1. Dr. Justin Ayebare (Leader)
2. Dr. Erion Bwambale
3. Dr. Walter Okongo

Conference Coordinator: Dr. Cosmas Muhumuza, Senior Higher Education Officer Research and Innovation

Conference Manager: Dr. Nora Mulira, Director ICT, Research and Innovation

NCHE

National Council for Higher Education

Ensuring Quality for Excellence

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