NCHE

THEME:
FOSTERING GRADUATE EMPLOYABILITY AND INNOVATIONS

THE 5th NCHE ANNUAL HIGHER EDUCATION CONFERENCE AT MBALE RESORT HOTEL

18th & 19th MARCH 2024

THE 5TH NCHE ANNUAL HIGHER EDUCATION CONFERENCE HELD AT MBALE RESORT HOTEL, 18th & 19th MARCH 2024

National Council for Higher Education

Ensuring Quality for Excellence

CONFERENCE PROCEEDINGS

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EXECUTIVE SUMMARY

1. Introduction

The National Council for Higher Education (NCHE) is mandated under Section 5(b) of the Universities and Other Tertiary Institutions Act 2001 (as amended) to promote and develop the processing and dissemination of information on higher education for the benefit of people. In line with this, the Council conducts the Annual Higher Conferences to share scholarly information.

NCHE organized the 5th Higher Education Conference, the first conference held in a region outside Kampala, at Mbale Resort Hotel in Mbale Municipality from March 18th to 19th, 2025. The conference theme was "***Fostering Graduate Employability and Innovations***."

The Conference focused on the following thematic areas;

i) Financing and investment in Higher Education.

ii) The adoption of emerging technology in the digital transformation of higher education.

iii) Improving access and inclusivity to higher education in Uganda: Addressing Uganda's low Gross Enrollment Ratio.

iv) The Private Sector's role in enhancing graduate skills and employability through Technological Innovations.

The conference's main objective was ***"to develop strategies to inform frameworks to effectively foster graduate employability and innovation in alignment with the job market's and society's evolving needs."*** The conference-specific objectives were;

i) Exploring strategies to equip graduates with the skills and competencies demanded by the job market.

ii) Identifying industries' and employers' evolving needs and expectations and discussing how higher education institutions can better align their programs and curricula to meet those needs.

iii) Promoting research collaborations between academia and industry to address emerging trends, technological advancements, and societal challenges, fostering innovation and creating new opportunities for graduate employment.

iv) Showcasing innovative approaches and initiatives within higher education institutions to foster student creativity, entrepreneurship, and innovation.

v) Providing a platform for disseminating scientific and academic research papers and findings to stakeholders and enabling review of research findings through peer feedback.

2. Key highlights

2.1 From the welcome remarks by the Executive Director (ED), Professor Mary J. N Okwakol

The Executive Director welcomed and thanked the Minister of Science, Technology, and Innovation (STI), Hon. Dr. Monica Musenero Masanza, for accepting the invitation to be the conference's Chief Guest and Keynote Speaker. She also expressed gratitude to the Chairperson of the NCHE Council, Professor Eli Katunguka Rwakishaya, for his support and to the Vice Chancellors, Principals, and participants for attending the conference. She highlighted that it was the first time NCHE was holding the conference outside Kampala and mentioned plans to organize similar events in other regions.

The Executive Director noted a discrepancy between the education provided by higher education institutions (HEIs) and the needs of employers, emphasizing the need for HEIs to realign their curricula to better meet employers' requirements. She recommended:

i) Involving the private sector and industry in developing and reviewing curricula.

ii) Promoting collaboration between HEIs and industry to address societal needs.

2.2 From the official opening remarks by the Minister of STI, Hon. Dr. Monica Musenero Masanza.

The Minister of STI commended NCHE for strategically choosing the conference theme when the country grapples with unemployment and noted that innovation is key to addressing the unemployment challenge. She noted that;

i) The structures for curriculum development in HEIs are not flexible enough to cope with industry technological advancements.

ii) HEIs need to continuously engage employers to know their demands and align student internships to find solutions to industrial challenges.

iii) The graduates have inadequate soft skills and poor attitudes, and they need to be mentored to transition from the training to the workplace.

iv) Uganda's education system has black-boxed her citizens because the curricula do not prepare graduates to embrace value addition. Hence, emphasized that Uganda's education system should focus on value addition and move away from the current production status of raw materials.

v) Uganda's education system should enable graduates to generate new ideas through research and development as new ideas build technology and technology, which, in turn, builds industries that are good sources of information for developing and reviewing the curricula.

2.3 From the keynote address by Ms. Sarah Kitakule, Director of Sustainable Business for Uganda Platform (SB4U).

Ms. Sarah Kitakule was the keynote speaker on the second day, and her keynote address was hinged on the private sector's role in enhancing graduate skills and employability through technological innovations. The key highlights included:

i) The expectations of graduates are high and unrealistic as they prefer being recruited in high positions with good pay.

ii) HE should equip graduates with the knowledge, skills, and attitudes required to adapt to workplace changes in the 21st century. These include digital literacy, emotional intelligence, and creativity.

iii) Employers are key stakeholders in the HE eco-system, and she appealed to HEIs to tailor their curricula to the needs of the employers/job market and partner with the private sector to bridge the gap in the industry.

3. Closing remarks

3.1 Executive Director (NCHE)

The Executive Director encouraged HEIs to equip learners with technical and soft skills to enhance their employability. She also urged HEIs to partner with industry and other stakeholders in developing and reviewing curricula and internships.

3.2 Chairperson ICT, Research and Innovation Committee of Council of NCHE.

Dr. Jenipher Twebaze Musoke concluded the conference on March 19, 2024. She thanked all participants for their attendance and active engagement and thanked the keynote speakers, session chairpersons, presenters, heads of HEIs, the Executive Director, and NCHE management. She encouraged HEIs to implement strategies to increase enrollment and equip students with the knowledge and skills needed in the industry.

4. Conference strategies for the follow-up

i) Disseminate conference proceedings to all the stakeholders.

ii) Publish the conference proceedings for the record

iii) Develop the action plan for implementing strategies to combat emerging issues to effectively foster graduate employability and innovation aligned with the job market's and society's evolving needs.

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

5. Action Plan for the 5th Annual Higher Education Conference 2024 emerging issues.

Table 1: Summary of the conference focus areas, emerging issues, and actionable points by responsible Ministries and other bodies in a certain time frame.

No	Focus Area	Issues	Action points	Responsibility	Time frame (yrs.)
1	Value addition for Uganda's Education system.	i) The current education system is hinged on producing raw materials. ii) The curriculum is not aligned with the value addition processes.	i) Curriculum Reform.	HEIs	5
			ii) Multi-disciplinary cooperation.	HEIs	2
			iii) Develop and disseminate comprehensive curriculum development guidelines emphasizing value-addition processes.	NCHE	2
2	Adequate investment in STI	i) Adequate and appropriate infrastructure/ education facilities for HEIs to support the teaching, learning, and research conduction. ii) Insufficient Ph.D. numbers in the country who are critical in knowledge generation and innovations.	i) Policy framework	NCHE	2
			ii) Targeted funding and capacity-building schemes to increase national PhDs.	MoES	3
			iii) Develop /Review Doctoral QA system at regulatory and Institutional level Review dedicated to research	NCHE	2
			i) Increased innovations that can attract funds to HEIs.	HEIs	2

3	Align HE curricula to the industry needs.	i) The curriculum is not aligned with the industry's needs. ii) HE systems and strictures are not flexible in improving the curricula to meet the industry's ever-changing needs. iii) Knowledge, skills, and attitude gaps for the graduates.	iv) Involve industry experts in curriculum design to ensure academic programs align with industry needs.	HEIs	2
			v) Develop minimum standards to incorporate soft skills in the curricula.	NCHE	2
4	Research production	i) Low research production relevant to the industry. ii) Few innovations developed to solve industry problems. iii) Commercialisation of research products.	i) Establishment of partnerships between universities and industry to identify research areas that address real-world problems.	HEIs	1
			ii) Increasing Funding for Research. HEIs allocate funds for research activities.	MoES	3
			iii) Establishment of innovation hubs in universities to foster a culture of creativity and problem-solving.	HEIs	2
			iv) Strengthen IP capacity for student innovations	HEIs	2
			v) Establish and strengthen Technology Transfer Offices in institutions to manage the commercialization process, including patenting, licensing, and business development.	HEIs	2
			vi) NCHE to strengthen HE exhibitions for HEIs to showcase research products and innovations to potential investors, partners, and customers.	NCHE	Annually

SESSION ONE: CONFERENCE OPENING

WELCOME REMARKS

The Chief Guest, the Minister for Science, Technology and Innovations

The Chairperson, NCHE

Council Members, NCHE

Members of Management, NCHE

Executive Directors and Secretaries of Agencies/Sister organizations

Vice Chancellors and Principals

Senior Staff of the Ministry of Education and Sports

The Political leaders of Mbale City present

Staff of the National Council for Higher Education

Distinguished Guests

Members of the Press

Ladies and Gentlemen

On behalf of the National Council for Higher Education (NCHE), I welcome you all to the 5th Annual Higher Education Conference. In a special way I welcome Hon. Dr. Monica Musenero, who, despite her very busy schedule accepted to grace this event as Chief Guest. Thank you very much Hon. Minister. In addition, the Minister kindly accepted to be Keynote Speaker. It is not common that Ministers play the role of keynote speakers. We therefore do not take that for granted. We look forward to benefitting from your rich technical knowledge of the subject of innovation and employability of graduates. I also extend our gratitude to session chairpersons, keynote speakers, panelists and paper presenters for accepting our invitation to play those roles.

Honourable Minister, this is the first time NCHE is holding the conference outside Kampala. Going forward, we plan to organize the same in other regions of the country so as to give higher education stakeholders equal opportunities to benefit from such events as this one.

The theme of this year's Conference is ***"fostering graduate employability and innovations".*** The conference aims at exploring strategies to equip graduates with the skills and competencies demanded by the job market. It is also intended to identify industries' and employers' evolving needs and expectations and how higher education institutions can better align their curricular to meet those needs and expectations. It is expected to promote research collaborations between academia and industry to address emerging trends, technological advancements, and societal challenges. Other benefits are fostering innovation and creating new opportunities for graduate employment. Institutions will showcase innovative approaches that will stimulate student creativity, entrepreneurship, and innovation and provide a platform for disseminating scientific findings to stakeholders as required under Section 5(b) of the Universities and Other tertiary Institutions Act 2001 (as amended).

This Conference has attracted mostly participants from institutions of higher learning. However, we have also attracted employers who are the final beneficiaries of our graduates. We expect to share with them the skills gaps and what needs to be done to close these gaps.

The education system today is not fully aligned to the labour force needs which has led to the mismatch of skills and competencies for employability. This mismatch is caused by having competencies that fall short of the skills set necessary to effectively carry out tasks. There is, therefore,

need to revisit curricular in innovative ways so as to match the changing environment. Such efforts will help to eliminate skills obsolescence, technological obsolescence and knowledge obsolescence.

As NCHE we want to appreciate the efforts by the Ministry of Education and Sports in ensuring that learners are equipped with the required skills, supporting establishment of innovation hubs and centres at various higher education institutions and providing facilities to institutions such as skills labs so as to promote skilling of learners.

I want to call upon our institutions to embrace the practice of regularly revising curricular to integrate internships, industrial training/placements and mentorship so as to enable students acquire the required skills. Institutions are also encouraged to hold stakeholder meetings with the industry to understand the skills required before revising academic programmes. This is to ensure appropriateness, relevance and adequacy of such programmes. NCHE will continue to monitor and provide guidance to institutions for compliance. We call upon institutions not to hesitate to consult NCHE.

It our hope that our engagement at this conference will provide opportunities to reflect on the planned strategies or those being undertaken in preparing graduates with the skills, competencies and knowledge required in the job market today. We look forward to a fruitful engagement with you all.

Let me take this opportunity to thank the Chairperson and the Council for continued oversight and guidance, and colleagues members of Management for organising the event. In a special way I wish to appreciate the Organising Committee headed by the Director of ICT, Research and Innovation, Dr. Norah Mulira, for a job very well done. I am aware that all staff played different roles in ensuring success of the event. Management is grateful to you all.

THANK YOU FOR YOUR ATTENTION

Professor Mary J.N. Okwakol

EXECUTIVE DIRECTOR

OPENING REMARKS

Hon Dr Monica Musenero,

The Minister of Science, Technology and Innovation

Members of Council, NCHE

The Executive Director, NCHE

Vice Chancellors and Deputy Vice Chancellors,

Principals of HEIs,

Members of the Secretariat, NCHE

Members of staff, Public and Private,

Members of local governments,

Members of the press,

Ladies and Gentlemen

I wish to thank the organisers for having invited me to participate in this 5th Annual Higher Education Conference held in Mbale city under the theme "Fostering Graduate Employability and Innovation". I note that the aims of the conference touch on a number of areas including Exploring strategies to equip graduates with the skills and competences demanded for the job market, Industry and academic linkages, Promoting Research collaborations, student creativity and Innovativeness and promoting a platform for dissemination of research papers and findings. I commend the organisers for coming up with this broad menu.

I consider the theme and aims very pertinent especially at this time when the country is grappling with numerous challenges that call on higher education to come up with solutions.

Employability is set of achievements-skills, understandings and personal attributes-that makes graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy.

Unemployment rate is the share of the workforce that is currently not working but is actively searching for work. It does not include the economically inactive population e.g the long term unemployed, those below 15 years and retired.

Before I go any further, let us share some statistics

Age structure of Ugandans

0-14 years	44. 76%
15-64 years	53.52%
65 year and above	1.68%.

Unemployment rates

2020	3.81%
2021	3.425
2023	2.94%

Median age for Uganda in 2020 was 15.7 years. Meaning that half the population was below 15.7 years and the other half was above this age.

77% of the Ugandan population is below 30 years of age. This makes a country with the youngest age structure in the world. The population of Uganda will continue to grow at a rate of one million per year for decades to come.

Women in Uganda have an average of 6.7 children a fertility rate largely attributed to high fertility rate in rural women. This high fertility rate has been the highest in the world for the last 40 years.

The Office of the deputy Prime Minister has reported that the unemployment rate among Ugandan youths is 22% and even higher among young people with university degrees and the youth living in urban areas. This is driven in part by the mismatch between the desired credential of a university degree and the vocational skills that are in relatively more demand in the labour market.

Uganda's demographic situation impacts all aspects of its development, from economic growth to quality of education to health care provisions. Governance, political stability, security and adaptation to climate change are also deeply Influenced by demographic mechanisms.

WHAT I HAVE JUST SAID DOES NOT PAINT AN OPTIMISTIC PICTURE FOR THE FUTURE OF UGANDA AND YET WE ARE CALLED TO ACTION.

Broadly we need to focus here on skills, understandings and attributes of the graduate in order for him/her to find a job and keep it.

Skills is the ability to do something well. The skills are imparted to learners through training which includes both theories and practical engagements. So, the important questions to ask are:

How are these students selected and what do they have at the start? Who is doing the training?

What are the students trained in?

How are they trained?

Students that come to universities and other higher education institutions have spent a big part of their lives in Primary, 0-level and A level where they have spent close to 14 years and they come to higher education institutions where they spend 2-3 or 5 years. Through this journey they acquire skills and develop a set of personal attributes.

So what I am driving at, is that We cannot look at Graduate Employability by focusing on University education without looking at the entire education system. It is this system that builds an individual. If that person is half or quarter baked before joining the university, university education with its own inherent challenges may not do much to redeem that individual.

The gaps in our institutions that may affect how skills are imparted to learners include for example

- Shortage of staff in HE institutions,
- Outdated curricula and focusing on areas that have been shown not to be relevant to the current jobs,
- Very poor attitude to work among university employees
- Large portion of students not dedicated to serious study an enquiry but focus on paper qualification.
- Lack of adequate infrastructure and facilities especially for Science, Technology, Engineering and Mathematics training.

Skills required to perform most jobs continue shifting significantly and according to the Global average skills stability – the proportion of core skills required to perform a job that will remain the same -is expected to be about 58%. That means workers will see an average shift of 42% in required workplace skills going forward.

The following have been identified as Skills of the future

Growing skills

1. Analytical thinking and innovation
2. Active learning and learning strategies
3. Creativity, originality and initiative
4. Technology design and Programming
5. Critical thinking and analysis
6. Complex problem solving
7. Leadership and Social influence

8. Emotional intelligence
9. Reasoning, problem solving and ideation
10. Systems analysis and evaluation

Declining skills

1. Manual dexterity, endurance and precision
2. Memory, Verbal, auditory and spatial abilities
3. Management of financial, material resources
4. Technology installation and maintenance
5. Reading, writing, math and active listening
6. Management of personnel
7. Quality control and safety awareness
8. Coordination and time management
9. Visual, auditory and speech abilities
10. Technology use, monitoring and control

I have engaged employers in order to understand why they say that most graduates from Ugandan institutions are not employable. From our discussions it came out that there are a number of gaps especially in soft skills including

- Customer care skills
- Working in teams
- Reporting and communication skills
- Organizing, planning and prioritizing skills
- Time management and failure to work to deadlines
- Young people get bored quickly and lose passion for the job
- Low knowledge of IT and new technology skills
- Interpersonal relations and conflict handling
- Disrespectful

Most of these skills are not taught in Universities but are acquired through education at lower levels and from home and family environments.

In order to address these skill gaps, it has been recommended as follows:

- Support development of cognitive and socio-emotional skills
- Private sector led on the job/practical training of staff
- Apprenticeship (6 months or more)
- internship (properly supervised and regulated)
- Mentoring/coaching/career guidance
- Professional short term courses.

"Most people produced by our education system are not trainable or employable"

"Many people have never learned how to use their mind"

Another aim I wish to comment on is **Promoting research collaborations between academic and Industry to address emerging trends, technological advancements and societal challenges, fostering innovation and creating new opportunities for graduate employment.** This is an area that I am passionate about having been an active researcher and manager of research at Makerere for close to ten years.

In order for this collaboration to work, the Industries must see value in what higher education institutions are producing that they need to improve their profitability. I held a public engagement on Academic,

Industry and Government linkages in Kyambogo in 2022 and the industrialists told us, Universities do not understand how the industries work, they are too bureaucratic, very slow at decision making and no one knows or appreciates the competences of university graduates.

To me the starting point is for HE to become strong in Research, coming up with innovations and products that attract the private sector. HE institutions must also understand Commercialization ecosystem that is developing (Innovations, prototype, upgrading to product and marketing the product).

To do this, research capacity in the universities must be developed rather than be assumed. So we must focus on capacity building through training, mentorship and coaching, and a propriate funding mechanisms (Competitive Research fund, Government funding, Grants, Proposed National Research fund).

As a country we must have deliberate efforts geared towards increasing the number of people with Ph.Ds. While this may be viewed as Elitist, there is a clear correlation between the number of Ph.Ds in an institution and research output from that institution in terms of Publications in peer reviewed and high impact journals, Patents and Small and medium enterprises arising out of innovations and Ph.D training is known as a pillar for economic and sustainable development in Uganda.

Africa home to 1 .4 billion people (1 5% of world population has a research contribution of 7% largely in Tropical Medicine research.

IN EVERY A MILLION PEOPLE IN UGANDA

Primary students	1,77,778
Secondary students	28,889
Students	222,222
University students	4,000
Ph.D Holders	44
HE students	6,667

It is estimated that Uganda has 2,200 Ph.Ds amidst a requirement of 10,000 Ph.Ds (UNCST, 2021) giving a deficit of over 8,000. This can not be covered by the current production rate of about 100 Ph.Ds per year. If research· is to contribute to socio-economic growth of Uganda and to contribute to creation of jobs for the Ugandan youth, we must come up with a deliberate policy to increase Ph.D production from our universities.

The purpose of H E in Uganda should be to produce the right human resources for the job market, entrepreneurs to contribute to economic growth of the country and citizens with a correct attitude. Human resource is defined as all of the knowledge, skills, energy and other qualities of the human being that may be utilized for sustained work and prolonged employment. Here attitude and emotional intelligence become very important. Knowledge, many help you get a job but attitude will help you keep that job.

Whereas I did not provide clear solutions to tackling the unemployment problem among the graduates I have highlighted some of the aspects that compound the problem and some of the approaches that may be employed to create a dent on the large problem at hand. Through presentations and discussions in the next two days, I hope some resolutions will be arrived at to help the government and HE institutions develop policies and guidelines that may address this complex problem much as it may not be eliminated completely.

Hon Ministers and fellow participants, I wish you fruitful deliberations going forward.

Professor Dr Eli Katunguka Rwakishaya

Chairperson, NGHE.

OFFICIAL OPENING

The Members of Parliament present

Officials of the Ministry of Education and Sports present

The Chairperson and Members of the National Council

The Executive Director, NCHE

Members of NCHE Management

Vice Chancellors and Principals present

Staff of NCHE

Members of the Press

Ladies and Gentlemen

Good morning to you all, I bring you greetings from the Secretariat of Science Technology and Innovations (STI).

On behalf of the STI Secretariat, I would like to thank the National Council for Higher Education (NCHE) for inviting me to preside over this function and as I have been informed that this is the 5th event of this kind, I want to thank NCHE for maintaining the culture of the Annual conference. I am pleased to see many institutions of higher learning, Researchers and industrialists and their representatives here today.

This culture of annual conferences stimulates our researchers to do research and come up with new knowledge which guides in policy making and also provides a platform for the dissemination of research findings. This helps to expand on the knowledge base, provides latest information and new ideas, teaches better discernment and builds credibility. Research also helps in problem solving and encourages curiosity and conferences like this serve to reach out to the people.

Let me thank NCHE for strategically choosing the theme ***"Fostering graduate employability and innovations"*** I called it a strategic choice because it has come at a time when Government is gearing up to address the challenge of un employment among the graduates.

"As we move deep into the fourth industrial revolution, Government of Uganda has positioned innovation as one of the key drivers for socio-economic development and transformation as laid down in Vision 2040. At least 50% of global economic development is attributable to innovations and investment in STI

Higher Education and innovation are interrelated in driving skills development and shaping the future and reciprocally reinforcing drivers for skills development. It provides the foundational knowledge, critical thinking abilities, and technical skills required for individuals to adapt, innovate, and excel in various domains. On the other hand, innovation promotes a culture of creativity, problem-solving, and continuous learning, which are essential for skill development and societal advancement.

Uganda's Vision 2040 also singles out among others human capital development as one of the fundamentals which is a product of education as one that hastens the country's transformation. The East African Community (EAC) Vision 2050 also emphasises promotion of learning opportunities and skills through science, technology and innovation as an avenue to development. This therefore, mandates the education sector to ensure implementation of skilling in order to achieve development.

I call upon all institutions in the education sub sector to foster strategic partnerships with various stakeholders both public and private, and increase skilled workforce that can potentially compete on the job market in the region and globally. There is need to establish education institution-industry linkages to produce highly skilled workers and help foster innovation across different sectors. In addition, use technology to facilitate teaching and training because it expands the reach of education

It is necessary to engage employers in skills development through work-integrated-learning, career development, and ensure skills development matches the needs of the emerging workforce.

And lastly, it is important to facilitate school-to-work transition as a training program such as such as on-the-job trainings and apprenticeships, placements and industrial trainings aimed at preparing graduates for the labor market.

It is now my singular honour and pleasure to declare this 5th Annual Higher Education Conference officially open.

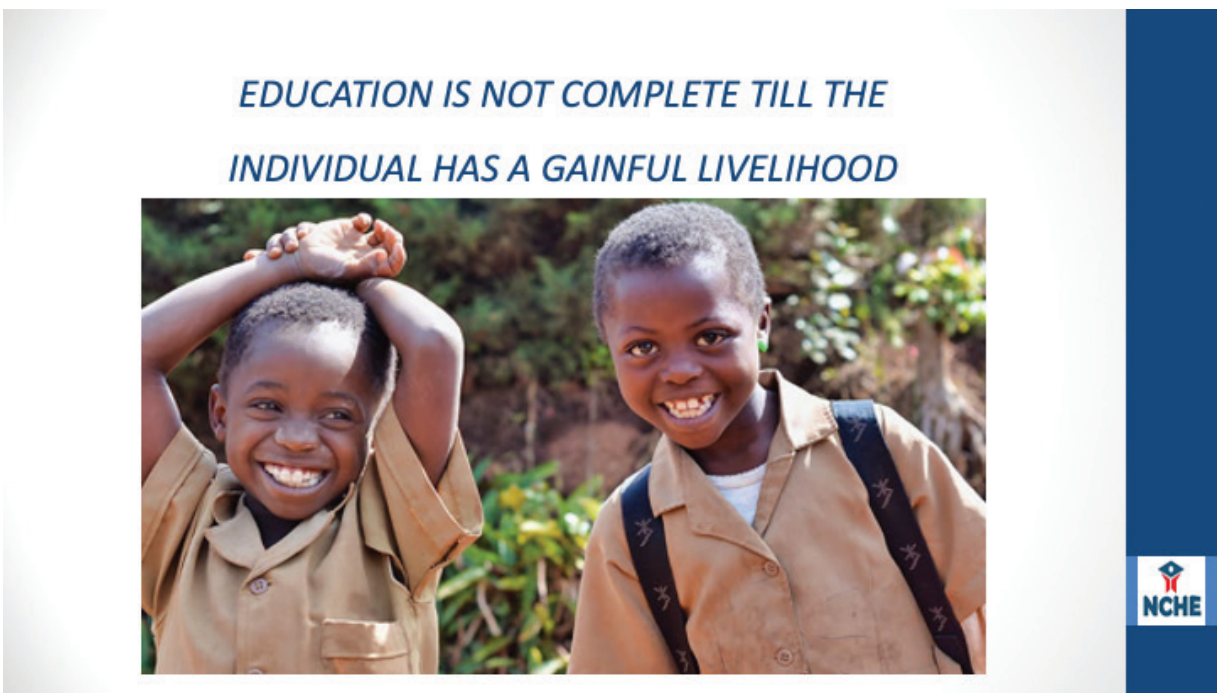
Hon. Dr. Monica M. Musenero

Minister for Science technology and Innovations

KEYNOTE SPEAKER

HON. DR. MONICA MUSENERO, MINISTER OF SCIENCE, TECHNOLOGY AND INNOVATION

Presentation: Fostering Graduate Employability and Innovation



EMPLOYABILITY

- Refers to the skills, knowledge, abilities, and attributes that make an individual desirable to employers.
    - Technical skills specific to a certain job or industry
    - Soft skills such as communication, teamwork, problem-solving, adaptability, and emotional intelligence.
    - Ability to thrive and progress within the workplace.
- It arises out of a combination of
    - formal education,
    - practical experience, and
    - personal qualities

INNOVATION

- The process of introducing something new or significantly improving upon existing ideas, products, services, processes, or methods.
- Involves creativity, experimentation, and the application of knowledge to address challenges, meet needs, or seize opportunities in novel ways.
- Innovation can occur in various domains, including technology, business, science, art, and social systems.

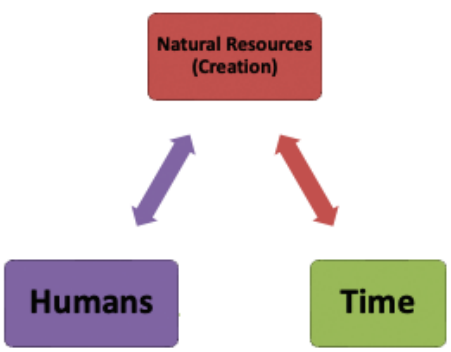
HUMAN CAPITAL

- The skills, knowledge, abilities, experience, and other attributes possessed by individuals that contribute to their productivity and potential economic value.
- Essentially, it's the collective capabilities and expertise of a workforce or population.

THE CRITICAL NEEDS OF A NATION

- Protect her people and their resources
- Expand opportunities for livelihood and development for a growing population
- Address challenges of Poverty and Underdevelopment

The National Development TRIAD



- **All nations have three categories of resources – Natural, Human and Time resources**
- **All come as** raw materials – cheap but with unlimited potential to create wealth
- **Humans** - with capability to think generate ideas which unleash the
- STI is the process which enables ideas to be converted into value which creates new wealth
- Research is the most important method of Revelation that opens STI processes

BACKGROUND

- It's important to understand the link between education, human capital and value chain development which generates wealth in a nation.

BACKGROUND

- The value of an Education system is rooted in the **Purpose** for which it was created
- The same education system could be very valuable in one context and totally useless or even harmful in another country's context
- The measures of performance of an education system must be related to the Purpose indicators

BACKGROUND

- A relevant education system **amplifies**, **accelerates** and **expands** the ability of the educated to harness value from its environment and beyond.

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

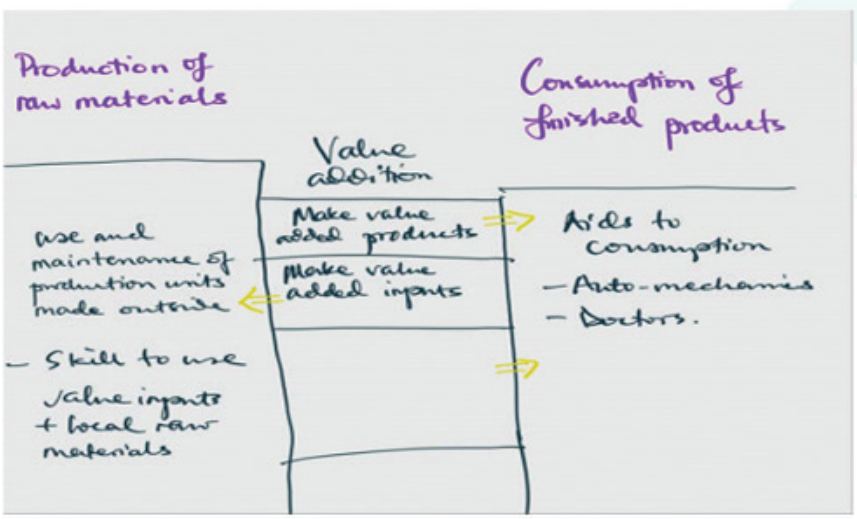
The Knowledge base in the Education system determines where a nation's economy will focus

Nations move from Poverty to Prosperity only by Continually Manufacturing more and Better Goods for Sale, hence creating more Wealth.

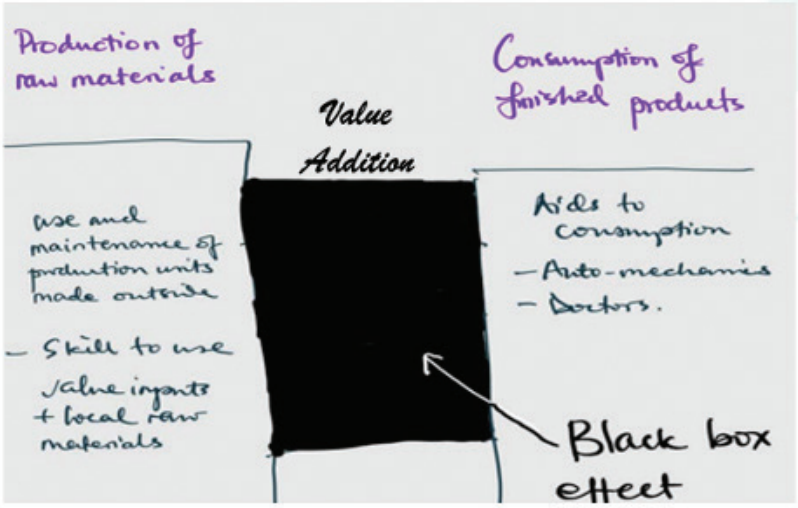
Asmus B. & Grudem W. (2013). The Poverty of Nations: A Sustainable Solution.

THE BLACK BOX EFFECT

SKILLING FOR STI



THE BLACK BOX EFFECT



Implication

- STI knowledge and skills in the country is focused on
  - Raw Materials production - sustaining subsistence and peasantry
  - enabling consumption of imported Value Added goods
- **ALL** graduates of (all levels) - Scientists, policy makers, Legislators, lawyers, advisors, consultants, businessmen, economists, etc of – we are all ***"Black Boxed"*** about how STI builds the economy
  - Admire it from afar – but cannot commit to the ground work because of lack of clarity on how it works and how it will exactly benefit us.
  - When they go to benchmark - but are blank as to how those countries got there.
  - Lack skills in building systems which are a pre-requisite
  - Unaware of the Journey from Idea to Market
- Ideas most often emerge from the "non-educated",- they were always ignored by the educated people.

Implications

- Scientists who attempted R&D often
  - –Ended at Prototypes because they are unclear about **"The Journey"**
  - – Promised or were required to produce unrealistic results
  - –Some became *"grantpreneurs"* – where grants for STI are just a source of livelihood
- Scientists who get exposed outside the country
  - – Get to know how STI works
  - –However they find it extremely difficult to implement when they return, because of a very non-supportive ecosystem

NCHE

WHAT IS IN THE BLACK BOX?

WHAT IS IN THE BLACK BOX?

Black is not a concept. Black is simply absence of light

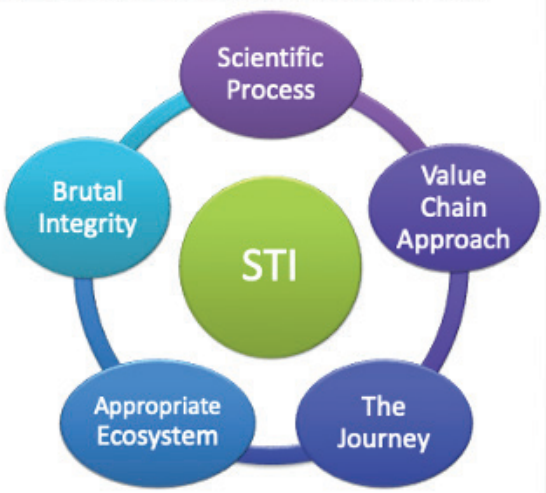
NCHE

1. STI ECONOMIC HIGHWAY

Science	Technology	Innovation	Industrialization	Commercialization
Knowledge	**Tools**	**Application**	**Manufacturing**	**Enterprise**
The systematic study and collection of data from the natural world to create knowledge.	Practical application of scientific knowledge for the purpose of development and production	Combine knowledge and technology to change or create more effective processes, products, services which improve the likelihood of success.	The transformation away from a primary agricultural- or resource-based economy, toward an economy based on mass manufacturing	The process of making something available for sale as a viable, profitable commodity or service on the market.

2. SCIENCE OPERATES ON STRICT LAWS AND PRINCIPLES

Effective deployment of STI for **socio-economic transformation** requires an ideology focused on industrialization and commercialization of innovations. This requires adherence to five core LAWS/PRINCIPLES



THE SCIENTIFIC PROCESS

1. Observation
2. Formulating a question
3. Hypothesis
4. Designing experiments
5. Data Collection
6. Results
7. Conclusions
8. Communication
9. Application

VALUE CHAIN APPROACH

The chain identifies each step in the process at which value is added, including its production's sourcing, manufacturing, and marketing stages.

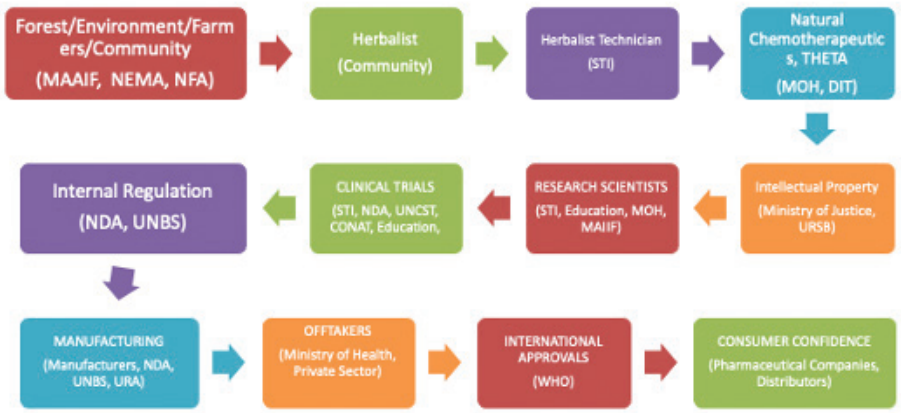
A value chain is a series of consecutive steps that result in the creation of a finished product and/ or service, right from its initial design to its arrival at the customer's door.

Industrial Value Chains

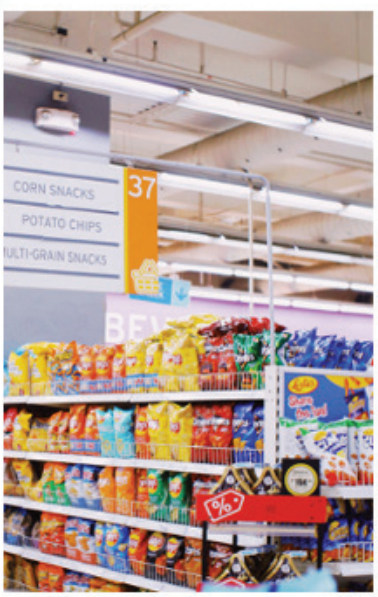
- Education lacks basic information about Value chain development – it is fragmented and lacks the Value addition component
- Focuses on components of value chains which were important to colonial industries, lacks in recognition of local commodities as raw materials to add value
- Lacks focus on technical skills for industrial processes
- Skills for value chain analysis is missing
- Competence in building Systems is lacking

Prioritized Industrial Value Chains

The Natural Therapeutics Industrialization Value Chain



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



3. THE STI IDEA TO MARKET JOURNEY

Innovation is not complete until there is a product that a minimum number of clients are willing to pay for at a given price.

THE STI IDEA TO MARKET JOURNEY

Phase 1: Idea to Prototype

- Ideation and Concept Formation
- Basic and Exploratory Research
- Proof of Concept
- Testing
- Technical Validation
- Intellectual Property Rights

This process may run many cycles before getting a desirable output.

Output: Prototype

Phase 2: Prototype to a Viable Product

- Product Development
- Market Analysis
- Corporate Formation
- Business Case, Model and Strategy Dev't
- Licensing and Certification
- Technology Transfer
- Pilot Plant
- Team Development and Management
- Supply Chain Dev't
- Value Chain Positioning and Optimization

Output: Early Stage Innovation Driven Enterprise

Phase 3: Viable Product to Competitiveness

- Market Expansion
- Product Optimization
- Process Optimization
- Product Diversification
- Scaling Production
- Break Even
- Investor Sounding
- Supply Chain Management

Output: Profitable Enterprise

Phase 4: Competitiveness to Maturity

- Mature Products
- Market Expansion
- Initial Public Offering
- Mergers and Acquisitions
- Profitability

Output: Mature Brand

IDEOLOGY

- Patriotism
- Democracy
- Pan-Africanism
- Socio-Econonomic Transformation

E-Mobility Ecosystem

THE ECOSYSTEM

- Governance and Protection
- Coordination – Think Tanks, Task Forces, Committees
- Planning –
  - Alignment from Idea to execution
  - Clear implementation strategy with targets
- Policy and Legislation
- Regulation and Standards
- Funding
- Business Development Support System
- Monitoring and Evaluation

SCIENCE, TECHNOLOGY AND INNOVATION THE ROLE OF A NATIONAL ENGINEERING SYSTEM

Background

- In 2020 the United Nations Conference on Trade and Development (UNCTAD) assessed Uganda' STI and strongly recommended that;

"... 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."

In 2021 Government therefore initiated reforms in the implementation of STI

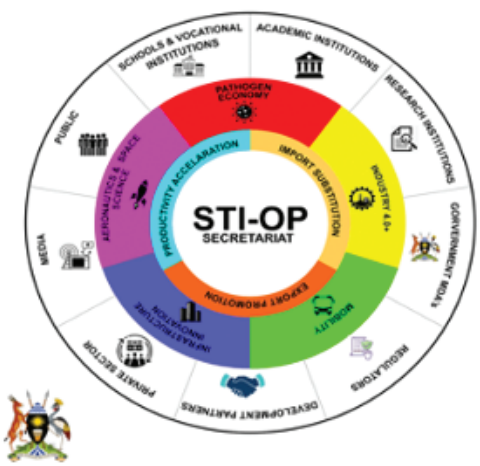
"The envisioned economy of USD 550 bn [by 2030] acknowledges the already achieved goal of quantitative expansion but adds another element of qualitative leap…fueled by the knowledge economy"

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

SCIENCE-LED SOCIO-ECONOMIC DEVELOPMENT

- Science-led socio-economic development refers to an approach to development that prioritizes the use of scientific research and technological innovation
- This approach involves using scientific knowledge and tools to identify and solve problems, create new products and services, and improve processes and systems.
- Science-led socio-economic development aims to improve the well-being of individuals and communities by creating new opportunities for economic growth, promoting social inclusion, and protecting the environment.

THE NATIONAL SCIENCE, TECHNOLOGY AND INNOVATION SYSTEM



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

THE SECRETARIAT

- *Done comprehensive situation Analysis*
- *Studied how STI leads to development of the Economy*
- *Defined a new Ethos, Vision, Mission and Strategy*
- *Defined Systems, structures and processes*
- *Re-aligned Projects, Programs and Processes to the new Agenda*
- *Developed a Strategic Direction*

Economic Growth Vs Qualitative Leap

- Economic growth is the process by which a nation's wealth increases over an extended period.
- A *qualitative leap* is a major, relatively sudden change in the state or character of something.
- *Qualitative Leap of an economy* refers to sharp increase in growth as a result of change from selling raw materials to higher value manufactured goods and services

Economic Growth Vs Qualitative Leap

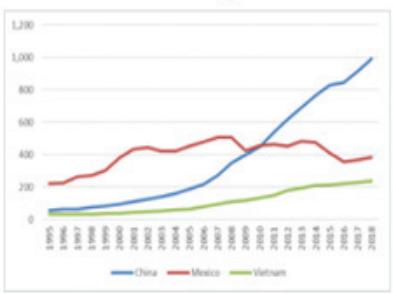
Vietnam (Green): This shows a typical growing economy without the Leap

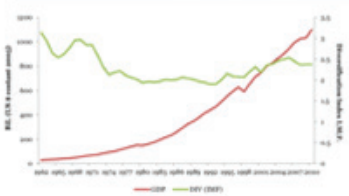
Mexico (Red): This is sustaining the height but not growting. Such economies are typically not innovating .

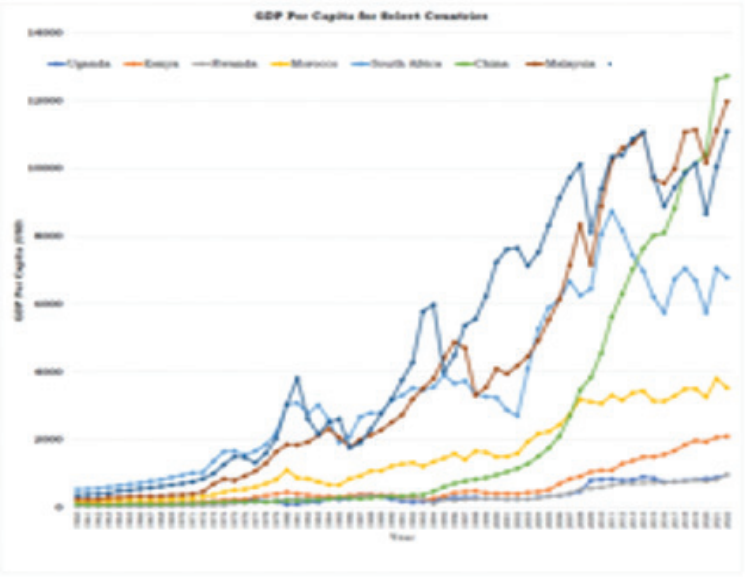
China (blue): This is typical country which has attained a qualitative leap

South Korea (Second curve, Red) – another country which has achieved a sharp qualitative Leap.

- ***The policy direction by His Excellency the President is for Uganda to pursue the Qualitative Leap Model***







NCHE

THE MESSAGE IS CLEAR

ONLY STI-LED Economies

have been able to attain and sustain a Qualitative Leap and hence socio-economic transformation

Uganda has to choose a Model and the population, geopolitics and trends in technology gives us a very brief window to be serious and take advantage

NCHE

The Difference between Developed and Underdeveloped countries can largely be explained by how they have harnessed STI for Economic Development

PHENOMENONS SHAPING STI'S FUTURE

Technological Advancements

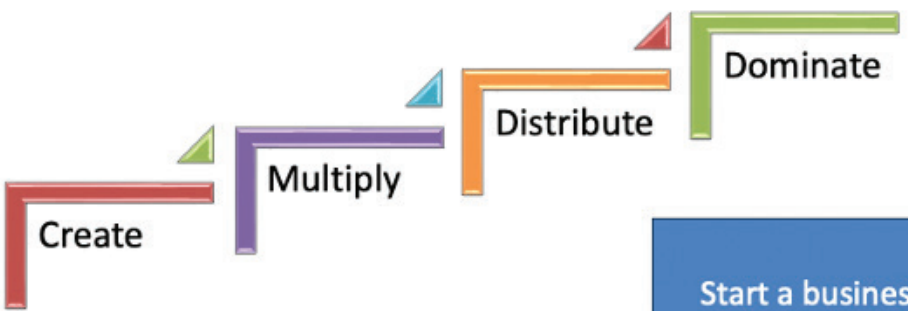
Green Energy Transition

The Covid-19 pandemic

The Global Village and Reorganizatio n of Global Powers

An Unsatisfied Young population

THE FORMULA TO THE LEAP



Start a business small, but don't start a small business

STRATEGIC DIRECTION

THE VISION

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

SLOGAN

"Make Uganda the Best."

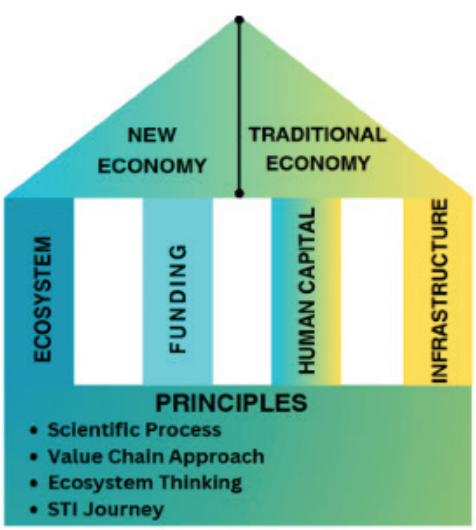
Objective

The Overall Objective is to ignite the qualitative leap of the economy by 2026, through value addition to the national resourcing through STI.

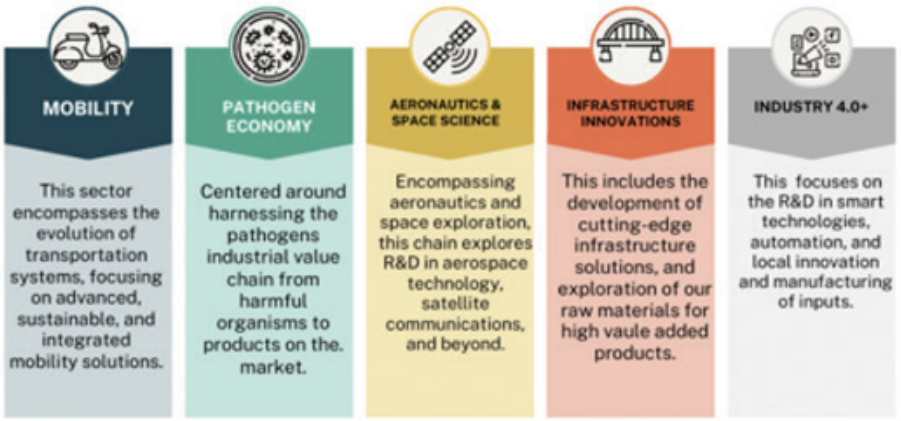
There are two major strategies:

1. **Create the New Economy** by making sectors hitherto not part of our economy begin to significantly contribute to GDP through the application of STI.
2. **Add value to the Traditional Economy:** Systematically building the capacity of the Industrial STI capacity of the nation to generate value-added products from products we have traditionally sold or consumed as raw materials.
3. **Create a conducive ecosystem** for rapid growth of STI in the country: Through engagement of all stakeholders, address the most pressing ecosystem issues

STRATEGY FOR QUALITATIVE LEAP OF THE ECONOMY



THE NEW ECONOMY



Reasons for Prioritization

This prioritization is based on data and criteria generated from a detailed analysis of including:

1. Global market opportunity,
2. Potential for import substitution,
3. National strategic importance,
4. Value addition to existing raw materials,
5. Opportunities presented by global technology and market and;
6. Potential to ignite other industries in the economy.

Estimated Marklet Value of the New Economy

SN	Industrial Value Chain	Global Market Opportunity (USD)
1	Pathogen Economy	12 Trillion
2	Mobility	15 Trillion
3	Industry 4.0+	5.3 Trillion
4	Infrastructure Innovations	18.3 Trillion
5	Aeronautics & Space Science	824 Billion
	TOTAL (USD)	**51.4 Trillion**

Sources: Oliver Wyman Analysis; Statista; Business Wire; The Business Research Company

Uganda Import Value FY 2021/22

SN	Industrial Value Chain	Uganda Import Value (USD)
1	Pathogen Economy	644 Million
2	Mobility	703 Million
3	Industry 4.0+	282 Million
4	Infrastructure Innovations	4.9 Billion
TOTAL (USD)		6.5 Billion

Priorities

Legacy Pathfinder Projets

- Each Value chain needs a gate opener project
- Build basic capacity and experience in the country

Infrstructure

- Industrial Science and Technology
- Specialized Common User Central Facilities
- Incubation Centers

New Areas of Reserch

- Dedicated R&D efforts in new areas for each value chain are essential (See table)

Develop Human Capital

- Cultivate an innovative, skilled and cofnident workforce capable of advancing these industrial value chains.
- Skills for the entire journey and highway

Implementation of Legacy Pathfinder Projects

SN	Industrial Value Chain	Key Components	Pathfinder Projects
1	Pathogen Economy	Vaccines, Therapeutics, Diagnostics, Medical Equipment, Materials, ICT	Diagnostics manufacturing, Clinical Trials, Vaccines, Natural Therapeutics
2	Mobility	Manufacturing, Mobility Systems, Operations, Energy	Kiira Motors, Bingwa, Engine manufacturing, EV batteries
3	Industry 4.0+	Electronics Hardware, Software	Silica sand to wafers, Electronics Design, Electronics Manufacturing, Enterprise Software
4	Infrastructure Innovations	Minerals, Materials, Industrial Equipment, Energy	Iron ore value chain, Construction materials, Machines that make machines, Biofuels, Solar
5	Aeronautics & Space Science	Earth Observation, Communications Systems, Aviation, Space Exploration	Satellite Development, Earth Observation, Geospatial Products Value Chain, UAVs

Development of STI Infrastructure

- Industrial, Science and Technology Parks
- Specialized Common User Central Facilities
- Incubation Centers

Research and Development in New Areas of Each Value Chain

Value Chain	New Area
Mobility:	Focusing on new battery technologies.
Pathogen Economy	Advancing research in genomics and gene therapy.
Industry 4.0+	Innovating new technology fields and local manufacturing of inputs
Infrastructure Innovations	Exploring new value addition processes to our mineral raw materials and reverse engineering of technologies
Aeronautics and Space:	R&D in aeronautics and space technology, components, etc.

ADDING VALUE TO THE TRADITIONAL ECONOMY

Focus Areas for the Traditional Economy

1. Transitioning Peasantry:
Moving beyond traditional peasantry methods to more industrialized and innovative production practices and processes that are supportive of global market penetration.

2. Overcoming Subsistence Production Transforming subsistence production (*"Nkolera Kida"*), which currently focuses on self-sufficiency (producing enough to sustain one's family or community, and any surplus may be traded), to a more market-oriented approach.

3.Enhancing Raw Material Utilization Tackling the challenges in the existing raw material trade and export systems to enhance value addition and job creation.

4.Shifting from SME focus to IDE business mentality Shifting from a focus on local, small-scale business operations to ambitious Innovation Driven enterprises (IDE) reaching regional and global markets.

Human Capital Pyramid

THE ASKS FOR THE CONFERENCE

- Employability comes only when we have opportunities for Employment
- There must be coherence of national goals and ambitions with the education system, especially higher education
- We must not continue to circle around the same things which have failed us

"AFRICA MUST STOP DELEGATING THINKING!"

"UGANDA MUST THINK"

WE MUST BE WILLING TO DO

THE HARD WORK OF

RE-INVENTING THE WHEEL!

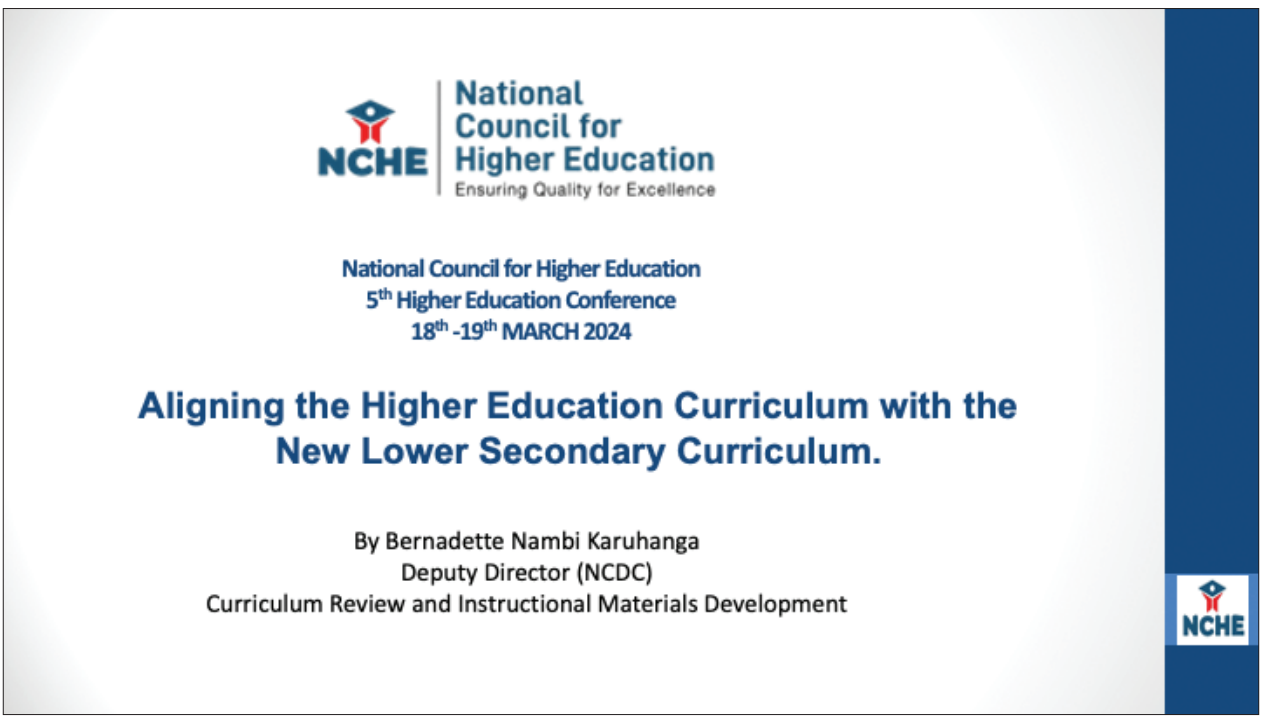
THANK YOU!

SESSION TWO:
CONSULTATIONS ON ALIGNING THE HIGHER EDUCATION CURRICULUM WITH THE NEW LOWER SECONDARY CURRICULUM

CHAIRPERSON:
Dr. Vincent Ssembatya, Director, Quality Assurance and Accreditation, NCHE

Presentation:
Aligning the Higher education curriculum with the new lower secondary curriculum

Dr. Bernadette N. Karuhanga,
Deputy Director, Curriculum, Review & Instructional Materials Development, NCDC.



Focus

- Philosophy of the Lower Secondary Curriculum
- What changed
- Why align?
- What to align
- Implication for HE curriculum

The student HE should expect

Overall philosophy and aim of the Lower Secondary Curriculum

- **Philosophy**

  A holistic education for personal and national development

- **Aim**

  To produce citizens with employable skills which are competitive in the job market

What Changed in the LSC?

- **Curriculum Design:** Competency-based focusing on learning outcomes – What can the learner do?
- **Learner-centered and Inclusive curriculum** - Focus on learners leading their own learning and using differentiated instruction strategies that take care of mixed abilities and special educational needs
- **Curriculum Menu:** From 43 – 22 Subjects, School – 15, learner @S1&2 – 12, S3&4 – 8 or 9
- **Minimum No. of subjects:** 8 for normal learners and 7 for Learners with Special Needs, such as learners with visual impairment
- **New subjects:** Sign language and Physical Education to be examined for the first time at this level.
- Physical Education, Entrepreneurship, RE and Kiswahili are added compulsory subjects at senior one and two
- Chinese was added to the list of Foreign Languages
- General Science has been specifically designed for Learners with Special Needs

What Changed in the LSC?

- **Change in Subject Names:** Performing Arts from Music, Dance & Drama; Art & Design from Fine Art; History & Political Education from History; Nutrition & Food Technology from Home Management and Foods & Nutrition.
- Technology & Design from Technical Drawing, Woodwork, Metalwork, Electricity and Electronics, Power and Energy, Carpentry, Mechanical Drawing, Building and Concrete Practice.
- **Role of subject content:** Emphasis on deeper learning; Knowledge, Understanding, Skills (higher-order practical & generic), Values, Attitudes(KUSVA), Cross-cutting Issues, Contemporary and Emerging issues

- **Time:** School Time – 8 am – 2.55 pm is instructional time; 2.55 pm – 4.00 pm – teacher-supervised experiential learning through research, project work, clubs, games, sports, and time for self-study and reflection on what has been taught.

What Changed in the LSC?

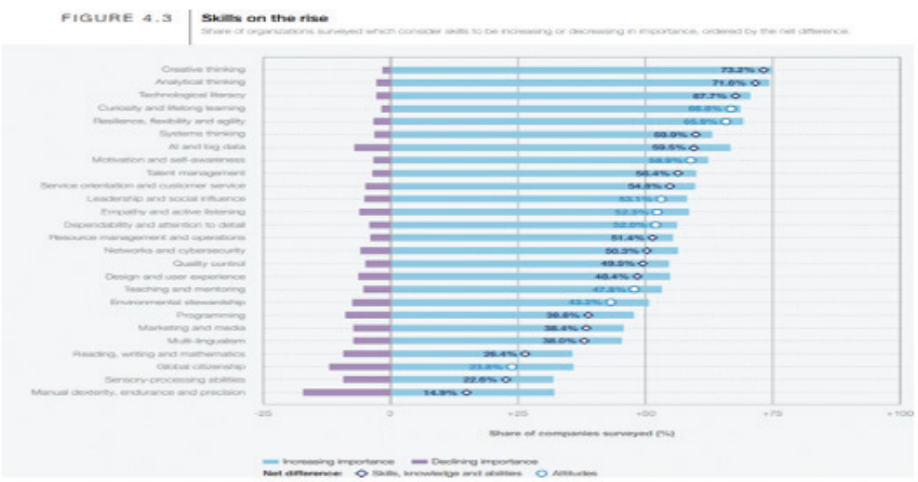
- **Teaching Learning Process:** Activity-based, Contextual, Interactive and integrative with emphasis on formative assessment
- **Pedagogies**: Use of ICT as a tool for learning, differentiated – learners are gifted differently (Multiple intelligences), Pedagogy of integration – across subjects, integration of assessment into the learning process, learner-centered, collaborative, project-based, problem-solving, critical thinking, discovery, exploration, analysis, and application.
- **Assessment Modalities:** Criterion-referenced (assessment based on a prior set standard/ criteria) 20% school-based (Project and AOI - product, conversation, and observation). 80% end of cycle. Scenario-based items are based on constructs with a focus on applying knowledge and skills in solving a real-life problem.

Why align?

- To produce the 21st century learner/student

- You to leverage the foundation started on

Skills anticipation trend on the rise



Why align?

- **Consistency** in knowledge and understanding of what is learnt. The students are equipped with the necessary knowledge and skills to effectively apply it in their respective fields of expertise.
- **Relevancy** of what is taught to what they are to apply in their everyday life by bridging theory and practice in a real-life setting.
- **Preparedness** in the application of what has been learned based on established standards and learning goals. They will have a solid foundation of subject-specific content knowledge, skills, and values, as well as pedagogical strategies specific to teaching at lower secondary level in the case of teacher trainees.

Why align?

- For the teachers, it sets a foundation for continuous growth by ensuring that professional development programs are aligned with educational goals and priorities at both pre-service and in-service stages.
- Reduced remediation and Improved student achievement outcomes.
- Effective use of resources.

What to align

- **Design:** Competency-based with a focus on learning outcomes
- **Subjects:** The LS subjects must have a link to the HEIs
- **Content/global idea** – Emphasise and build on concepts taught at LS in addition to others if need be, higher-order thinking, practical and generic skills, values, attitudes, cross-cutting issues & contemporary issues.

What to align

- **Teaching learning strategies:** Differentiated learning, Pedagogy of integration – interdisciplinarity, integration of assessment into the learning process, student-centered, project-based learning, use of ICT as a tool for learning, problem-solving, critical thinking, discovery, exploration, analysis, active knowledge construction and application among others.
  - IMs - textbooks - interactivity, student-centered, activity-based, case studies.....
  - Collaborative classrooms – to foster knowledge creation and understanding through discussions and cooperation
  - Schemes of work and Lesson plans should emphasise – K,U,S,V, Attitudes, cross-cutting issues

What to align

Assessment:

- Measuring learning achievement – what can the learner do in real life or for the market, however small it may be?
- Criterion-referenced (assessment based on a prior set standard/ criteria - activities of integration – Scenarios with emphasis on application),
- Assessment for learning,
- Assessment as learning - peer assessment, individual assessment, group assessment
- Assessment of learning - using constructs (E.g., in agriculture, there are only crop production, animal production, and value addition for market)

Implications for Higher Education Curriculum

- The need for a policy to review the higher education programmes
- Collaboration among key players to train trainers on designing, development, and implementing a CBC through regular meetings, joint professional development activities, and sharing resources.
- Identify common concepts like learning outcomes that should be achieved by students in both secondary and higher education and levels of achievement with their descriptors and agree on when these should be taught (scope and sequence, UQFW). This ensures a smooth transition of students from one level to another.
- Review curricula at both levels to identify gaps or overlaps. Adjust to align concepts/ global ideas, knowledge, skills and values across the two levels. Consider the use of curriculum mapping tools or software to help in visually mapping out the alignment between/among the different subjects across the two levels,

Implications

- Development of Training manuals/programmes for the trainees (Teachers, instructors, lecturers)
- Aligning evolving and dynamic career paths and admission criteria that serve the traditional and emerging job market using the LSC subjects through A' Level. Since there is limited alignment between university admissions and the national skills gaps.
- Provision of resources to facilitate the processes of reviewing the curriculum.

References

- NCDC Lower Secondary Curriculum Framework (2019)
- NPA. (2020) National Human Resource Development Plan 2020/21 - 2028/2029
- Young, S. S. C. (2003). Integrating ICT into second language education in a vocational high school. Journal of Computer Assisted Learning. 19(4),447-461
- World Economic Forum: Future of Jobs Report (2023)

THANK YOU FOR LISTENING

Panel Discussion

Topic: Strategies for tailoring HEIs curriculum towards new lower secondary curriculum

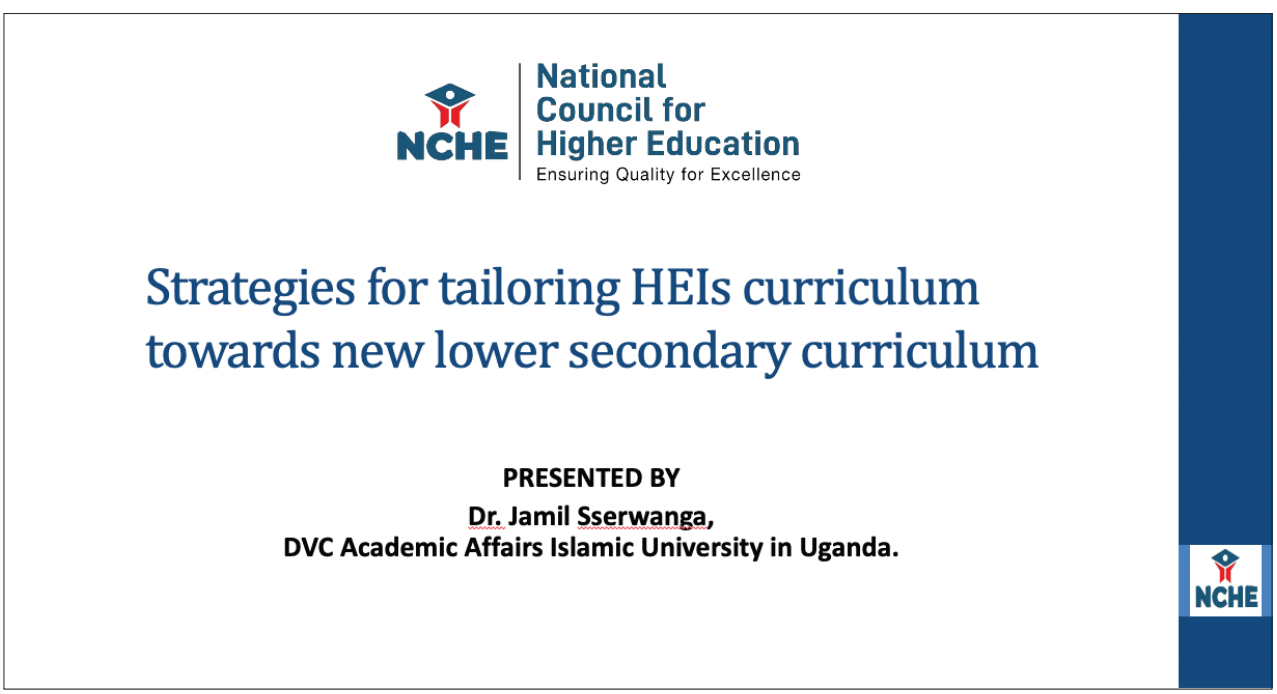
1. **How does the NLSC affect the Higher Education curriculum and entry requirements?**
2. **Obtain highlights from NCDC about the NLSC**
3. **Provide highlights of the current teacher curriculum at HE institutions**
4. **Discuss anticipated changes and what has to be maintained in the curriculum**
5. **Strategies for alignment of HEIs curriculum where necessary**

Panelist: Dr. Jamil Sserwanga,
DVC Academic Affairs Islamic University in Uganda.

Panelist: Dr. Maria Nakachwa Ssemakula,
Acting Head of Programme Accreditation, NCHE

Panelist: Mr. Moses Mugizi
Research Officer, UNEB.

Panelist: Assoc. Prof. Elizabeth Kyazike
Dean Faculty of Arts & Humanities
Kyambogo University



Topic of discussion:

Strategies for tailoring HEIs curriculum towards new lower secondary curriculum

Main objective of the topic of presentation

- To identify the strategies for tailoring HEIs curriculum towards new lower secondary curriculum

Key terminologies/Concepts

- **Strategies:** Plans; to attain specific goals given the available resources (infrastructure and human resource) methodologies and timelines

- **HEIs:** Postsecondary institutions; universities, colleges and other professional schools; offering training leading to award of qualifications degree or diploma or certificate level

Key terminologies;-HEI Curriculum

- HEIs expected to produce graduates imparted with new frontiers of knowledge and learning outcomes
- Upon graduation, the graduates should occupy managerial positions in both the production and service sectors.
- A paradigm shift and curriculum reforms are needed at HEI to effectively take the products of the New Secondary curriculum

Key terminologies/Concepts …

- **Curriculum**: Programme of study with specific goals and learning outcomes;
- **Lower secondary:** "O" – Level; S1 – S4 (A 4-Year Uganda Education framework)
- **New lower secondary school curriculum;** A competence based curriculum (CBC): a curriculum that attempts to certify student progress on the bases of **demonstrated performance** in some or all of the aspects of that role

Concepts …

- Tailoring:- Adapting/Modifying/Fitting
- HEI curriculum tailored towards Lower Secondary Curriculum?
- Lower Secondary Curriculum tailored towards HEI curriculum?
- Or a double or two way system?

New lower secondary school curriculum …

Core skills for CBC include:-

- Critical thinking and problem solving (Problem based learning PBL)
- Collaboration and communication
- Creativity and imagination
- Citizenship
- Digital literacy
- Student leadership and personal development

The strategies for tailoring HEIs curriculum towards new lower secondary curriculum

Methodology employed;

- Documentary review

Strategies ...

- HEIs need to come up with strategies to upgrade their traditional functions to include; ***vocationalisation, innovation and industrialization*** as integral parts of their curriculum
- Such a change should involve the **aggressive establishment of partnerships** with the productive sectors.

Strategies ...

- **Retool the HEI instructors** in terms of short-term courses and workshops about the competence-based curriculum
- Learners to be given an opportunity in the HEIs curriculum **to construct their own knowledge** by more interactions with environment/peers/teachers

Strategies …

- **Discovery learning methods** (not receptive learning) in the curriculum to be emphasized
- Solicit both **environmental and community support during curriculum designing and review process**
- Making **changes to existing materials to better suit specific learners, teachers and contexts** for the purpose of facilitating effective learning

Strategies …

- Employ **an inductive approach** in activity setting where simple activities must be set first before complex
- The **21st century skills** to be emphasized in the HEIs curriculum (soft skills, ICT, continuous learning etc)
- Revisit the **examination and grading systems (Blooms Taxonomy)**
- Making **vocational education** at HEIs as one of the compulsory papers to be done at the university before a learner graduates

Strategies …

- Continuous encouragement of **ICT** integration in teaching at HEIs
- Continuous of **research** at HEIs in the CBC field
- Reforming the curriculum for teacher trainees to enable them have adequate skills to manage the CBC at secondary level

Strategies …

- Broad based training/multidisciplinary training at HEIs
- HEIs sharing experience with the Lower Secondary about the emerging trends in Higher Education
- MOES and NCHE to spearhead the tailoring process
- Bringing on board the family (back to the roots?)
- Tracer studies are highly needed

Challenges/Hurdles/Impediments

- Meeting the cost involved in the CBC – tailoring HEIs curriculum to lower secondary (Government vs private HEIs) - inadequate facilities/funding
- Time involved vs cost of living

Conclusion

- Strategies could be available, but who is to meet the cost and how?
- The level of readiness of HEIs to tailor their curriculum?
- A commitment to continuous improvement in the delivery of the CBC – with forward and backward linkage between HEIs curriculum and lower secondary curriculum

- *Thank you very much for listening*
- *May the Almighty God bless us all*

Key Highlights

PRESENTED BY

Dr.Maria Nakachwa Ssemakula

- The NLSC is competence based and focuses on learning outcomes. Currently the programmes for HEIs provide for learning outcomes. Noted that the main issue was implementation of the programmes to realize the learning outcomes.
- Observed the need for HEIs involve different stakeholders including staff in the development and review of the curricula
- Noted that there is a need to provide appropriate and adequate infrastructure and resources for effective implementation of the curricula.

Key Highlights

PRESENTED BY

Mr. Moses Mugizi

- Assessment should be informed by the curricula, instead in Uganda assessment is driving the implementation of the curricula in schools.
- Observed the need for comprehensive assessment of learners including their soft skills which are currently not being assessed.
- Noted a need for a linkage between the world of work and the curricula.
- Highlighted the need for HEIs to rethink their admission criteria in relation to what is assessed at secondary level.

Key Highlights

PRESENTED BY

Associate Professor Elizabeth Kyazike

- Recruitment of staff in HEIs is based on grades, and pedagogical skills are not considered.
- Effective implementation of the NLSC, requires that the teachers are adequately trained.
- HEIs are understaffed and lack adequate and appropriate infrastructure for effective implementation of the curricula.
- HEIs need to be prepared to receive students who have been subjected to the revised secondary curricula.

Discussion: Question and answer/Comments

1. The vocational subjects in the NLSC are not new; they were previously offered in Uganda. The NLSC should have focused on valve addition than learners acquiring skills using the existing technologies which cannot drive Uganda to economic transformation.
2. How is UNEB prepared to handle the competence based assessment including 20% of the continuous assessment given that there is lack of integrity in schools? The UNEB representative noted that questions would be scenario based.

SESSION THREE: CONTINUATION

Keynote Speaker

Ms. Sarah Kitakule

Director, Sustainable Business for Uganda Platform (SB4U)

ANNUAL HIGHER EDUCATION CONFERENCE

MBALE RESORT HOTEL

19th MARCH 2024

Presentation: The Private Sector's Role in Enhancing Graduate Skills And Employability Through Technological Innovations

Sarah kitakule

Ladies and gentlemen,

All protocol is observed.

Good morning, and welcome to the 2nd day of the Higher Education stakeholders conference. It is a pleasure to see so many esteemed guests gathered here today to discuss a topic of paramount importance: the private sector's role in enhancing graduate skills and employability through technological innovations.

In today's rapidly evolving world, characterised by the pervasive influence of technology, the landscape of higher education and the job market is undergoing profound transformations. With technological advancements reshaping industries and job requirements, higher education institutions must adapt and equip graduates with the skills necessary to thrive in this dynamic environment.

As we gather here today to contemplate the future of work, we find ourselves at a pivotal moment in history, standing at the intersection of technological innovation, socioeconomic transformation, and evolving workforce dynamics. The work landscape is undergoing unprecedented change, driven by rapid technological advancements, demographic shifts, and changing consumer preferences. In this era of profound disruption, we need to reflect on the implications for the workforce and consider the skills employers will seek in the coming years.

The future of work holds both promise and challenge. On the one hand, technological innovations such as artificial intelligence, automation, and robotics have the potential to unlock new opportunities, drive productivity gains, and create jobs in emerging fields. On the other hand, they

also pose significant disruptions to traditional job roles, requiring workers to adapt, upskill, and embrace lifelong learning to remain competitive in the labour market.

In this context, the skills employers seek will likely undergo a fundamental transformation. While technical proficiency and digital literacy will remain important, there will be a growing emphasis on "21st-century skills" – enabling individuals to navigate complexity, communicate effectively, collaborate across diverse teams, and adapt to change with agility.

Among the critical skills that employers are likely to prioritise in the future are:

6. **Digital literacy and fluency**: As technology permeates every aspect of business and society, workers must possess a strong foundation in digital tools and platforms. This includes coding, data analysis, digital marketing, and cybersecurity proficiency.
7. **Critical thinking and problem-solving**: In an increasingly complex and interconnected world, employers value individuals who can think critically, analyse information, and develop creative solutions to novel challenges. The ability to synthesise diverse sources of information, evaluate alternative courses of action, and make informed decisions will be highly prized.
8. **Adaptability and resilience**: The pace of change in the digital age demands high adaptability and resilience from workers. Employers will seek individuals who are comfortable with ambiguity, open to learning new skills, and resilient in the face of setbacks. The ability to pivot, reinvent oneself, and thrive in dynamic environments will be essential for success.
9. **Communication and collaboration**: Effective communication and collaboration skills will be critical in an increasingly globalised and interconnected world. Employers will value individuals who can articulate their ideas clearly, listen actively, and work collaboratively with diverse teams across geographical boundaries and cultural differences.
10. **Emotional intelligence and empathy**: As automation and artificial intelligence increasingly perform routine tasks, the human touch will become more valuable. Employers will seek individuals who demonstrate emotional intelligence, empathy, and the ability to build meaningful relationships with colleagues, clients, and customers.
11. **Continuous learning and self-development**: In a rapidly evolving job market, learning new skills and adapting to changing circumstances will be essential for long-term employability. Employers will value individuals who demonstrate a commitment to lifelong learning, take initiative in their self-development, and seek opportunities for growth and advancement.

In today's rapidly changing world, the role of employers in preparing graduates to achieve 21st-century skills cannot be overstated. Employers serve as key stakeholders in the education ecosystem, providing invaluable insights into the evolving needs and demands of the workforce. As such, they are responsible for actively engaging with educational institutions and collaborating to prepare graduates for the challenges and opportunities of the modern workplace.

First and foremost, employers can play a pivotal role in shaping educational curricula to ensure alignment with the skills and competencies required in the 21st-century workforce. By providing input on industry trends, technological advancements, and emerging job roles, employers can help educators tailor their programs to meet the needs of the labour market. This may involve participating in curriculum development committees, offering internships and work-study programs, and providing feedback on the relevance and effectiveness of educational initiatives.

Furthermore, employers can actively engage with educational institutions to provide students with hands-on learning experiences and real-world exposure to industry practices. Internships, apprenticeships, and cooperative education programs allow students to apply theoretical knowledge in practical settings, gain valuable work experience, and develop the skills and competencies employers highly value. By offering meaningful work opportunities and mentorship, employers can help students bridge the gap between academia and industry and prepare them for successful careers.

In addition to providing experiential learning opportunities, employers can also support the development of 21st-century skills through training and professional development programs.

Investing in employee training and upskilling initiatives benefits the individual employees, enhances the overall talent pool, and fosters a culture of continuous learning and innovation within the organisation. Employers can help employees develop the skills needed to thrive in a rapidly changing work environment by offering workshops, seminars, and online courses on digital literacy, critical thinking, communication, and collaboration.

Moreover, employers can promote diversity, equity, and inclusion in the workforce, creating an environment where individuals from diverse backgrounds feel valued, respected, and empowered to contribute their unique perspectives and talents. (**Give an example of a cake-making business and the diversity of her team)** By fostering a culture of inclusivity and providing equal opportunities for career advancement, employers can attract and retain top talent from all walks of life and create a more dynamic and innovative workforce.

The private sector plays a crucial role in this endeavour. As drivers of innovation and economic growth, private companies are vested in ensuring that the workforce possesses the skills needed to leverage technological advancements effectively. Moreover, they often have firsthand knowledge of the evolving demands of the job market and can provide valuable insights into the skills and competencies that employers most seek.

Technological innovations offer unprecedented opportunities to enhance graduate skills and employability. From artificial intelligence and machine learning to blockchain and virtual reality, emerging technologies are revolutionising industries and creating new pathways for innovation and growth. By integrating these technologies into the curriculum and providing hands-on training opportunities, higher education institutions can empower students to develop the technical proficiencies and digital literacy skills required in today's digital economy.

Furthermore, partnerships between higher education institutions and the private sector are essential for bridging the gap between academia and industry. Collaborative initiatives such as industry-sponsored research projects, internships, and mentorship programs enable students to gain real-world experience, develop practical skills, and build valuable networks within their chosen fields. These partnerships not only enhance the employability of graduates but also foster innovation and entrepreneurship by facilitating knowledge exchange and collaboration between academia and industry.

With the rapid advancement of technology, several traditional jobs are at risk of disappearing or significantly evolving. Some of these jobs include:

1. **Data Entry Clerks**: As automation and artificial intelligence systems become more sophisticated, the need for manual data entry tasks is decreasing. Many routine data entry tasks can now be automated, leading to declining demand for data entry clerks.
2. **Cashiers**: With the rise of self-checkout systems and mobile payment technologies, the role of cashiers in retail stores is diminishing. Many stores are replacing traditional checkout lanes with self-service kiosks, reducing the need for human cashiers.
3. **Telemarketers**: Automated calling systems and AI-powered chatbots are increasingly used to handle customer inquiries and sales calls, reducing the need for human telemarketers.
4. **Manufacturing Workers**: Technological advancements in robotics and automation are automating many manufacturing tasks, such as assembly line work and material handling. This trend is expected to result in a decline in the demand for manual manufacturing workers.
5. **Drivers**: The development of autonomous vehicles and transportation systems can potentially disrupt industries that rely heavily on human drivers, such as taxi and trucking services. While fully autonomous vehicles are still in the early stages of development, their widespread adoption could lead to a decline in the demand for human drivers in the future.
6. **Bank Tellers**: With the increasing popularity of online and mobile banking, fewer people visit physical bank branches, leading to a decreased demand for bank tellers. Many routine

banking transactions can now be performed electronically, reducing the need for in-person teller services.

7. **Printers and Publishers**: As more content is consumed digitally, the demand for printed materials such as newspapers, magazines, and books is declining. This trend leads to decreased demand for workers in the printing and publishing industries.
8. **Postal Workers**: With the increasing use of email and electronic communication, the volume of traditional mail is declining, leading to a decrease in the demand for postal workers who sort and deliver mail.
9. **File Clerks and Records Keepers**: As organisations digitise their records and move towards electronic document management systems, the need for file clerks and records keepers to maintain physical filing systems is decreasing.

While technological advancements can potentially eliminate specific jobs, they also create new opportunities in emerging industries and professions. Workers must adapt to changing technological trends by acquiring new skills and embracing lifelong learning to remain competitive in the evolving job market.

Some specifics: Employers can enhance the employability of graduates through technological innovation in several ways:

1. **Offering Digital Skills Training**: Employers can provide training programs to develop digital literacy skills among graduates. This may include courses on software applications, programming languages, data analysis tools, and digital communication platforms. By equipping graduates with relevant digital skills, employers can enhance their ability to adapt to the demands of modern workplaces.
2. **Implementing Technology-Driven Work Processes**: Employers can leverage technology to streamline work processes and increase efficiency. Employers can create a more agile and productive work environment by implementing tools such as project management software, collaboration platforms, and workflow automation systems. Exposure to such technologies during internships or apprenticeships can help graduates familiarise themselves with industry-standard tools and practices.
3. **Providing Remote Work Opportunities**: With the increasing prevalence of remote work arrangements, employers can offer graduates the opportunity to gain experience in virtual work environments. By providing remote work opportunities, employers can help graduates develop essential skills such as time management, communication, and self-discipline, which are highly valued in today's remote work landscape.
4. **Supporting Entrepreneurship and Innovation**: Employers can support graduates pursuing entrepreneurial ventures and innovation projects. This may involve providing access to resources such as funding, mentorship, and networking opportunities. Employers can empower graduates to create opportunities and contribute to economic growth and job creation by fostering an entrepreneurial mindset and supporting innovative initiatives. An example is Sio, who developed the spray while at the University.
5. **Offering Continuous Learning Opportunities**: Employers can promote a culture of lifelong learning by offering continuous learning opportunities to employees, including graduates. This may include access to online courses, workshops, seminars, and conferences on topics relevant to their field of work. Employers can help graduates stay updated on emerging technologies and industry trends by investing in employee development, enhancing their employability and career prospects.
6. **Promoting Diversity and Inclusion in Technology**: Employers can promote diversity and inclusion in the technology sector by recruiting and retaining graduates from diverse backgrounds. This may involve implementing diversity hiring initiatives, providing mentorship and support networks for underrepresented groups, and creating inclusive work environments where all employees feel valued and empowered to contribute their unique perspectives and talents.

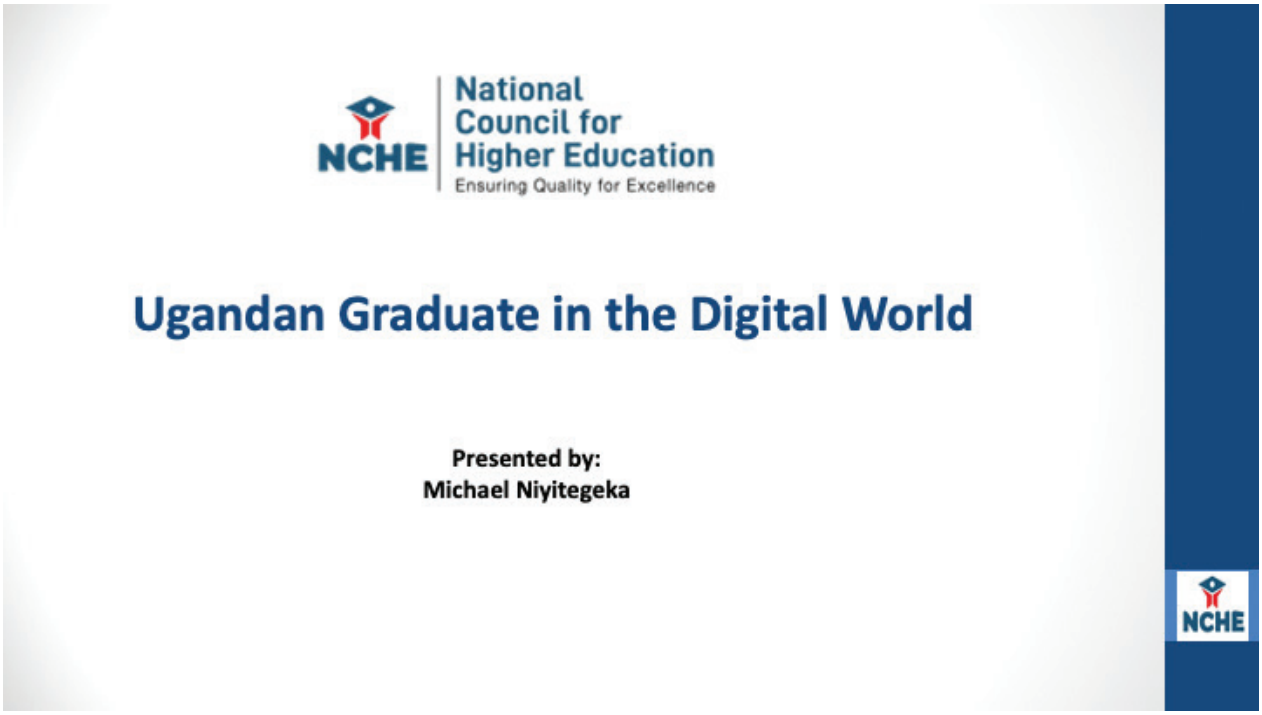
7. **Encouraging Cross-Disciplinary Collaboration**: Employers can encourage graduates to collaborate across disciplines and departments to solve complex problems and drive innovation. By fostering a culture of collaboration and knowledge sharing, employers can help graduates develop interdisciplinary skills and build diverse professional networks, which are increasingly important in today's interconnected and multidisciplinary work environments.

In closing, I am confident that our collective efforts will yield meaningful insights and actionable strategies for advancing higher education and empowering graduates to thrive in the 21st-century workforce.

Thank you.

Presentation:
The Ugandan Graduates in the digital world

Mr. Michael Niyetegeka
Executive Director Refractory Limited



5 DIGITAL TRANSFORMATION TRENDS FOR 2024 AND BEYOND

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The digital literacy fallacy myth....

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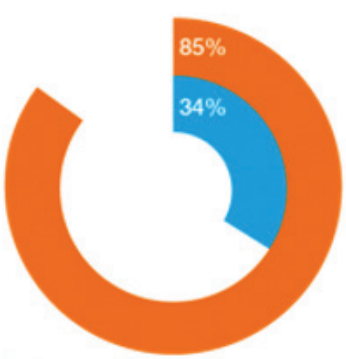
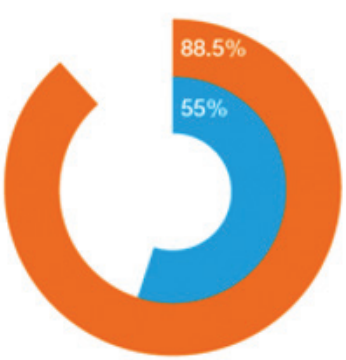
Even in countries that are highlighy digitally developed, people lack essential ICT skills.

Over 88% of people in Singapore have internet access at home, and Switzerland was ranked 7th in the 2015 ICT Development Index.



Switzerland
Using the Internet and Email
Actual Skills
Self Assessed Skills



Singapore
General Digital Skills
Actual Skills
Self Assessed Skills

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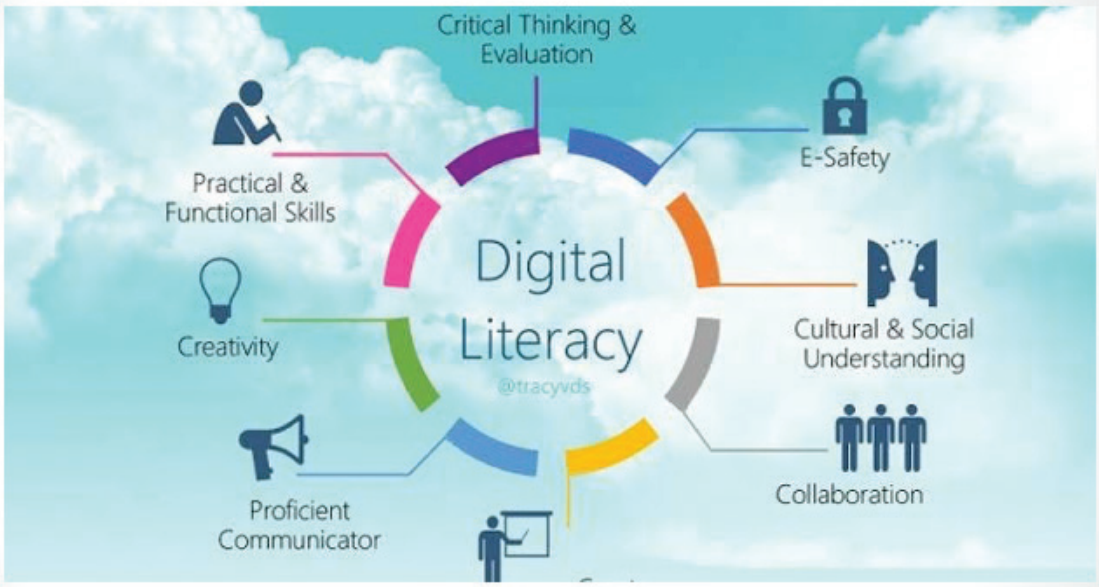

To what extent are our ICT curricula aligned to the digital competences for the digital economy..

Executive Summary: Skill Trends for 2024

An overview of key trends featured in this report.

Trend #1

Leadership skills for supporting teams through organizational change are a growing priority.

All leadership skills have increased their rank this year. Both rapidly changing macroeconomic conditions and emerging technologies like AI are driving new demands on leadership—pushing learning leaders to increase their focus on cultivating skills like leading teams with empathy, team building, and team management.

Trend #2

AI-related skills are driving record-breaking course enrollments.

These skills enable businesses to untap productivity windfalls, while upskilling in AI can build employee or learner confidence at a time when many are concerned about its potential career impact.

Coursera now offers over 800 AI-related courses, which have collectively received over 6.8 million total enrollments this year. The course 'Generative AI for Everyone' received 43,000 total enrollments in its first week after release, making it the fastest-growing course in 2023. Investing in AI-related skills will be key for increasing productivity and preparing learners for an AI-enabled world.

Trend #3

Demand is surging for cybersecurity and information security skills.

Half of the top tech skills listed are cybersecurity skills while System Security ranks as a top ten fastest-growing skill. Currently, many jobs in these areas go unfilled—around 3.4 million worldwide[3]—so institutions need to equip learners to meet this demand.

Trend #4

The fastest-growing skills are business skills.

Seven out of ten of the top fastest-growing skills overall are business skills this year, with digital marketing and customer experience skills topping the list. Given forecasted growth in the marketing and advertising industry,[4] and heightened customer expectations,[5] institutions can invest in these skill areas to unlock business productivity and individual employability.

Trend #5

Skills for understanding and communicating data continue to be among the fastest-growing.

Data visualization was a top fastest-growing digital skill last year—and the trend continues in 2024. However, there is a gap between executive interest in data-driven decision-making and the ability of employees to read, analyze, work with, and communicate with data.[6] Institutional leaders can prioritize investing in skills related to data literacy and storytelling to achieve organizational goals and meet market demand.

Trend #6

Demand for web development and computing skills remains high.

Several of the fastest-growing tech skills are focused on web frameworks and cloud computing skills. These are crucial for job-seekers—given ongoing skill shortages in these areas[7]—but also reflect the ongoing need for employees in these technical roles to upskill and stay up to date with the latest tools and technologies.

Trend #7

Skills for providing oversight and compliance are increasingly essential.

Audit is one of the fastest-growing business skills—showcasing a growing focus on applying regulatory frameworks, protecting data, and deploying new technologies (such as AI) safely. With institutions worldwide looking to meet the challenges relating to data, copyright, and more that AI presents, these skills will only become more important.

Trend #8

Curated learning paths, like Professional Certificates and Specializations, are driving the largest skill rank changes.

Professional Certificates and courses offered by institutions like Google, Meta, West Virginia University, and DeepLearning.AI, are driving changes for in-demand skills. These curated learning paths can improve business productivity, boost student employability—with employers 72% more likely to hire someone with a Professional Certificate[12]—and improve internal mobility.

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The Fastest-Growing Skills: Overall

SKILL	RANK	DEFINITION
E-Commerce	1	Buy and sell products or services through digital channels.
Media Strategy & Planning	2	Determine the objectives, strategy and plan for delivering the right content to audiences.
System Security	3	Secure the networks and resources of your organization.
Search Engine Optimization	4	Optimize website content for the best possible search engine ranking.
Customer Success	5	Identify opportunities and proactively solve problems for customers to ensure their continued success.
Power BI	6	Use Power BI to surface data insights.
Linux	7	Use the Linux operating system for all devices.
Systems Design	8	Define the architecture, product design, modules, interfaces, and data to satisfy specified requirements.
Audit	9	Evaluate and improve the effectiveness of risk management, control, financial, and governance processes.
Marketing Management	10	Promote and advertise a business using different tools and strategies.

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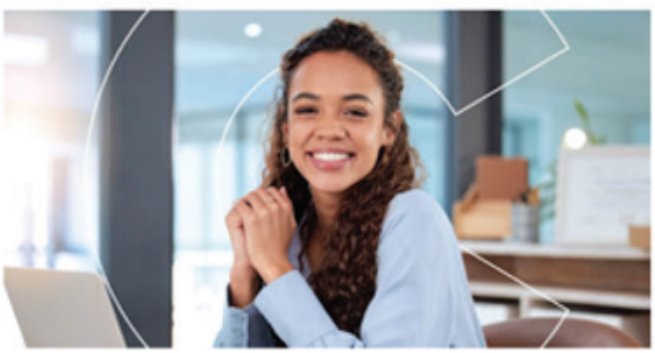
Re-think how we teach/skill for the digital world

coursera for campus



Universities can award credit for micro-credentials with ECTS recommendations

refactory

www.refactory.academy

We partner with the industry to develop our program and hire our graduates

ChapChap · TUGENDE · S+ · eltbox · aws · CODING DOJO · Geo Gecko · imuka · Microsoft · standard chartered · hive colab · xente · GROUNDBREAKER · RANZU CODE · GEBEYA · The Innovation Village · mcash · Interswitch · unicef · ATC UGANDA · CLARION TRUST

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Refactory Numbers

91% of graduates from the Boot Camp in employment.

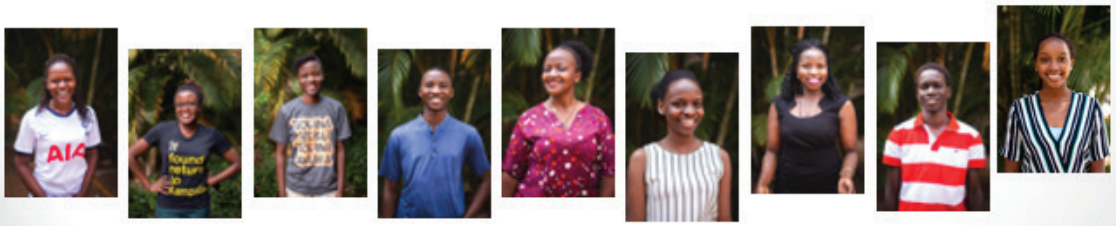
95% Student satisfaction with Refactory.

623 Software developers with relevant skills trained.

46% Females Graduating from all programs.

>40 Partners across the board.

>1000 Impacted through outreaches.



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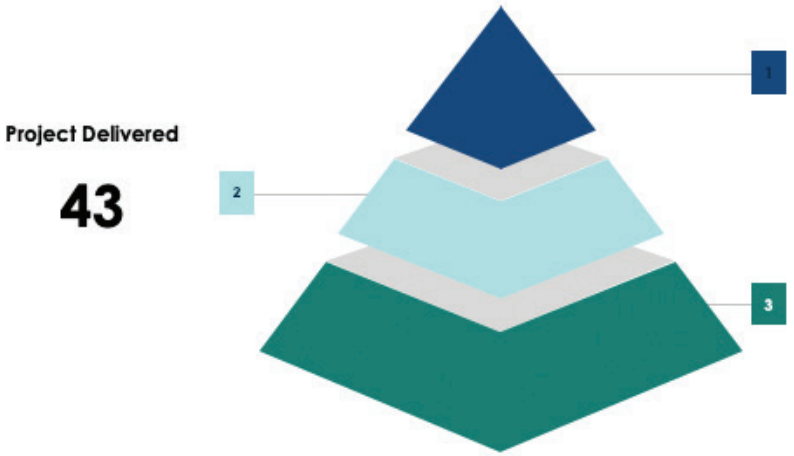
14 Bootcamps - Nov 2023



We can enable more young people have a better future!

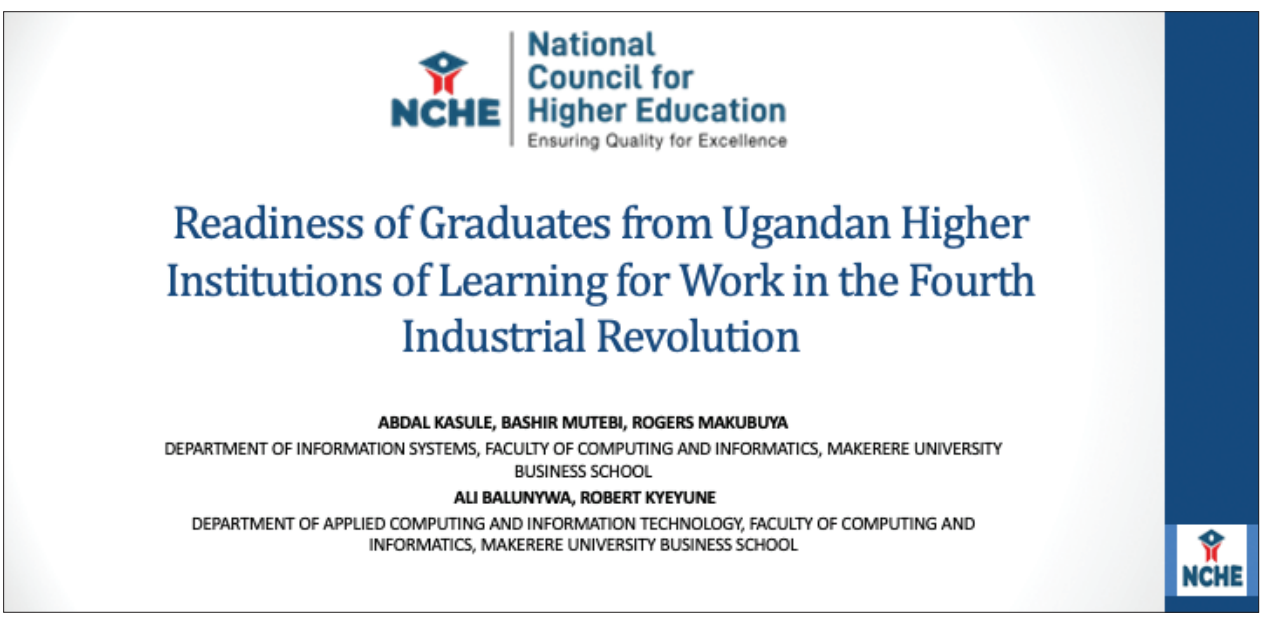
SESSION FOUR

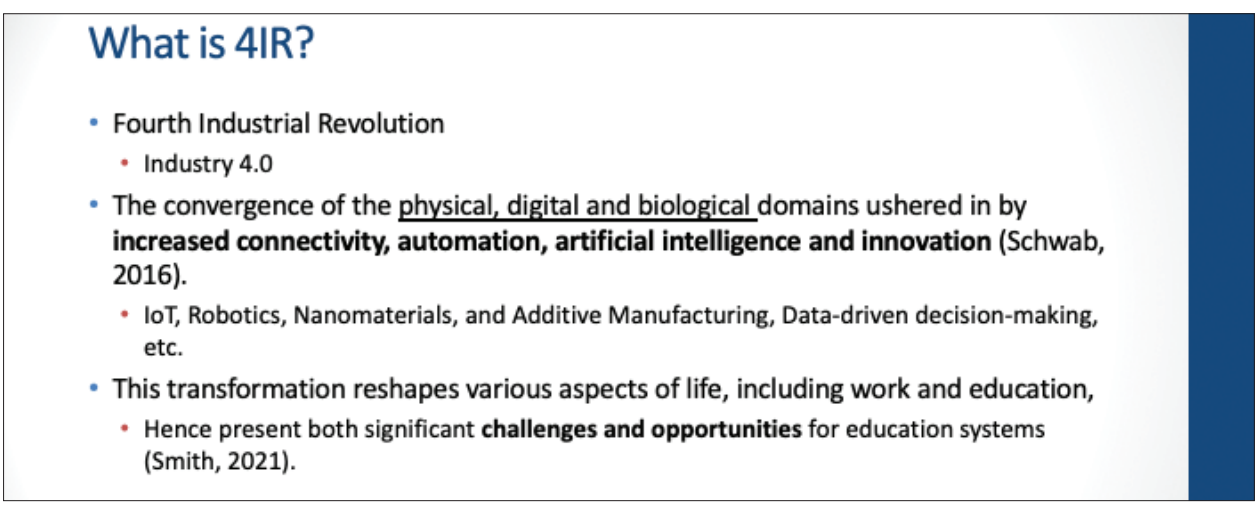
THE ADOPTION OF EMERGING TECHNOLOGY IN THE DIGITAL

CHAIRPERSON
Professor Jessica Norah Aguti,
Head ODeL, Busitema University

Presentation:
Readiness of Graduates from Ugandan Higher Institutions of Learning for Work in the Fourth Industrial Revolution

Dr. Abdal Kasule
Senior Lecturer
Makerere University Business School





Drivers of the 4IR

Technological

- Digital
  - Artificial Intelligence
  - Robotics and automation
  - Internet of Things
  - Data Science and big data
  - Cloud computing
  - Block chain
  - Virtual reality
- Physical
  - 3D printing
  - Autonomous cars
- Biological
  - Nano technology
  - Genetic engineering

Non technological

- Problem solving and decision making
- Analytical skills
- Critical thinking
- Creativity and innovation
- Leadership and management
- Adaptive and life long learning
- Inclusiveness and diversity
- Behavioral flexibility
- Financial literacy
- Negotiation and conflict resolution
- Etc.

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Motivation for the study

- Does university education in Uganda align with the demands of the evolving/already evolved 4IR economy?
  - Disconnect between Ugandan engineering university curricula and the demands of the 4IR (Ndawula et al., 2020).
- Do graduates have the relevant competencies needed to thrive in the changing work landscape?
- Does current curricula adequately prepare students for work in the 4IR?
- Uganda's 4IR strategy (2020)
  - Proposes an education ecosystem that provides Ugandans with the skills needed to participate in the economic opportunities of the 4IR.
  - Enhance teacher and student capabilities through the alignment of the education system with the demands of 4IR

NCHE

Research questions

- Is there content in the current curriculum offered at universities relating to the drivers of 4IR?
- What soft and hard skills were graduates able to acquire from their training at university?
- How relevant are the soft and hard skills to the current work graduates are doing?
- What suggestions can be put forward for curriculum alignment to the demands of 4IR?

What skills are needed in the 4IR?

- **Job specific expertise** and Industry sector knowledge
- Teng et al. (2019), Al-Maskari et al. (2021) and Yeoh et al. (2023), advocate for competencies in domains such as **creativity, critical thinking, problem-solving, digital literacy and socio-behavioral skills**.
- Strong **analytical and adaptability skills** remain in high demand across various sectors (Bakhshi & Rouhani, 2019).

What skills are needed in the 4IR? …

- **Interpersonal and intrapersonal skills** needed to generate long-term improvements in youth's life outcomes in the 4IR context (Carney et al., 2020).
- **Communication, teamwork, leadership, self-efficacy and networking,** are crucial for Ugandan graduates to secure decent employment and succeed in their careers in the 4IR (Nansubuga, 2020)
- **Interdisciplinary knowledge**
  - Multifaceted skills necessary to navigate the complexities of the 4IR era

What skills are needed in the 4IR? …

- Chioda et al. (2021); Gathani et al. (2019) and Nampewo et al. (2018) confirm the **high demand for soft skills among employers**, as well as their positive impact on productivity and innovation
  - Graduates equipped with **soft skills** are more likely to **thrive in collaborative environments**, effectively **resolve challenges**, and **build strong professional relationships**, contributing to enhanced career progress and leadership opportunities.
- Musisi and Sessanga (2019) emphasize the development of **critical thinking, analytical skills and creative problem-solving** methodologies
  - Integrate **open-ended problems, case studies and debates** into existing coursework, and considering utilizing **virtual reality simulations** for immersive problem-solving exercises.

Methods and materials

- Used a descriptive cross-sectional research design
- Target population was comprised of both undergraduate and postgraduate students from selected Ugandan universities.
  - Graduated between 2017-2023
- A total of 230 respondents from both public and private universities responded to the online survey questionnaire
  - **80% Bachelor's degree holders,**
  - **20% Postgraduates**
  - **56.3% had not heard about 4IR**
- The questions in the survey questionnaire related to knowledge about drivers of 4IR skills acquired, the use of the acquired skills in job placements and suggestions for curriculum improvement.
  - Questions were ranked on a scale of 1 to 5,

Results ... Level of familiarity with the concept of 4IR

Results ... Acquired soft skills from university curricula

Results ... Acquired hard skills from university curricula

Results ... Effectiveness of acquired skills in the current job assignments

- Respondents said the both soft skills and hard skills acquired from university curricula are **effectively utilized** in their current job assignments.

Effectiveness	Soft skills (%)	Hard skills (%)
Very Ineffective	8.9	3.6
Ineffective	0	1.8
Moderately Effective	26.8	25.0
Effective	42.9	51.8
Highly effective	21.4	17.9

Results ... recommendations and government interventions

Conclusion

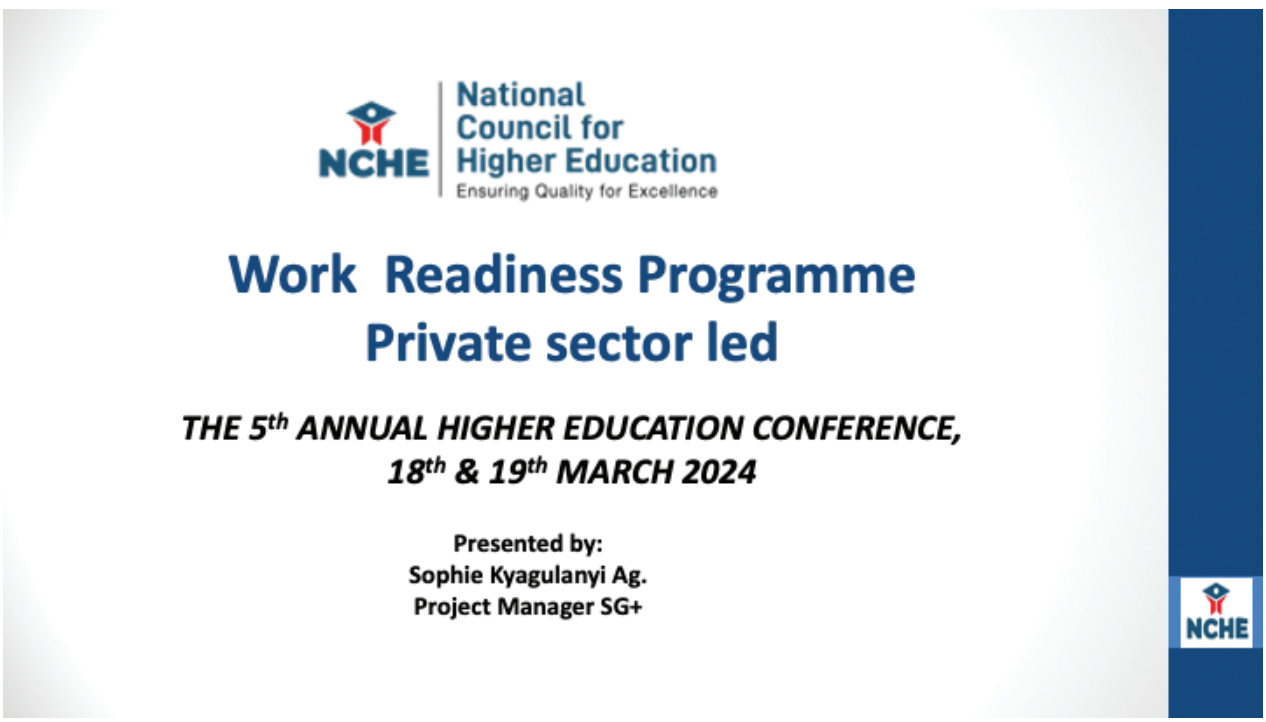
- 43.75% of the respondents who had heard about the concept of 4IR,
  - Had **basic and intermediate knowledge** of the **technological drivers** of 4IR.
- Subject content in current university curricula offered in Uganda
  - **Partially addresses technological drivers** of 4IR.
  - The **non technical drivers** of 4IR **are well addressed**.
- Adapt higher education curricula that aligns with the demands of the 4IR.

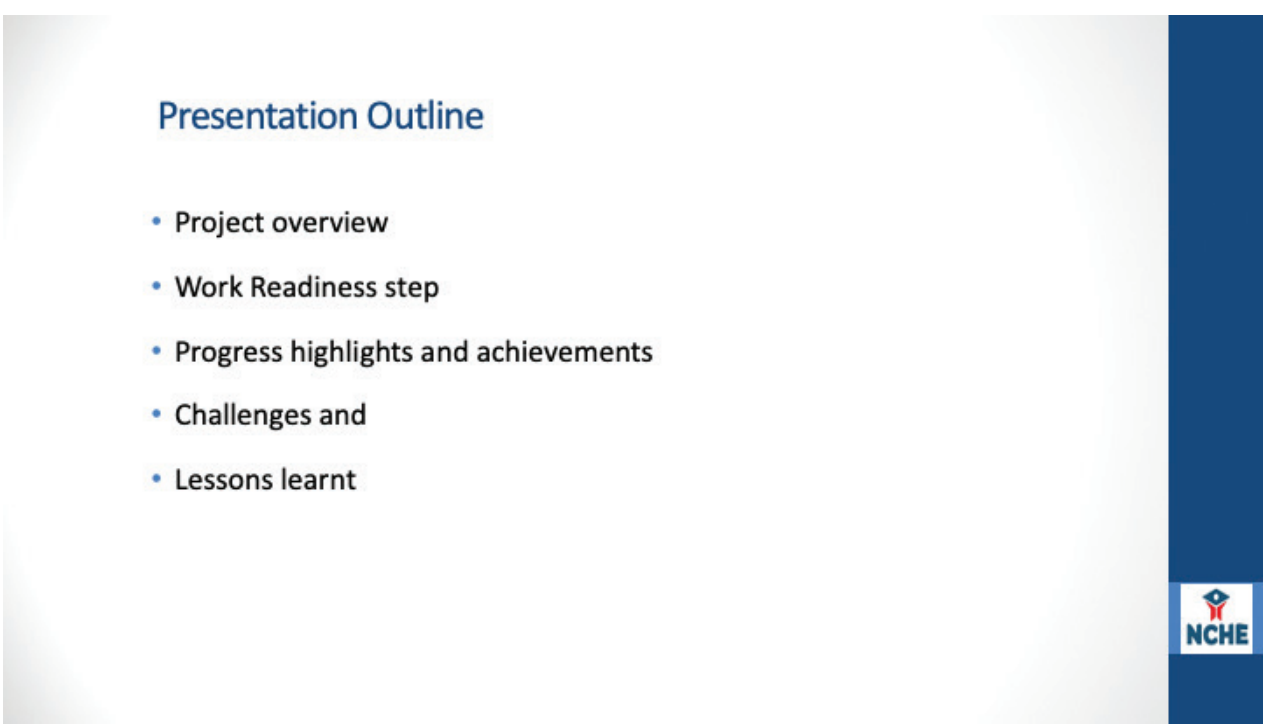
Thank you

Presentation:
Work Readiness Programme Private sector led

The 5th Annual Higher Education Conference, 18th & 19th March 2024

Presented by: Sophie Kyagulanyi Ag.
Project Manager SG+





Project Fact Summary

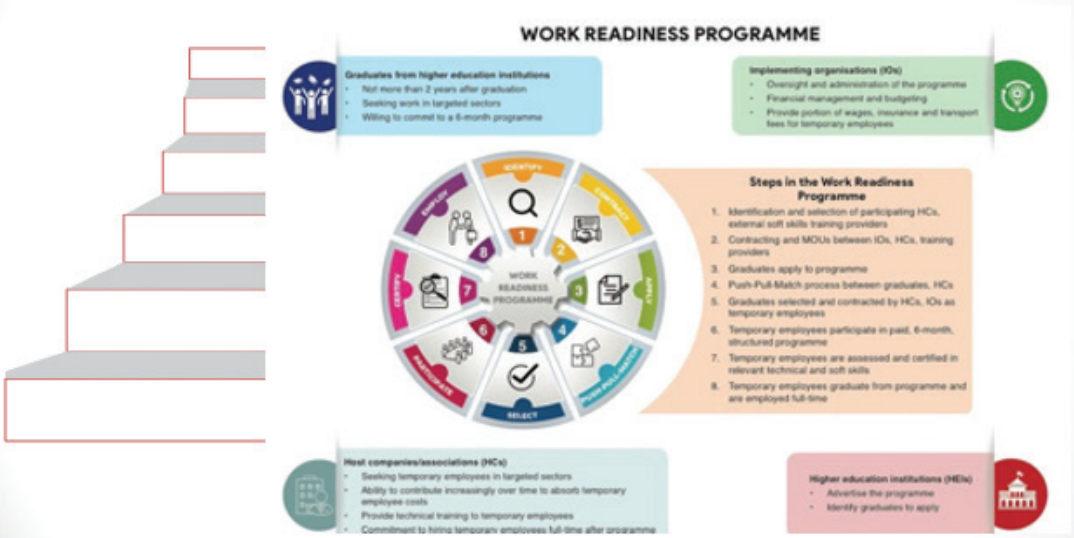
Title of the EU Programme	Inclusive Green Economy Uptake Programme (Green UP)
Project title	**SG⁺ Project** 1. Skills and Attitude (S&A) 2. Governance and Anti-corruption (G&A)
Duration	48 months
Geographical area	Nationwide
Budget	5M € financed under the 11th European Development Fund (EDF)
Implementation partner	Private Sector Foundation Uganda (PSFU)
Targets	1,000 young graduates
Target sector	Private Sector companies in Construction, Tourism and Hospitality, Manufacturing and Agro- processing; ICT and Digitalisation

The Work Readiness Program

Objective:
Equip graduates with adequate skills and attitudes

Results:
A private sector-led pilot WRP accessible to 1,000 young graduates
Document lessons and practices for policy dialogue

Steps of the Work Readiness Program



Soft skill curriculum

Objectives.

1. Inculcate soft skills in fresh graduates from HEIs to better prepare them to deal with workplace rigours & challenges of the external world.
2. Educating graduates to handle work related duties in a collaborative manner, communicate effectively, take initiative, solve problems, and demonstrate a positive work ethic to hold a good impression and positive impact.

Outcomes

- Build team work and collaborate in achieving set goals.
- Communicate effectively with both internal and external Stakeholders.
- Think outside the box by being creative, innovative and taking initiatives.
- Identify challenges and find effective and efficient ways of solving them.
- Develop a positive work ethic that is a key ingredient in achieving corporate goals.
- Ability to use IT skills in a more productive way for the benefit of the organisation.
- Develop a better entrepreneurial mindset that is committed to achieving a set of Vision and mission using different strategies.
- Ability to start a business of his/her own if he/she decides to be self employed.

Curriculum units

Personal Development.

- ❑Apply creativity and innovative skills
- ❑Demonstrate critical thinking.
- ❑Solve workplace problems
- ❑Demonstrate initiative and self direction capabilities
- ❑Apply codes of conduct in work
- ❑Display integrity and apply ethics at the workplace

Curriculum units

Interpersonal Skills-

- ❑Apply emotional intelligence at the workplace.
- ❑Listen and speak in order to relate well with customers, employers and colleagues.
- ❑Foster collaboration and teamwork at the workplace.
- ❑Establish and maintain communication pathways to attract & retain customers.
- ❑Manage and solve workplace conflicts, respect diversity.
- ❑Foster gender equality.

Curriculum units

Digital Ethos:

- ❑Maintain etiquette in ICT use
- ❑Adhere to cyber and data security principles
- ❑Prudently use internet and email in communication at workplace
- ❑Ethically use social media in workplace communication
- ❑Apply ICT in workplace reporting
- ❑Maintain health and wellness in ICT use

Curriculum units

- **Professionalism:**
  - ❑Apply career & self management skills to excel.
  - ❑Maintain professional growth and development.
  - ❑Manage time and workplace resources.
  - ❑Apply workplace and occupational safety principles.

Curriculum units

- **Entrepreneurship mindset:** demonstrate entrepreneurial mindset & approach to work, demonstrate knowledge of entrepreneurship and self employment, identify entrepreneurship opportunities, create entrepreneurial awareness, apply entrepreneurial motivation, develop business innovative strategies, develop a business plan

Skills and attitude component- Highlights

1 WRP launch

2. Mobilisation of graduates

3.Identification of service providers

Work Readiness Programme

4. Feedback into the curriculum

5. Curriculum and guide finalisation

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Work Readiness Programme

6. WRP trainings

7. Graduate feedback meetings

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8. Placement of graduates

Work Readiness - Graduate placement Matrix 2024				
Total Target		**1000**		
Cycle	**Cohort 1**	**Placed**	**Completed cycle**	**Retained**
April-Sept'23	Cohort 1	315	303	186
		315	**303**	**186**
Oct'23-Mar'24	Cohort 2	20		
Nov '23- Apr'24	Cohort 3	90		
Dec '23- May'24	Cohort 4	87		
		197	**0**	**0**
Graduates placed in 2023		**512**	**303**	**186**
Jan '24-Jun '24	Cohort 5	34		
5th Feb '24-Jul'24	Cohort 6	86		
Graduates placed in 2024		**120**	**0**	**0**
TOTAL GRADUATES PLACED TO DATE		**632**	**303**	**186**
GRADUATES PENDING PLACEMENT		**368**		

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Skills and attitude component- Highlights

11. Lessons learnt dissemination

12. Success story compilation

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Challenges

- Testing Soft skills training based on the WRP curriculum teaching with universities.
- Conduct work readiness training prior to placement at universities.
- Harmonizing teaching with work based needed knowledge.
- Informal economy limits participation of private sector. not incorporated not certified, indecent work environments not meeting due diligence. requirements.
- Attitudes of graduates, selective based on pay geographical location,

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SESSION FIVE:
THE PRIVATE SECTOR'S ROLE IN ENHANCING GRADUATE SKILLS AND EMPLOYABILITY THROUGH TECHNOLOGICAL INNOVATIONS

CHAIRPERSON
Professor Aaron Mushengyezi,
Vice Chancellor, Uganda Christian University

Presentation:
Social Impact entrepreneurship through innovations

Dr. Milos Despotovic,
CEO and Co-founder Demika Software.
VU Amsterdam

Welcome!

Speaker:

Miloš Despotović

Professional in tech, telecom, media, TV, education

- Engineer, producer, business developer
- International entrepreneur
- Lecturer and start-up advisor
- Tenure at Mediacollege Amsterdam
- Business mentor at Vrije Universiteit Amsterdam
- Founder of student Business desk in Amsterdam
- Advisor of several social impact student start-ups

Challenge

Fostering graduate employability and innovations

Fostering future professionals' employability and innovations

History

- 1984 - 2001: pre-primary, primary & secondary education in Yugoslavia (Serbia)
- 2001 - present: academic education in the Netherlands
- 1985 - present: performing experience
- 1994 - present: professional development 6

Challenge

Fostering future professionals' employability and innovations

Goals

Fostering future professionals' employability and innovations by:

- identifying their added value
- selecting fitting industry sector
- supporting innovative mindset

Goals

Fostering future professionals' employability and innovations by:

- identifying their added value => talent development => individual approach
- selecting fitting industry sector => professional orientation => education & industry
- supporting innovative mindset => commitment => putting education in context

Solution

Innovative, social impact student start-ups

- using intrinsic motivation
- creating safe environment for experimenting, pioneering, tinkering, failing, improving
- engaging experienced professionals as role-models and coaches/mentors
- alumni engagement
- education meets industry
- finance!

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Current picture

Education:

- programme based
- grades measure performance
- simulated situations
- no follow-up

Industry:

- performance based
- demanding
- real-life situations

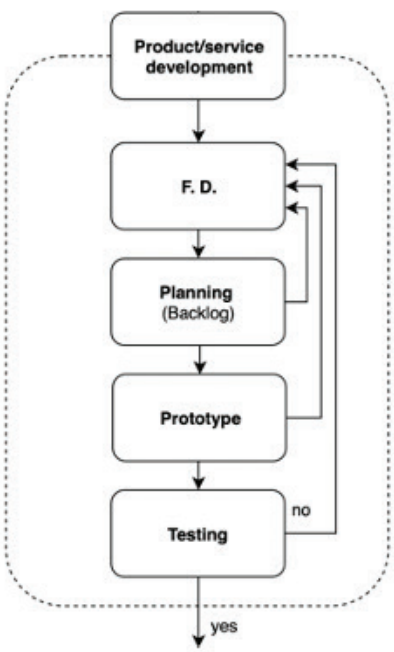
Current picture

Education:

- programme based
- grades measure performance
- simulated situations
- no follow-up

Industry:

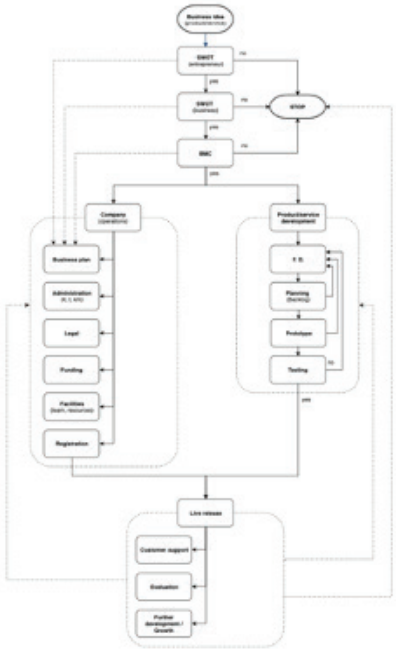
- performance based
- demanding
- real-life situations



Business process

Parallel development of:

- commercial product/service
- company itself (organisation)



Student start-ups

Education:

- programme based => skill development based
- grades measure performance => results/milestones measure performance
- simulated situations => real-life situations
- no follow-up => constant iteration

- Industry: performance based => process oriented
- demanding => intrinsically motivating
- real-life situations

Student start-ups

HOW:

- modulair (per semester/quarter)
- set boundaries/scope/theme, invite student ideas
- multidisciplinary teams
- teacher => senior colleague / coach / manager

Industry:

- talent development investment
- demanding => experience sharing
- real-life situations

Student start-ups

Benefits:

- highest level of intrinsic motivation
- efficient skill development
- grade driven => achievement driven
- industry insights

Industry:

- R&D outsourcing
- cost reduction
- diversifying portfolio

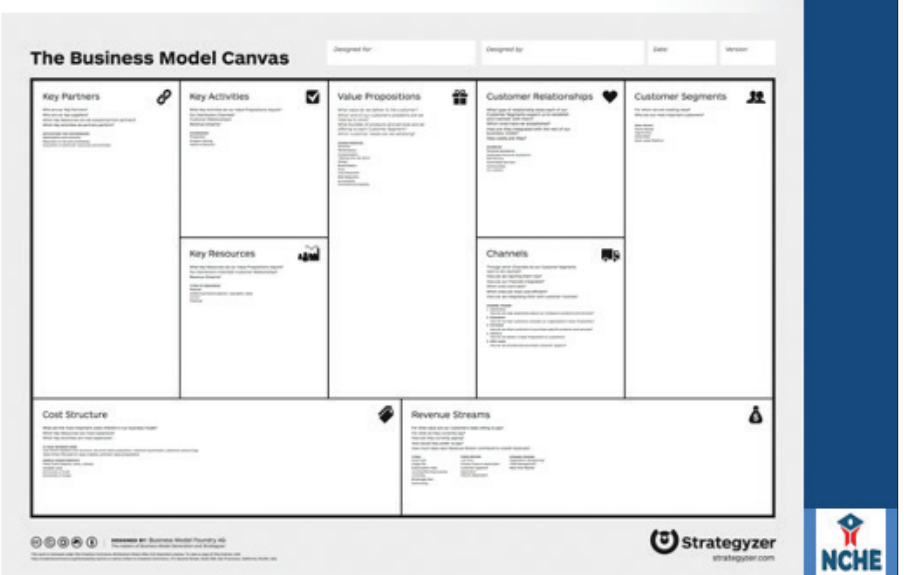
Programme

- Phase 1: introduction to entrepreneurship, BMC
- Phase 2: sustainability & marketing
- Phase 3: management & growth
- Phase 4: legal & corporate administration
- Phase 5: corporate finance (incl. pricing & budgeting)
- Phase 6: business pitch
- Phase 7: business plan

+ feedback

BMC

- business plan on one page
- 9 building blocks for your company



Idea

Starting points:

- Value propositions

- Customer segments

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Value propositions

Proposition = offer

- which product/service are you offering?
- which problem are you tackling?
- which solution/added value for the problem are you providing?
- keep it simple. Can your grandma understand it?
- what differentiates you from the competition?
- who are you and what is your story?

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Customer segments

"Everyone can use my product/service!"

Create segmentation of your target group:

1. Phase 1 = MVP (Minimum Viable Product)
   Who needs my solution the most?
   High demand, low competition, affordable.
   ROI (Return On Investment): time, budget Offer (max 3 levels)

2. Phase 2 = organic growth & diversification (product/service and clients)

Sustainability - why?

PURPOSE: being goal oriented provides clarity and guidance in your strategy and activities

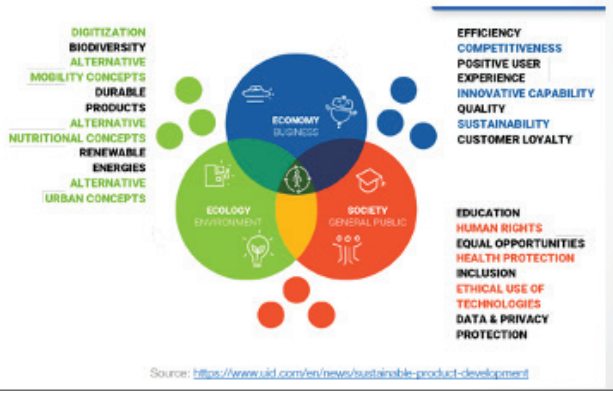
- LONGEVITY: your corporate strategy is based on long term existence, divided into short to mid term phases
- PRODUCT/SERVICE DEVELOPMENT: you build a business based on necessity and demand form the market, instead of trying to "push" your ideas
- PARTNERSHIPS: you select mission minded partners (suppliers, employees, investors, partners, clients), instead of benefit minded (cost, time), ensuring stable demand<>supply line of business
- INNOVATION: offering innovative solutions to existing problems ensures stronger positioning on the market and sets you as an authority figure in your respective field
- SCALE: from local to global, from SME to giant, from service to science, from research to production - all based on your specific business case
- SOCIAL IMPACT: do good or don't do at all! Also benefits

Social enterprise - benefits

- PURPOSE => perception & acceptance: impact instead of greed, lowering barriers in communication
- LONGEVITY => durability: all involved parties sharing workload and responsibilities
- PRODUCT/SERVICE DEVELOPMENT: solving problems of others instead of stuffing your own pockets
- PARTNERSHIPS => stability: parties will feel "guilty" not to talk to you, not to work with you, not to support you. Use that for long-term commitment + diversification + growing your network.
- INNOVATION: funding opportunities (public & private), tax benefits, lower MVP expectations (try & see what happens), higher acceptance, shorter time-to-market, cooperation with government & education, certification
- SCALE => recipe for succes: start small, test your concept, once successful build from there
- SOCIAL IMPACT => legacy: something good remains

Corporate communication

- User experience vs. product specs
- Emotional effect vs. rational conclusion
- Involvement vs. showcase
- Impact vs. pocket
- Co-ownership vs. good-deal
- End user perspective vs. corporate
- "We listen and act" vs. "We tell you"
- Conversation vs. monologue
- User empowerment vs. client pleasing



Source: https://www.uid.com/en/news/sustainable-product-development

Student start-ups

Challenges:

- resources: space, time, funding
- external industry mentors
- legal aspects: IP, liability, shares
- communication: school/students/industry

Student start-ups

Proven tips:

- physical space
- external industry mentors
- school = facilitator
- communication! Both internal & external =>

exchange experiences!!!!!!!!!!

Examples

- education
- healthcare
- agriculture
- urban solutions
- automatisation
- data processing

BIJLESBUREAU BIJLEX

Mediacollege Amsterdam

Myco Farming

NaNTech Solutions

BrigIT

robin assistant

VU VRIJE UNIVERSITEIT AMSTERDAM

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Conclusion

Fostering graduate employability and innovations by:

- treating them like future professionals
- harvesting their intrinsic motivation
- investing in developing professional skills
- engaging industry
- leading by example
- COMMITMENT!

Mwebare munonga :)

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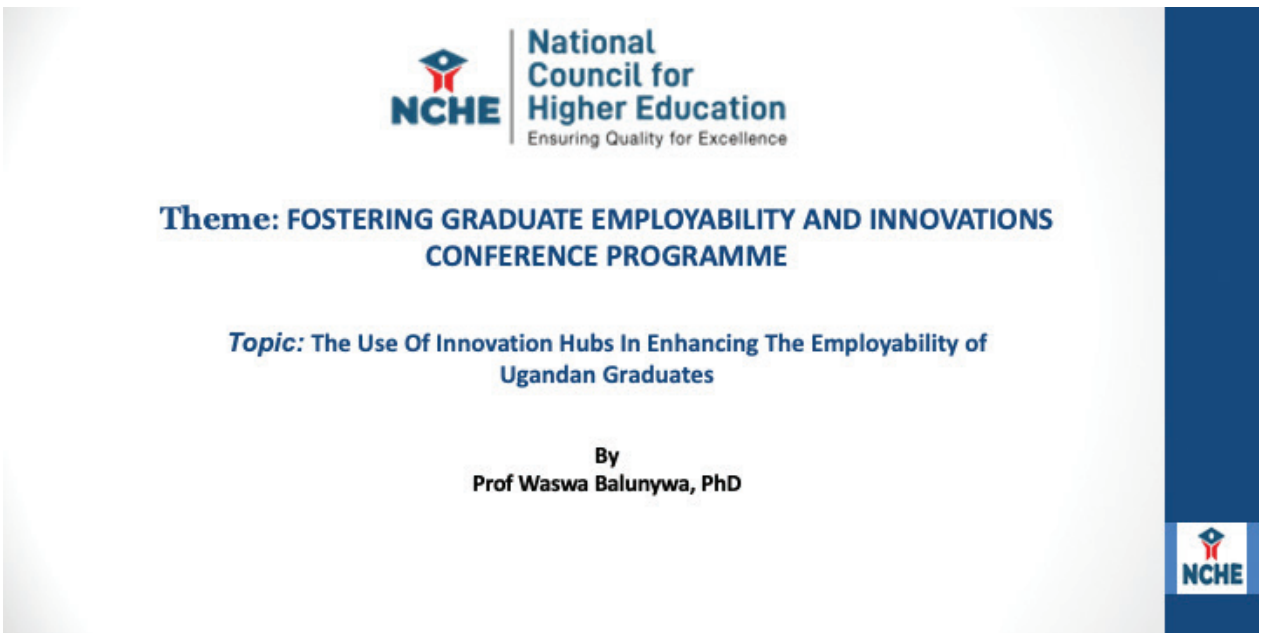
Presentation:
The use of innovation hubs in enhancing the employability of Ugandan graduates

Prof. Wasswa Balunywa



Today's Topic:

The Use of Innovation Hubs in Enhancing The Employability of Ugandan Graduates

Innovation HUBS

Incubators

Accelerators

Do they Work?

Hand Hoe Digging

The Employment Challenge

- Unemployment 2.90% 2023
- Youth unemployment 6.5% 2022
- Unemployed graduates80% 2023
  - Post secondary

The Employment Challenge

Low employment Rate?

- Agrarian nature of society
- Everybody does something

But

- 80% percent of population in rural area
- 70% of the population are in agriculture

Consequence

- POVERTY

The Poverty Challenge

- Poverty is absence of income
- but people are employed
- But produce for self consumption

Overcoming The Poverty Challenge

- Create jobs
- Types of jobs
- Self employment and paid employment

Overcoming The Poverty Challenge

Who is Responsible

- Individual primary
- NGOs can support
- Government can support

Main Source of Jobs

- Business
- NGO sector
- Government
- Self consumption/products

What is Business

- An opportunity in the environment
- Who seeks opportunity- The Entrepreneur

Major Roles of Entrepreneurship

- Innovation
- Business Centres
- Job creation
- Producer of goods and services

How Does Entrepreneurship Manifests?

- Natural/born
- Made

Entrepreneurial Landscape

- Agriculture
- Industry
- Service
- Knowledge

Where is Growth Coming From

- Knowledge
- Service
- Industry
- **Driven by trade**

Where is Growth Coming From

- **BUT**
- Africa is disadvantaged
- Congo is the poorest country in the word yet one of the richest in resources
- Entrepreneurship exists but no technology
- No technology because they are poor

Social Economic Reforms

- Unblock trade barriers
- Increase production
- Increase productivity through educational reforms
- Create middle class
- Increase exports
- Fund sciences

What Is An Innovation Hub?

- An **innovation** hub primarily serves as a place where people collaboratively convene, conduct research and widen their influence.
- Accelerators and incubators are essential to fueling connections and growth.
- Innovation hubs are the power house of entrepreneurship and entrepreneurial ideas

Innovation Hubs, Incubators and Accelerators

- Uganda's tech hubs have undergone both qualitative and quantitative transformations and growth over the last decade, increasing from fewer than five hubs in the late 2000s, to over 20 active tech hubs in 2020, established by both public and private actors. They include the Innovation Village, Hive Colab, Angels Hub, Outbox, 97 Fund, the Uganda Innovation Lab, The Hub Kampala, Women in Technology Uganda or the National Software Incubation Centre at Makerere University and the National ICT hub, among others.

- The blossoming number of hubs in the country, growing at an average rate of 33% per annum, has increased the availability and affordability of business support services to potential start-ups, hence enhancing access to better insights, technology, business opportunities and funding. Correspondingly, the number of start-ups that raised funds during the past decade, increased from less than 5 between 2012 and 2016, to 24 in 2017, 45 in 2018 and 100 in 2019. In 2020, only 12 start-ups attracted funding, because of the COVID-19 Pandemic.

- However, several challenges continue to persist in the internal operations of the

Innovation Hubs in Uganda

- **Innovation Village**:
- **Outbox**: Outbox is another prominent hub in Kampala,
- **Hive Colab**:
- **Makerere University Innovation and Incubation Center**:
- **Design Hub Kampala**:
- **NIISP Incubation Centers**: As part of the National ICT Initiatives Support Programme (NIISP),
- **Ntinda Business Park**:
- **Uganda Technology and Management University (UTAMU) Innovation Hub**:

The Global Entrepreneurship Index

Role of Innovation Hubs

Offers:

- ✓ Resources
- ✓ Support
- ✓ Mentorship
- ✓ Workshops
- ✓ Funding opportunities

What They Provide?

- Workshop
- Equipment
- Tools
- Training
- Mentorship
- Networking opportunities

Benefits of Startups

- Inspiration
- Ideation
- Implementation
- Iteration

What We Requires to Improve Innovation

- Reform the education sector
- Introduce skills at all levels
- Put emphasis on science
- Pay for all science education

What We Requires to Improve Innovation

The reforms

- Emerge primary with secondary
- Reduce drop out rates
- Create a middle class that demands

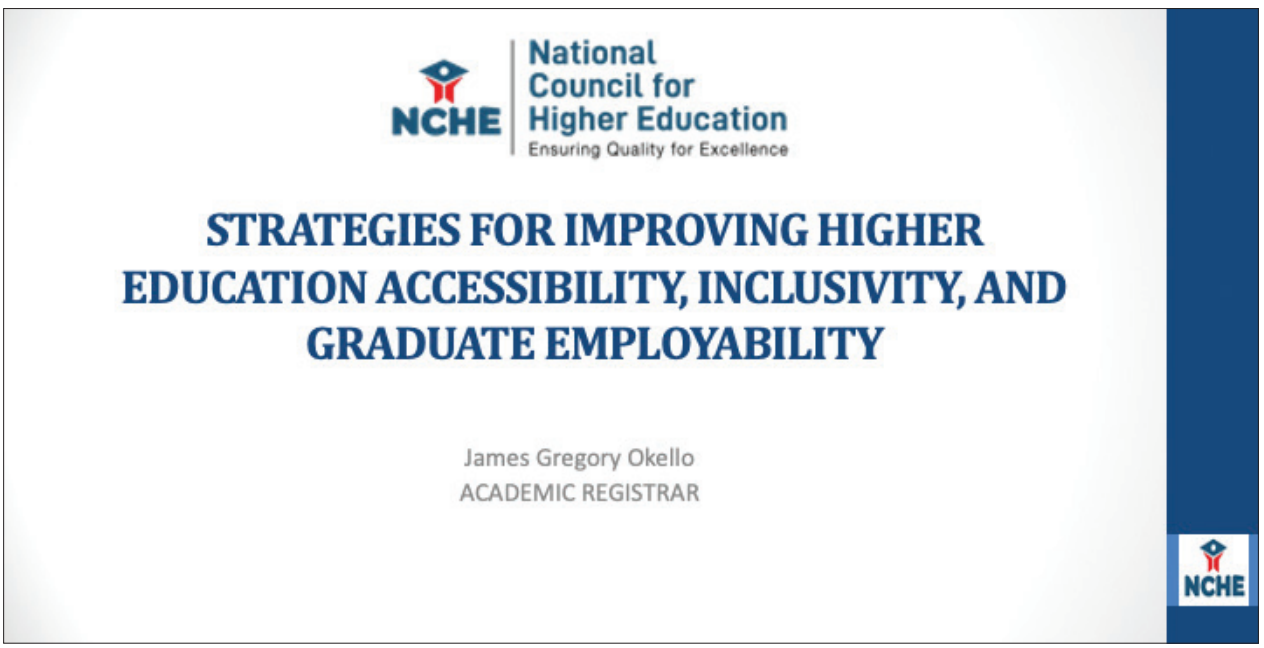
  manufacturing of products

SESSION SIX:
IMPROVING ACCESS AND INCLUSIVITY TO HIGHER EDUCATION IN UGANDA: ADDRESSING UGANDA'S LOW GROSS ENROLLMENT RATIO

CHAIRPERSON:
Dr. Henry Buregea,
Vice Chancellor,
Livingstone International University

Presentation:
Strategies for improving higher education accessibility, inclusivity, and graduate employability

Mr. James Okello,
Academic Registrar, Soroti University



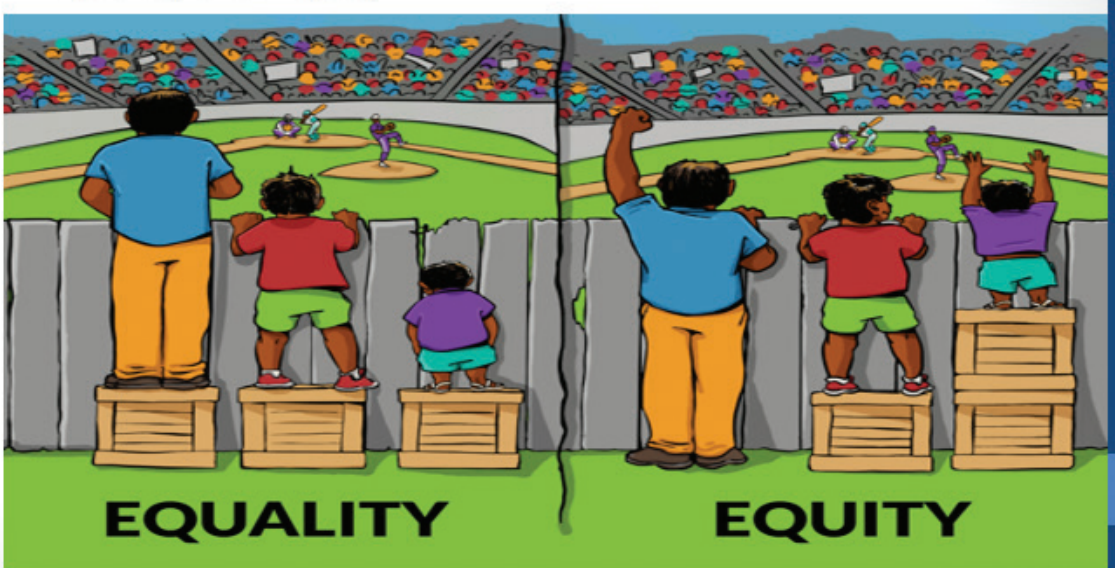
Challenge of Choosing a Career

- The students from the poor background get the education the employers want meanwhile the students fro rich background get the education they want
- UK student leader in 1988

The Issues of Access, Equity and Employability

The issues of Access, equity and employability represent the fundamental policy pillars that every higher education system should strive for. Recognizing their interconnected nature, these three policy domains should be regarded as an integrated whole, as their effectiveness is contingent upon each other.

Equality and Equity



Equity

- We should aspires to be a country where all people, regardless of their race, ethnicity, gender, ability, socioeconomic status, or intersectional background have an equal opportunity to succeed.
- In higher education, equity or substantive equality 'is based on an understanding that academic performance and outcomes should be the same across groups of students, but it recognises that variables such as sex, class, socioeconomic status, race, and ethnicity will determine what students need to achieve these goals.

Inclusivity

- Developing an environment that is respectful, supportive and all-embracing of the many intersecting identities found in the university community. Removing barriers to recruitment, retention and overall success for students who are disabled, immigrant, migrant, and/or minorities.
- These covers five core areas of activity including:
  - Structures and Processes
  - Curriculum Design and Delivery
  - Assessment and Feedback
  - Community and Belonging
  - Pathways to Success.

Employability

- "Employability is having a set of skills, knowledge, understanding and personal attributes. that make a person more likely to choose and secure occupations in which they can be. satisfied and successful.
- Personal attributes that contribute to overall employability include commitment, adaptability, honesty and integrity, reliability, ability to deal with pressure, motivation, and cultural fit with the employing organisation.

Student recruitment

- The journey toward equity and inclusion should commence with the recruitment of students, if not earlier, given the significant impact of the school system's structure on the composition of student populations.
- Regarding student recruitment, there are primarily two approaches:
- one is merit-based, involving a broader range of examinations and assessments, which may include high-stakes national entrance examinations and other standardised tests.
- The second approach is quota-based, where a designated percentage of university places is reserved for disadvantaged students alongside regular selection procedures.
- Sustaining a quota-based admissions system is crucial, especially when resources are limited for supporting disadvantaged student groups during their years prior to higher education. This highlights the need for affirmative action in many countries to ensure equitable access to higher education.
- Over the course of the last two decades, many countries especially in Asia have moved from previously elite systems to massification. Trow (2006) describes higher education system growth as following three phases – elite, mass and universal access phases.

Avenues of Admission to University

- There are five Admission Avenues and each has its own specific requirements. The admission avenues include the following:-
- The Direct Entry Scheme for A 'level leavers
  - The Candidates should indicate their gender whether they are MALE (M) or FEMALE (F). this will enable us to add 1.5 to the female gender
- Special Schemes Under Direct Entry
- Universities offers offer opportunity of entry through Special Entry Schemes i.e.
  - Talented Sports Persons,
  - Disabled Persons,
  - District Quota Schemes and
  - Biological Child Sponsorship Scheme
- **Special Scheme admission benefits candidates under Uganda Government sponsorship only as part of the affirmative action.**

Avenues of Admission to University

- Mature Age Entry Scheme
- Diploma holders Entry Scheme
- Degree holders Entry Scheme
- Higher Education Certificate Entry Scheme
- The above avenues are also subdivided into two sponsorship category
- Uganda Government sponsorship
- Privately sponsored
- Undergraduate degree for admission to Masters
- Masters degree for admission to PHD

Weighting Criteria for Advanced Level of Education Avenue

- All subjects taken at the Advanced Level of Education are grouped into three categories and weighted as follows for purposes of admission to any Programme of Undergraduate study in the University.

S/No.	Subject Category	Subject Score Weight
1.	Essential	x 3
2.	Relevant	x 2
3.	Desirable	x 1

Weighting criteria for advanced level of education avenue cont..

i. For A' Level grades, the conversion Subject score scale is **A=6, B=5, C=4, D=3, E=2, O=1, F=0 points**.

ii. The Essential A' Level subjects for University Programmes must be passed with a Principal Pass. A Principal subject passed at Subsidiary level i.e. Grade O can however be weighed as Relevant but not as an "Essential".

iii. For a given candidate, not more than three subjects taken at the principal level shall carry a weight of 3, 2, or 1.

iv. Not more than two subjects shall be weighed as "Essential".

Understand the Issues

- The first step to improving access and equity in higher education is to understand the issues and the factors that affect them.
- What are the main obstacles and gaps that prevent some students from entering and completing higher education?
- How do these issues vary across different contexts and populations?
- What are the impacts and consequences of these issues on students' well-being, learning, and career outcomes?
- By learning more about the issues, you can identify the areas that need improvement and the strategies that can address them.

Issues

- Poor educational background
- Admission on merit tends to give those from good schools an advantage
- Cost of education(Fees, Loan scheme)
- Lack of support services
- Gender (in Uganda, where women are under-represented at all levels of education, as students, teachers, and managers. This reflects women's low status in Ugandan society. (Prof. Joy Kwesiga)
- Traditional mode of delivery on campus courses
- Limited capacity in institution and also in Programmes

Policy and Legal Framework

Uganda CONSTITUTION

- Education is also viewed as part of the solution to reducing poverty and Uganda constitution article 30 on Right to education state that all persons have a right to education**. The question up to answered is up to what level of education**
- **Furthermore Uganda constitution Art 32 on Affirmative action in favor of marginalized groups** states that
- Notwithstanding anything in this Constitution, the State shall take affirmative action in favour of groups marginalised on the basis of gender, age, disability or any other reason created by history, tradition or custom, for the purpose of redressing imbalances which exist against them.
- Parliament shall make relevant laws, including laws for the establishment of an equal opportunities commission, for the purpose of giving full effect to clause (1) of this article

Article XVIII. Educational objectives

1. Education (pre-primary, primary and post-primary) Act, 2008. This is the legislative basis governing education provision in Uganda. It states that "basic education shall be provided and enjoyed as a right by all persons".
2. The State shall promote free and compulsory basic education.
3. The State shall take appropriate measures to afford every citizen equal opportunity to attain the highest educational standard possible.
4. Individuals, religious bodies and other nongovernmental organizations shall be free to found and operate educational institutions if they comply with the general educational policy of the country and maintain national standards.

Universities and Other Tertiary Institutions Act, 2001 Admission to a Public University 28.

- Admission to a Public University shall be open to all qualified citizens of Uganda and without discrimination.
- It shall be lawful for the Public University to admit to the University any person qualified for admission who is not a citizen of Uganda.
- The Admission Committee of a Public University shall take into consideration affirmative action in favour of marginalised groups on the basis of gender, disability and disadvantaged schools.
- The Admission Committee of a Public University shall take into consideration for admission, persons with special talents in sports, music and other social activities for their enhancement
- Although the right to primary education enjoys broad recognition in human rights law, the human right to higher education is not as fully developed. Education is both a human right in itself and an indispensable means of realizing other human rights. As an empowerment right, education is the primary vehicle by which economically and socially marginalized adults and children can lift themselves out of poverty and obtain the means to participate fully in their communities . . . But the importance of education is not just practical: a well-educated, enlightened and active mind, able to wander freely and widely, is one of the joys and rewards of human existence

Scope of the Right to Higher Education

- Scope of the Right to Higher Education Even if we can all agree that access to higher education is a human right, defining the scope of the obligation can differ greatly. The right to primary education is absolute under human rights law and there is broad agreement that it should be compulsory and free.
- However, the right to higher education is tied to capacity or merit, as it should be, and the scope of the right is highly contested. Even though higher education is a human right, not every individual should attend an institution of higher learning, only those with capacity, desire, and ability. Denying access to those with capacity and ability is a human right's violation as education is so important for human dignity.

Dealing with the Challenges

- **Cost reduction strategies**
- In some countries, cost reduction strategies often involved greater use of online and other technology based instruction in which larger numbers of students could be enrolled at a lower per-student cost. Indeed, Asia leads the way in using distance education as a means to extend access while controlling costs in higher education. Across the region, more than 70 universities now deliver instruction exclusively through distance education (ADB, 2011). Some of these initiatives are extremely large.
- In China, the Central Radio and Television University directly serves about 2.6 million active students and, indirectly, another 3.5 million through its network of Provincial Open Universities (ADB, 2011). The Universities Terbuka Indonesia serves nearly 650,000 students, most of whom are teachers enrolled in in-service training Programmes (Zuhairi, 2010).

Fees, Fees

- With the expansion of higher education systems, governments face mounting costs and reduced financial capacity to sustain this growth. Consequently, many countries have embraced the concept of cost-sharing in higher education.
- Many human rights scholars agree that charging for higher education is acceptable as long as the fees are not so high or burdensome to become an impediment to access. Student fee is a method whereby incidence will be on the students or on the families. In this method cost is charged from those who are direct beneficiaries of the system. But this may act as a negative factor influencing the enrolments of the disadvantaged segments of the society. Some parents are selling their land to fund education.
- Costs at many highly selective institutions are estimated to be between UGX 3,000,000 to almost UGX 6,000,000/= per year and yet the Monetary poverty daily consumption less than US$2.15 per person. Some students have been discouraged from applying to institutions of higher education because of the fee increases" even though loans and grants were available.
- Establish scholarships that provide support for disadvantaged students.
- Allocate emergency financial aid to students in need.

FEES, FEES Cont..

1. We should advocate for discriminatory fee structure. Discriminatory pricing minimises the perverse effects of public subsidization of higher education to those who can afford which is reflected through uniform and low levels of fees.
2. Some universities allow students to suspend their studies for a period of up to two full academic years to allow them look for fees. In some it is the University's policy not to increase Tuition Fees for continuing students. The Tuition Fees will remain as set out in a student's offer Letter. The basis for discriminatory pricing therefore should be based on Family income of the students.
3. Nevertheless, higher tuition fees challenge equity and inclusion, potentially restricting the participation of students from disadvantaged backgrounds.
4. To ease the financial strain on students, increased government investment should be complemented by the establishment of comprehensive student financial support systems, including various allowances for living and tuition expenses and potential student loan schemes.
5. In addition to financial support, higher education institutions need robust student affairs management systems to provide a wide range of assistance to students facing diverse challenges, including academic, social, physical, mental and logistical support.

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Student Loans

- Student's loan is helpful in encouraging the students to support their cost of higher education in the long run. Theoretically it is an attempt to shift the burden on the students and their families whereby they can pay the cost later for the education they received earlier. Students loan Programme suffer from some problems such as:
- Loans may be another solution but, with tuitions rising in future to alarming levels, loans are often not enough. Even if economists tell you the investment is still worth it because the degree you earn will allow you to make more money in the long run, which is a daunting figure for anyone but the extremely wealthy and is an especially daunting amount for anyone from a disadvantaged background.
- If education does not guarantee employment and if repayment is compulsory how would people from poor sections of society would repay their loans?

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Student Support Systems

- It is vital to integrate academic support and mental health services to foster the comprehensive development of university students, particularly those encountering challenging circumstances. Higher education institutions must establish inclusive campuses, classrooms and laboratories to address all students' academic needs and their mental well-being.
- Policies such as those dealing with sexual harassment, mentoring services, bridging courses, universities creating grants to help needy students. You can offer your help, your mentorship, your guidance, or your friendship to students who may need it, such as first-generation students, low-income students, students with disabilities, or students from rural or remote areas.

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Disabled

- Common barriers include outdated infrastructure, inaccessible buildings and learning materials, lack of assistive technologies, and so on. Different types of disabilities pose different obstacles, and a university's inability to accommodate students' disabilities restricts their ability to attend classes, engage in campus activities, and fully immerse themselves in the academic experience.
- In addition to physical or technological barriers, students with disabilities face the higher education community's lack of awareness and understanding of disabilities. Disability-related issues and the unique needs of disabled students are not always well-understood or acknowledged by staff, and even fellow students, resulting in misconceptions, stereotypes, or unconscious bias, leading to alienation from peers and a negative impact on the student's mental health.
- The most frequent barrier faced by students with disabilities lies in how they are perceived by faculty once they reveal their need for accommodations. Students report feeling judged, humiliated, and embarrassed by Staff, who often assume they are less capable than their peers due to their disability.
- Faculty members should be prepared to embrace inclusive pedagogies to accommodate the diverse needs of students in their classes. Actions such as reducing class sizes, providing personalized tutoring and promoting interactions between teachers and students as well as among students, especially with the support of technology, can promote equity and inclusion in the learning and teaching processes, ensuring that no student is left behind.
- Student support services aim to assist students in overcoming financial, academic, social and mental challenges, fostering a positive campus environment that enables them to reach their full potential. Achieving this goal necessitates the professional growth of student affairs management staff and equipping faculty members with the necessary skills to address both academic and non-academic aspects proficiently.

Digital divide

- While virtual learning environments, becoming the new normal for most students there are those who are not coping. In the 90's the use of technology for teaching was as sophisticated as an overhead projector, feedback was a show of hands in the lecture room or a paper questionnaire, and course handouts were photocopies.
- Fast forward to today, when more universities are listening to what students want, and digital transformation has changed the face of learning.
- The outdated, transmission model, through which teachers transmit factual knowledge to students via lectures and textbooks is beginning to be replaced by e-learning. We need to deal with digital divide.
- The pandemic fast-tracked the world into an era where digital learning is now widely accepted, extending beyond learners with declared disabilities. Create and facilitate e-learning units at your institution where new students are taken through orientation.

Access to different disciplines and areas of study

- Ensuring equal access to higher education goes beyond just counting the total number of students from diverse backgrounds. It involves actively promoting the participation of a diverse student body in a wide range of academic disciplines and fields of study.
- It can be argued that male students usually dominate sciences, technology, engineering and mathematics (STEM) study Programmes, while social and human sciences generally attract more female students.
- Additionally, student representation in both STEM and social and human sciences Programmes varies among different demographic groups based on additional criteria.
- In cases where merit-based mechanisms fail to uplift the representation of disadvantaged students in highly sought-after study Programmes, targeted affirmative actions must be implemented to ensure their participation. Creating supportive ecosystems at the system, institutional and faculty levels is critical to fostering inclusion and enhancing access to relevant study Programmes for disadvantaged students.
- Equity and inclusion assessments should cover all disciplines and fields of study to prevent certain student groups from dominating high-demand Programmes. This is particularly crucial for Programmes that leverage advanced technologies and offer promising employment prospects and higher salaries while aligning with the SDGs.

Credit transfer and recognition

- Things you need to know about Credit Transfers:
- To be granted credit transfer, you must provide evidence of a statement of attainment or qualification transcript certified as true copies of the originals.
- The process involves mapping, comparing and evaluating learning outcomes you have already achieved to evaluate their equivalency.
- When credit transfer is granted, no training needs to take place in that unit of the qualification.
- A successful credit transfer can mean a reduction in the time it takes to complete your qualification.
- The credit transfer will appear on your qualification or statement of attainment as CT or Credit Transfer

Recognition of Prior Learning (RPL)

- RPL is the acknowledgement of a person's skills and knowledge acquired through previous relevant training, work or life experience which may be used to issue a statement of attainment or a whole qualification. A student may apply for RPL after enrolling with a training provider.
- *Things you need to know about RPL:*
  - You must supply evidence to substantiate the claim for credit.
  - Evidence may be a folio of all current and relevant documentation that must be assessed and verified by the RTO for RPL to be granted.
  - The process involves matching what you already know against the learning outcomes of the course you are enrolled in.
  - As you have not previously been assessed as being competent and you must go through an assessment process to be awarded RPL.
  - The RPL will appear on your qualification or statement of attainment as RPL or Recognition of Prior Learning Granted.

Employed/mature students

- The term 'mature student ' identifies a category of learners who embark on a course of study later in life. The mature learners are differentiated from school leavers in that, prior to HE entry, they have accrued significant life experience either in the labour market or in a domestic setting. Mature students study full-time, part-time or are distance learners and in this respect are indistinguishable from younger learners. However they are more likely to study part-time higher education than younger age groups.
- Geographical location is a prime factor in choosing the institution. Course availability, location, course structures and reputation were important in choosing where to apply
- Institutional factors e.g. the availability of specialised vocational courses targeted at specific groups or the formal approval by a professional body
- Access to Higher Education Programmes and some foundation year courses be specifically designed for mature student preparation to HE study.

Curriculum and employability

- Curriculum and employability is interlinked. The key HEI strategy to inculcate employability among students is through Programme development which includes curriculum and co-curricular activities. Accordingly, based on content analysis from informants representing public universities in Uganda it was agreed that both curriculum and co-curricular activities are essential to increase the level of competency among graduates.
- In fact, Yusof and Jamaluddin (2017) emphasize that "the curriculum of study is one of the important factors that influences the pathway for future students in the market" . In addition, training and education in cultivating the moral values of students through co-curricular activities is also important. Although the role of education is generally to educate the public, especially for public universities that are more focused on knowledge than private universities that are more focused on commercial values, the ability of graduates to optimize themselves after graduating from HEIs should be expanded. The role of universities is getting more challenging because they need to produce knowledgeable and skilled generation who needs to be matched with market value or demand (Hajazi, 2016).

Curriculum development and co-curriculum Programmes

- Thus, curriculum development and student co-curriculum Programmes are complementary and need to be improved periodically. In this case, the university itself must strengthen the curriculum for teaching and learning Programmes in line with current demands – without disregarding knowledge in a field that students should learn
- Improved achievement among students will not be successful without training of the existing lecturers. More importantly, the quality and excellence of a student are dependent on the teaching and learning methods delivered by their lecturers (Lee et al., 2018).
- Although the delivery method used by lecturers is one of the important influences to improve the quality of students, there are still a minority of lecturers who are lacking in terms of knowledge and skills to carry out more effective teaching methods as appropriate to the current situation. For this reason, the university also implements Programmes to improve the skills and capabilities of its lecturers

Employment destinations

- Higher education acts as a pivotal avenue for students' upward social mobility. Comprehensive equity and inclusion assessments should cover not only student recruitment, their learning experiences and campus life, but also their employment prospects.
- As education is preparing the learners for the future, educators are grappling with a future which is rather unknown and they are trying to figure out the perceived needs of this century ranging from technological skills, cognitive skills, learning skills, literacy skills, life skills, social skills to intrapersonal skills. There is an urgent need to determine our priority, how should we package all these knowledge and skills into University curriculum

University Model

- the University model established was rigidly foreign and more alienating, churning out generations of graduates whose mind-sets are geared towards imitation of British values rather than originality.
- For example in the field of Medicine for instance, Medical pedagogy was abstracted from the realities of the environment in which the medical student would graduate to practice. The tropical nature of the Uganda, and the existing realities of the patronage of Herbal Medical which was practiced by majority of the Ugandan populace was discouraged.
- Meanwhile in the field of Engineering, there was a tendency to imitate Western models instead of placing emphasis on Research and Development of the simpler technologies for rural development (Mazrui)

Upskilling and Reskilling

- As the workplace evolves, learning new skills that will set you up for success in the future is incredibly important. Though it can be challenging to tackle new skills, systems, and strategies, it's an essential way to improve your economic mobility and help you secure steady and fulfilling work. Upskilling and reskilling are two key strategies for this.
- Upskilling involves learning new skills that build upon your existing knowledge and expertise. It's a way to enhance your current skill set and stay up-to-date with the latest industry trends and best practices.
- Reskilling, on the other hand, involves learning entirely new skills that may be outside of your current area of expertise. This is often necessary when your current skill set is no longer in demand or when you want to transition to a new career path.
- Both upskilling and reskilling have numerous benefits for your working future. They can help you stay competitive in the job market, increase your earning potential, and open up new career opportunities. Learning new skills can also help you in other ways, by boosting your confidence, improving your problem-solving abilities, and enhancing your overall job satisfaction.

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Access to Postgraduate

- Many governments see universities as centers of research that will yield positive economic returns to the country. University research is typically done at the graduate level (Master's and doctoral). Hence, expanding graduate education is viewed as a means of increasing the economic competitiveness of the country.
- Postgraduate degrees are increasingly seen as a means of career advancement in the professions. A growing number of postgraduate courses are offered online, allowing individuals to access education from anywhere in the world, while remaining in employment.
- Postgraduate studies also helps in giving Tertiary institution human recourses. To be an assistant lecturer you should posses Masters and for lecturer post you need PhD. The expansion of graduate Programmes shall contributed to the quality of higher education by supplying more academic staff with masters and doctoral degrees.
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Access to Postgraduate cont..

- "Governments should recognise that a national investment in graduate education could have dual payoff: it could help Uganda meet the demand for qualified instructors at the undergraduate level, while also meeting the national demand for more scientific research," the report says.

  However, 'expanding up and expanding out' can compete for scarce public resources.

  The balance between the two in the allocation of public funds needs to be advocated for because a top-tier research university "is an international signal of modernity, a source of economic return to the country, and a necessary component of their higher education system".

Qualification framework

- NCHE should update the outcomes and publish the national Qualification framework to include 21st century skills. This will also guide in transfer of credit and recognition of pre-learning experience.
- We need to plan for each level curriculum to enable feed into the next level
- Deal with duplication of roles

Career Offices Need to be Created

- Career offices need to be created in universities to help graduates. Students from disadvantaged backgrounds should receive enhanced support through counselling services, customized recruitment sessions, on and off-campus job fairs, online job portals and strengthened connections with local job markets. Students need to connect with career services from the minute they arrive on campus. Waiting until their senior year is way too late. It's the University's responsibility to make students aware of the benefits of engaging with career services.

  Effective alumni relationship management should involve continuous tracking of their employment statuses, with a specific emphasis on equity and inclusion. This strategy will subsequently inform the development and implementation of institutional measures for equity and inclusion, drawing from the insights gained.

Enhancing Graduate Attribute

- **Best Skills to Learn For the Future**

Here are a few in-demand skills to focus on:

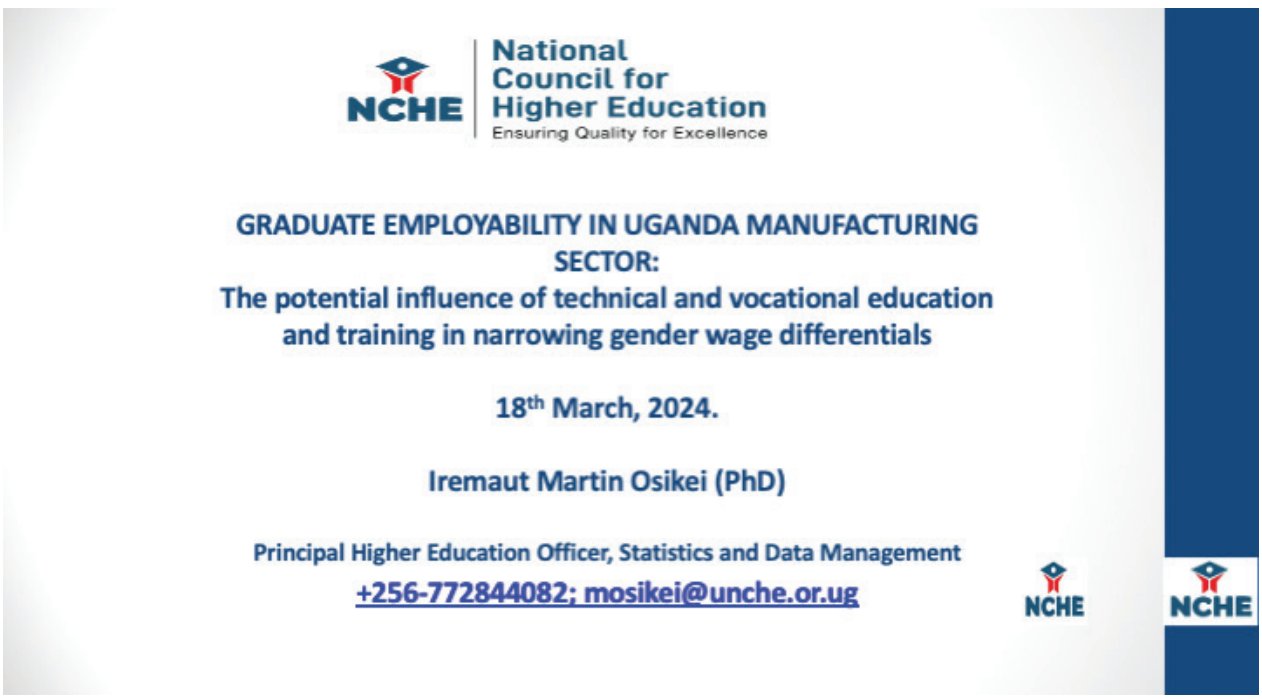
- **Digital literacy:** With the increasing use of technology in the workplace, it's important to have a basic understanding of digital tools and platforms. This includes proficiency in programs such as Microsoft Office, as well as knowledge of cloud computing, data analysis, and cybersecurity.
- **Behavioral skills and mindsets**: Also known as soft skills, these personal attributes enable you to skillfully and effectively interact with others. Communication, teamwork, leadership, and problem-solving abilities are all essential skills. With automation on the rise, these skills will become even more valuable in human roles.
- **Creativity and innovation:** As machines become more proficient at routine tasks, human creativity and innovation will become more important. Developing your creativity and ability to think outside the box can help you stand out in your field and find new solutions to problems.
- **Emotional intelligence:** Emotional intelligence is the ability to recognize and manage your own emotions, as well as those of others. It's a crucial skill for promoting harmonious and collaborative work environments as teams become more diverse and inclusive.
- **Industry-specific skills:** Depending on your industry, there may be specific skills that are in high demand. In healthcare, for example, knowledge of telemedicine and remote patient monitoring can be especially valuable for your future prospects

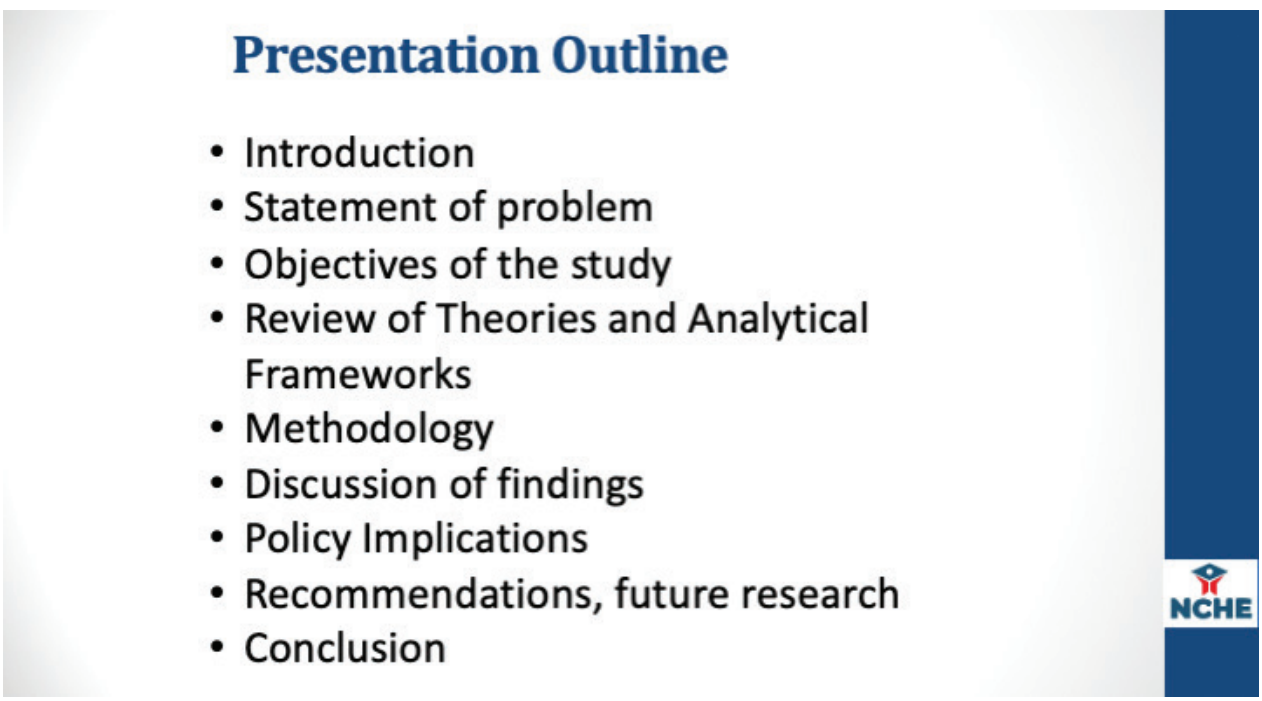
Conclusion

- Nelson Mandela said,
  - **"Education is the most powerful weapon which you can use to change the world."**
- Without education we are only left with real weapons, which is not the way we should want to change our world.
- And, in the modern fight against poverty ignorance diseases and corruption largely fought on the internet and on social media, education is a more effective weapon.

Presentation:
Graduate employability in Uganda's manufacturing subsector: The potential influence of Technical and vocational training in narrowing gender wage differences.

Dr. Martin Iremaut Osikei,
Head of Department,
Statistics and Data Management, NCHE

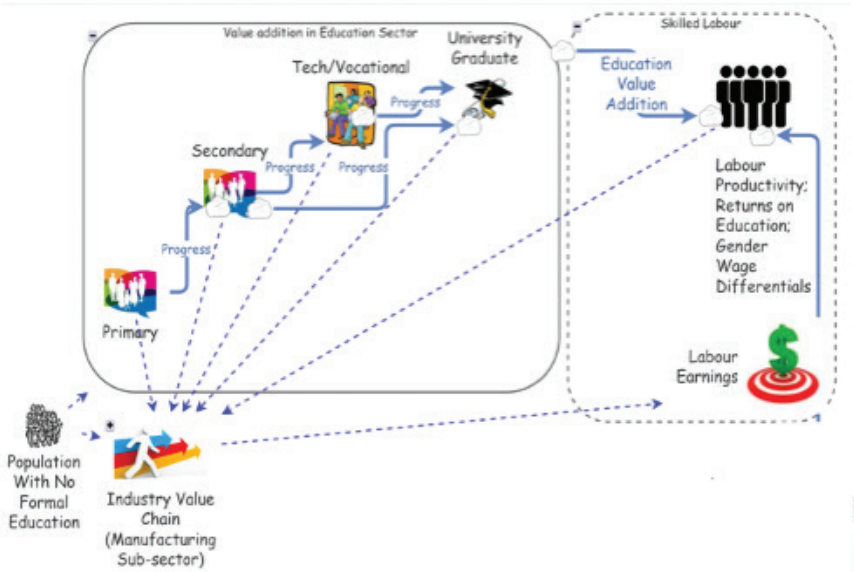




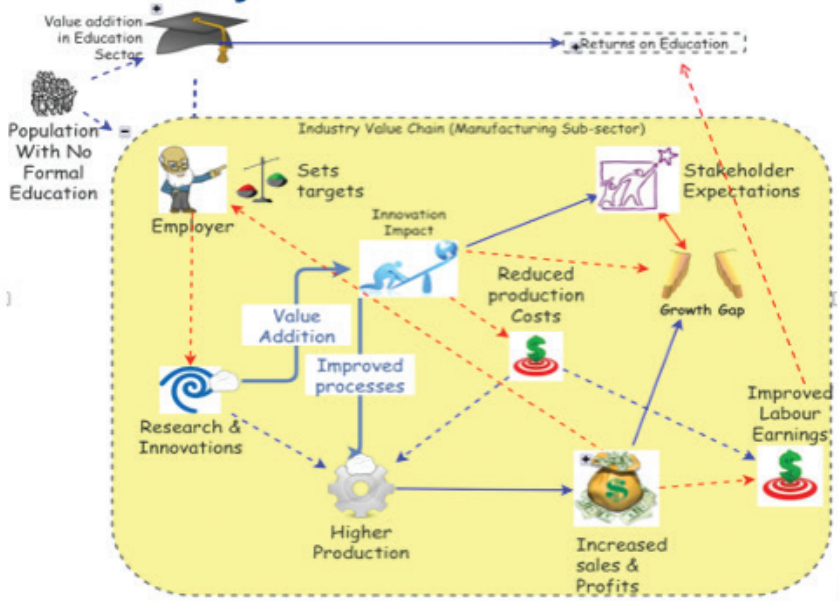
Introduction

- This study focused on establishing potential influence of technical and voc. education and training on GWD in UG.
- GWD in this study refers to inequalities in remuneration of females and males not explained by the differences in their skills
- Examined how private returns (wages) paid to employees with different LOE (Education Value Chain) influenced GWD in manufacturing (Industrial Value Chain).

Exposition of Value Chains



Industry Value Chain



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Introduction Cont...

- ROE benefits well articulated in many studies (Psacharopoulos & Patrinos, 2018; Fink, 2016; Schäferhoff, et.al., 2017; Leyaro, et.al., 2014; Kahyarara, 2013).
- ROE are low in high-income countries & higher in low-income countries b'se labour force in dev. economies such as Germany, USA have broader segments of population (65% -75%) with higher LOE, the reverse is true for low-income

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Problem Statement

- Education, skills, productivity and wages are interconnected (Barro & Lee, 2013).
- The employers pay HC wages in return for the skills acquired on education and experience in productive environment.
- However, education potentially creates GW disparities within and across LOE.

Problem Statement Cont...

- Studies in Uganda have not thoroughly investigated ROE on LOE and its effects on GWD (Kavuma, Morrissey & Upward, 2015; Okurut & Ssewanyana, 2007; Kagundu & Pavlova, 2007; Ssebagala, 2007) .
- Hardly any attention paid to technical & Vocational Eduucation.
- Non explicitly pinned educ. as a potential policy tool to alleviate GWD Instead;

Problem Statement Cont...

- Educ. is seen as a major cause of GWD
- All these studies used data from UNHS yet we have alternative sources
- The interconnection between LOE & GWD, using an alternative source of data, and the desire to use education as a policy tool to mitigate GWD underpined this study.

Problem Statement Cont...

- Government of Uganda interventions to mitigate in areas of access to education (affirmative action), gainful employment and equal payment for work of equal value among gender. (The Public Finance Management Act, 2015; & Equal Opport. Commissions Act, No.2 of 2007 Section 14 (1) and 14 (b), (c), (d), (e) and (f))
- Despite all these, GWD still exist within and across levels of education

GW Gaps within Levels of Education

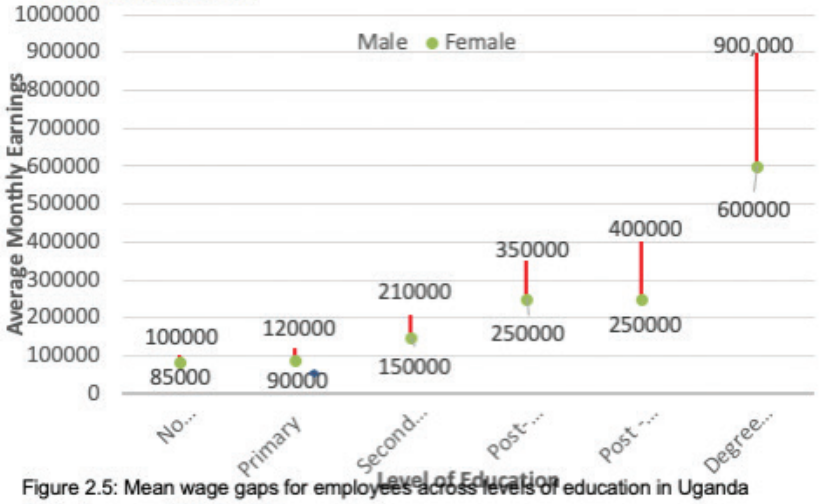

Figure 2.5: Mean wage gaps for employees across levels of education in Uganda
Data Source: UNHS,2017

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Objectives of the study

- Identify LOE that potentially reduces rather than increase GWD.
- Estimate effects of LOE on gender wage differentials at different wage quantiles
- Investigate potential effects of covariates on GWD (Years of sch, on-job train)
- Determine GWD explained by differences in endowments and labour market characteristics non-attributable to gender.

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Theories & Analytical Fameworks

- The Human Capital Theory (HCT) pioneered by Adam Smith , 1776); and
- Analytical frameworks i.e. the Mincerian Framework (Mincer 1974); Oaxaca-Blinder framework, 1973 and the Semi-parametric method (Koenker & Bassett Jr., 1978) underpinned this study.
- HCT posits that incremental education and job training increase skills, and life experiences, yield economic and social benefits at individual and society levels;
- Mincerian Framework relates education and earnings. Implying for every increase in years of schooling there is an increase in productive skills, which translates into earnings

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Theories & Analytical Fameworks

- Oaxaca-Blinder Framework is predominantly for estimation and decomposition (Explained and Unexplained) of GWD while;
- Semi-parametric approach is robust to extreme values and uses conditional QR to investigate extent to which GWD at different percentiles can be explained by differences in labour market characteristics non-attributable to gender.
- Some researchers have criticised HCT that it fails to account for ability differences and the fact that some family decisions are made in a prescriptive context based on what men or women can do (Weiss, 1995; Carrington & Fallick, 2015)

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Theories & Analytical Fameworks

- The weaknesses poised by Mincerian Framework were mitigated using several approaches including (IV for endogenighty; and Heckman's approach for selection bias)
- Alternative theories reviewed were job matching, signalling, and screening attempt to explain the correlation between educ. and earnings.
- However, job-matching theory does not seem to measure the effect of education but biased towards traits desired by the firm (Carrington & Fallick, 2015).

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Theories & Analytical Fameworks

- The signalling and screening models like HCT predict positive relationship between earnings and educational, however educational attainment only serves as a screening device to signal higher productivity skills (Spence, 1973; Stiglitz, 1975)
- Despite its weakness and availability of alternative approaches, Mincerian Framework with engagement of mitigation approaches has remained popular for estimation of earnings especially in developing countries where there is scarcity of data

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Methodology

- Data for the study was obtained from a secondary source i.e. World Bank ES 2006,
- Why this period? From 2005 -2009 Uganda manfucturing experienced a leap in value addition (red line in the graph) later decline, the available data in that period was ES 2006
- This period catches the researchers eyes & creates desire to learn from that experience specifically value chain in education and manufacturing

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Manufacturing Value added as % of GDP for the period 1960-2020

Source: World Bank in Statistica, 2020

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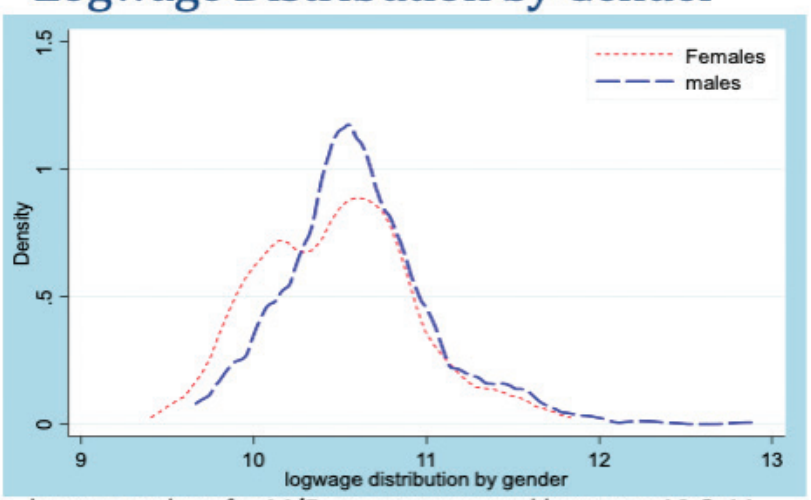
Data Desciption

Gender: 0 (Males)	Obs	Mean	Std. Dev.	Min	Max
Weekly wage	576	45112.03	27634.80	15700	394500
Years of schooling	576	11.71	3.04	0	20
Highest level of educ.	576	2.460	0.8268	0	5
Experience	576	5.85	4.47	0	36.67
Hours per week	576	61.903	14.692	17	98
Gender:1 (Females)					
Weekly wage	152	39376.64	19082.95	14000	119500
Years of schooling	152	11.16	3.22	0	17
Highest level of educ.	152	2.31	0.92	0	4
Experience	152	4.622	3.468	0.08	20
Hours per week	152	59.395	15.678	24	90

Logwage Distribution by Gender



- logwage values for M/F are concentrated between 10 & 11.
- The peak value for male employees is higher than for female

Model Specification

- Based on Mincerian Framework the earnings were estimated using the equation

$$logW_i = X_i\beta + rS_i + \delta x_i + \vartheta x_i^2 + \varepsilon_i \ldots\ldots\ldots\ldots (1)$$

S is years of schooling, X – vector of variables that influence earnings, x –experience while ε – error term.

$$Logwage = \beta_0 + \beta_1 yrsch_i + \beta_2 exp_i + \beta_3 expsq_i + \beta_4 train_i + \beta_5 gender_i + \beta_6 hrspwk_i + \mu_i \ldots\ldots\ldots\ldots (2)$$

- The logwages were estimated for males and females separately based on eqn1: males (m); females (f)

$$lnY_m = \alpha_m + \sum \beta_m X_m + \varepsilon_m \ldots\ldots\ldots\ldots (3)$$

$$lnY_f = \alpha_f + \sum \beta_f X_f + \varepsilon_f \ldots\ldots\ldots\ldots (4)$$

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Model Specification

- The wage differentials were determined Using Oaxaca- Blinder, 1973 decomposition method (Substracting eqn4 from eqn3)

$$wage_d = ln\bar{Y}_m - ln\bar{Y}_f =$$

$$[(\bar{X}_m - \bar{X}_f)\hat{\beta}_m] + [(\hat{\alpha}_m - \hat{\alpha}_f) + (\hat{\beta}_m - \hat{\beta}_f)\bar{X}_f]$$

$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$

- The blue component is the Non Discriminatory portion while the red represent the Discriminatory portion

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Model Specification

- The Semi-Parametric approach for determining differences between different quantiles of wage earnings used eqn 6

$$y_i = x_i\beta_\theta + \varepsilon_{\theta i};\ i = 1, \ldots N.\ \forall\ \theta \epsilon\ (0,1) \text{ and}$$

$$Quant_\theta(y_i|x_i) = x_i\beta_\theta. \quad \ldots\ldots\ldots\ldots\ (6)$$

- Where N is sample size, y_i is dependent variable (wages), X_i is the vector of exogenous explanatory variables, β_θ is the vector of regression parameters associated with θ^{th} percentile, while the term $Quant_\theta(y|x_i)$ represents the conditional quantile of y_i given x.

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Model Specification

- The coefficient vector $\beta(\theta)$ was found equation 6
- $\hat{\beta}(\theta) =$

$$\min_{\beta(\theta)} \left\{ \sum_{i:y_i \geq x_i\beta(\theta)} \theta \left| y_i - x_i\beta(\theta) \right| + \sum_{i:y_i < x_i\beta(\theta)} 1-\theta \left| y_i - x_i\beta(\theta) \right| \right\}$$

$$\ldots\ldots\ldots\ldots\ (7)$$

- The Analytical implementation was executed in STATA 14 Environment

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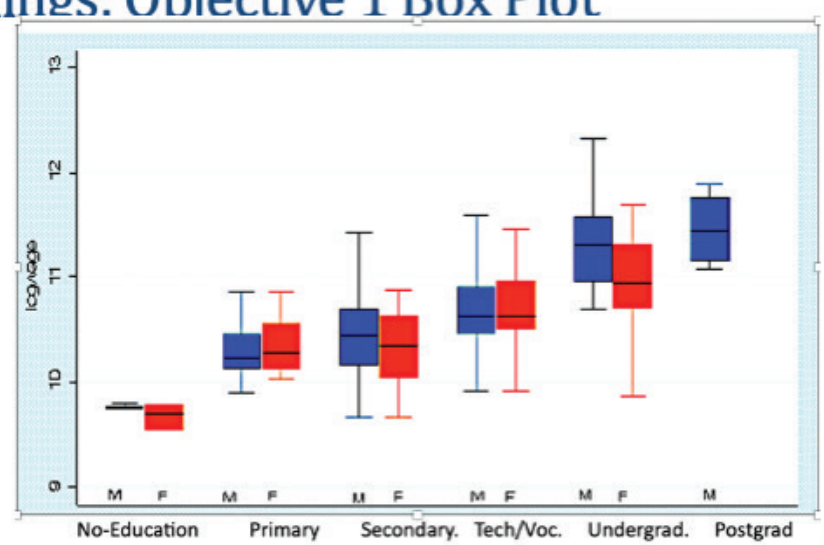
Findings: Objective 1 Effect of L-EDUC on GWD

gen#hle	Margin	Std. Err.	t	Pr > |t|	(95% Conf. Interval)	
0 0	9.749	0.157	62.07	0.00	9.440	10.057
0 1	10.315	0.046	223.68	0.00	10.224	10.405
0 2	10.455	0.023	449.50	0.00	10.409	10.500
0 3	10.705	0.023	473.23	0.00	10.661	10.750
0 4	11.332	0.056	204.07	0.00	11.222	11.441
0 5	11.456	0.176	65.24	0.00	11.111	11.800
1 0	9.684	0.203	47.76	0.00	9.286	10.082
1 1	10.340	0.070	147.22	0.00	10.202	10.478
1 2	10.319	0.043	242.30	0.00	10.236	10.403
1 3	10.716	0.059	180.52	0.00	10.599	10.832
1 4	10.907	0.077	142.33	0.00	10.757	11.058

Findings: Objective 1 Box Plot



Findings: Objective 2- Effect of L-EDUC on GWD – Quartile Analysis

	QRM_hle	Q(0.25)		Q(0.50)		Q(0.75)	
		Male	Female	Male	Female	Male	Female
No education	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Primary	0.547**	0.422***	0.431***	0.508***	0.513***	0.717***	0.793***
	(3.24)	(7.41)	(5.17)	(6.50)	(4.12)	(6.07)	(5.60)
Secondary	0.780***	0.546***	0.296***	0.792***	0.638***	0.970***	0.841***
	(4.76)	(7.35)	(2.63)	(11.64)	(5.47)	(10.17)	8.87)
Vocational	0.933***	0.790***	0.816***	0.917***	0.921***	1.151***	1.189***
	(5.68)	(12.85)	(11.38)	(12.79)	(10.46)	(11.38)	(10.90)
Undergraduate	1.393***	1.217***	1.012***	1.453***	1.214***	1.806***	1.608***
	(8.07)	(11.33)	(7.21)	(13.48)	(8.96)	(14.16)	(10.09)
Postgraduate	1.813***	1.408***		1.785***		1.773***	
	(6.45)	(5.45)		(538)		(5.58)	
	720	568	152	568	152	568	152

*p<0.05; **p<0.01; ***p<0.001

Coefficients for each pair of male and females were higher at upper than the lower quantile respectively

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At Median Q0.50

- Coefficients were positive at 95% level of significance.
- The effect of primary and voc. education on *logwage* were slightly higher for female employees than for the male counterparts by 0.5% and 0.4% respectively.
- The reverse was true for employees with secondary (15.4%) and undergraduate (23.9%) higher effect on earnings than for the female counterparts.
- These results suggests that female employees with primary and vocational LOE earn favourably compared to the male counterparts in the sector.
- Gap tended to widen for bachelors degree holders in favour of male employees

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At Median Q0.25

- coefficients for all LOE were significant at 95% level of significance
- Female employees earned 2.6% higher wages than the male counterparts with vocational LOE
- The opposite was true for undergraduate LOE where male employees earned 21% higher wages than the female counterparts.

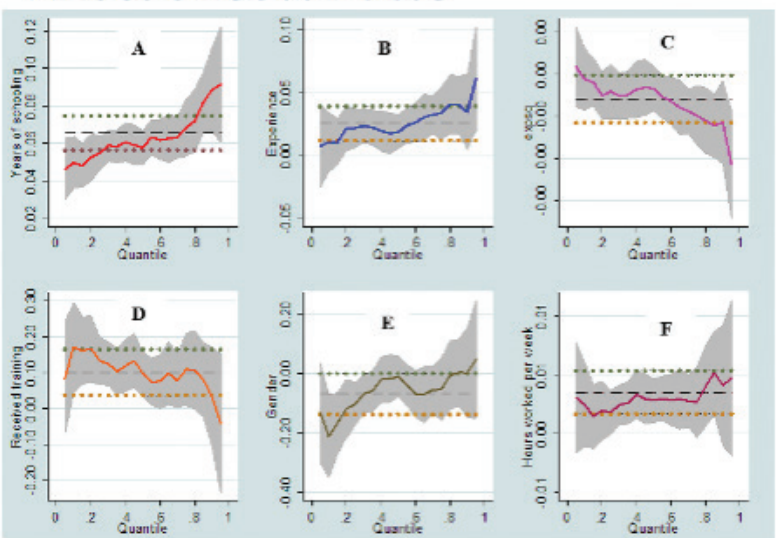
At Median Q0.75

- all coefficients at all levels of education were significant at 95% level of significance.
- The females earned slightly higher wages than the male counterparts with primary (7.6%) and vocational (3.8%) levels of education
- The reverse was true at secondary (12.9%) and undergraduate (19.8%) LOE male earned higher wages than the female counterparts
- GWD were clearly wider at the higher ($q0.75$) quantile than at the lower ($q0.25$) quantile

At Median Q0.75

- Interquantile coefficients for males at the lower quantile $Q(0.25\ 0.50)$ were higher than for the female counterparts across primary, vocational and undergraduate LOE.
- The reverse was true at the upper interquantile $Q(0.50\ 0.75)$ where coefficients for females were higher than for the male counterparts

Findings Objective 3- Analysis on Effect of Covariates



Findings –Objective 3 Covatiate effect

- The OLS estimates appeared as dashed lines while the confidence intervals appeared as dotted lines in each graph
- Graph A shows that the effect of years of schooling widen at extreme quantiles & reflected larger effects below the 10th percentile and above 80th
- (Graph D) was positive below the median Qtile implying if employees who earned wages below the median Qtiles were provided with on-job training there is high likelihood of improving their earnings than it is for employees at upper Qtiles

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Findings : Objective 4- Explained and Unexplained GWD comparative analysis

	Unadjusted *ols* estimates		Mills adjusted	
Variable	yrsch_3fold	hle_3fold	yrsch_3fold_A	hle_3fold_A
Differential				
Prediction_1	10.609***	10.609***	10.609***	10.609***
Prediction_2	10.483***	10.483***	10.288***	10.314***
Difference	0.126**	0.126**	0.321*	0.295*
Decomposition				
Endowments	0.049*	0.072*	0.054*	0.077*
Coefficients	0.066	0.055	0.261	0.224
Interaction	0.011	-0.001	0.006	-0.005

*p<0.05; **p<0.01; ***p<0.001

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Explained and Unexplained GWD comparative analysis

- GWD after bias adjustment was 29.5% in highest LOE (hle) and 32.1% and years of schooling $yrsch$
- This shows that differences in years spent schooling create a wider wage differential effect (32.1%) than in highest LOE (29.5%).
- Suppose the females had the same endowments as male, the mean increase in female employees' wages adjusted for bias, to 5.44% in years of schooling and 7.66% LOE

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Explained and Unexplained GWD comparative analysis

- The endowment effects are higher when a level of education is completed (7.66%) than in years of schooling (5.44%).
- Suppose the respective male employees' coefficients were applied to the females after adjustment for selection bias, female wages would increase by 26.1% years of schooling and 22.4% highest LOE
- Overall, the differences in years spent schooling had a wider GWD effect than in highest LOE attained.
- If females had the same characteristics as male employees, highest LOE attained by females would have a higher improvement on their mean wages

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Findings : Objective 4- Explained and Unexplained of GWD

	Variable	Unadjusted *ols* estimates yrsch_2fold	hle_2fold	Mills adjusted yrsch_2fold_A	hle_2fold_A
Differential	Prediction_1	10.609***	10.609***	10.609***	10.609***
	Prediction_2	10.483***	10.483***	10.483***	10.314***
	Difference	0.126**	0.126**	0.126**	0.126**
	Adjusted			0.321*	0.295*
Decomposition	Explained	0.057*	0.071**	0.058*	0.072**
	Unexplained	0.069*	0.055	0.263	0.223

*p<0.05; **p<0.01; ***p<0.001

- The explained -differences in the determinants of wages
- The unexplained component is attributed to discrimination and unobserved variables

Explained and Unexplained of GWD

- When adjusted for selection bias, the proportion of explained components of GWD increased from 5.7% to 5.8% in years of schooling and from 7.1% to 7.2% and highest level of education
- The unexplained proportion increased 6.9% to 26.3% highest level attained and 5.5% to 22.3% years of schooling.
- Overall, highest LOE attained could not explain a bigger proportion (26.7%) of GWDs compared to years of schooling (22.3%).

Policy Implications and recommendation

- GWD declined at primary and vocational LOE, improving education value addition by integrating basic technical /vocational skills into primary & secondary curricula could potentially mitigate GWD.
- Completing a level of education reduced GWD, policies that minimize school dropout therefore need to strengthened
- Also, on-job training improved earnings for lower quantile wage earners than at upper wage quantiles. Education Value Addition thru short training programmes could be tailored for cadres at lower wage quartiles to improve their SOL

This paper recommends integrating basic technical and vocational skills primary & secondary curricula to to make it more responsive to employment needs.

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Conclusions-Take home

1. Primary and vocational levels of education could potentially be used as education policy tool to reduced gender wage differentials in industry sector. which makes a case for integrating vocational education into primary and secondary curricula
2. Completing a level of education potentially reduces GWD than droping out before completing a given LOE. This makes a case for strengthening strategies that minimise school dropout at all LOE
3. On-job training improve earnings for lower quantile wage earners than at upper wage quantiles. HROs can use OJT as a potential tool for improving earnings for workers at lower wage quantiles.

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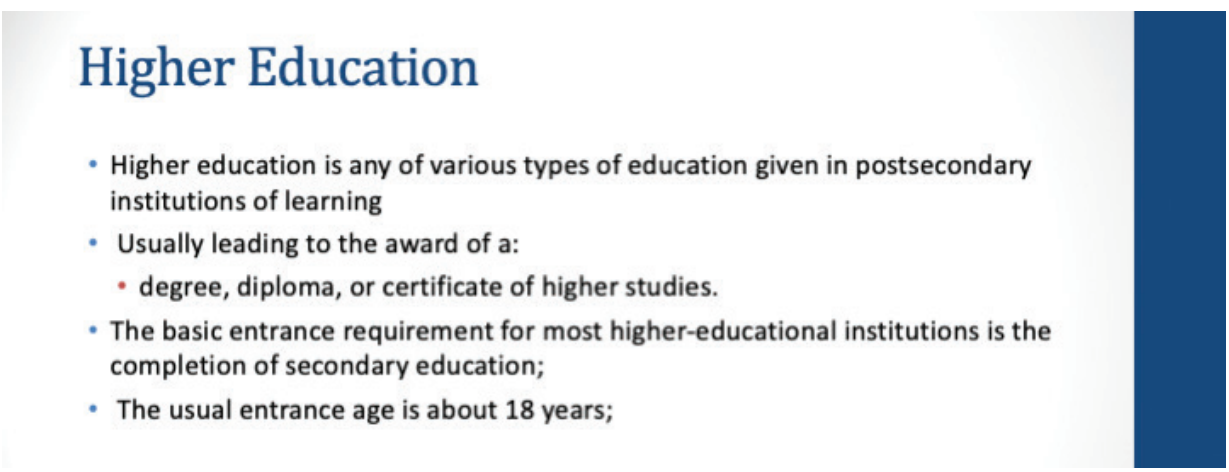
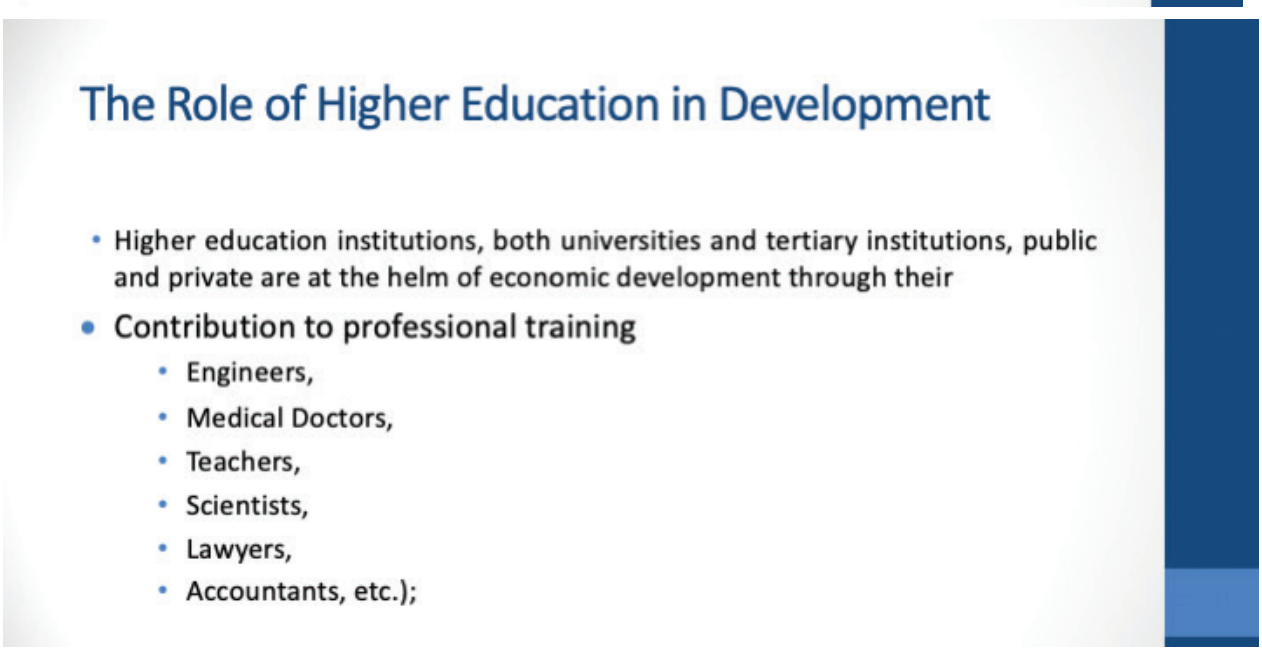
Thank you for Listening

Presentation:
Knowledge production and sustainability development

Dr. Vincent A. Ssembatya,
Director of Quality Assurance and Accreditation, NCHE



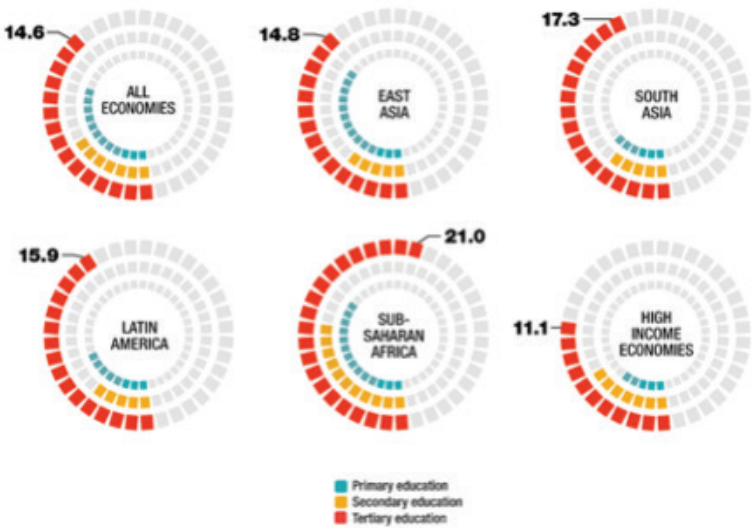


Roles of HE

- Production of knowledge;
- Ideological apparatus
  - producers of values, identity and social legitimation; and
- Selection of the dominant elites.

Higher Education has both private and social benefits

Private returns to tertiary education highest in SSHA (WB, 2014)



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Private/public returns to HE

1. Globally, and in Africa, there are considerable benefits to HE.
2. In Sub-Saharan Africa, private returns to HE are higher than returns to primary and secondary education.
3. The region with the highest private returns to HE is Sub-Saharan Africa.
4. **South Africa has the highest private returns to HE in the world**:
   - South Africa 40; Ghana 28; Uganda 23 (2005 data)
   - Argentina 12, Brazil 17, Mauritius 21, Mexico 20, Norway 10, Portugal 14, Turkey 14, Spain 11, US 14
5. Higher education also has numerous private benefits such as higher salaries, savings, professional mobility, life expectancy and quality of life. Public benefits include greater productivity, increased consumption, workforce flexibility, reduced crime rates, greater appreciation of diversity and improved ability to new technologies.
6. SA high returns to tertiary education and high levels of inequality (Gini coefficient 0.70) mean that free higher education will proportionally privilege the privileged (Patrinos 2015).

7

Perspectives

Africa

- Home to 1.46 B People (18% of the world population);
  - India: 1.42B; China 1.42B;
- Tertiary Enrolment:
  - Sub-saharan Africa at 8% (WB);
  - Uganda 6%
  - with world average of 36%
    - India: 27%; China:60%; OECD: 72%; KOREA Rep 102%;
- Research Contribution at 2%;

Education Landscape

- The World has **8** Billion People;
- **1.7** (**21%**) Billion People are students;
- **222** (**3%**) Million Tertiary Education Students;
- **170** (**10%** of all students) Million Students at universities;
- **76%** of all Tertiary Education students are in universities;

6/10/24

Education perspectives

- The average number of students per university is **6800** world wide;
- About **3** universities for every one million people;
- A large university of **20,000** students is adequate for one million of the population;
- Uganda with a population of **50** Million people needs **50** large universities;

6/10/24

- **0.6%** of Ugandans are TE Students;
- Compare with **3%** **(world);**
- **Uganda needs to be with 1.25 Million in TE to level with the world;**
- **Equivalent of GRE of 35%;**
- **Uganda is under-enrolled in TE by about 1 Million people;**

6/10/24

- The current input cap of **100,000;**
- Can extend TE enrolments to a maximum of **400,000;**
- **About 14% GRE**

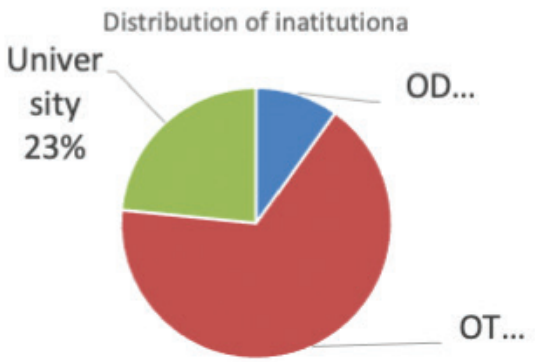
6/10/24

Current shape of TE in Uganda

- About **250** TE institutions;
- About **75** (Universities, Campuses or Degree Awarding)
- About **4000** Academic Programs;
- Capacity based on sitting space is about **300,000** students;

6/10/24

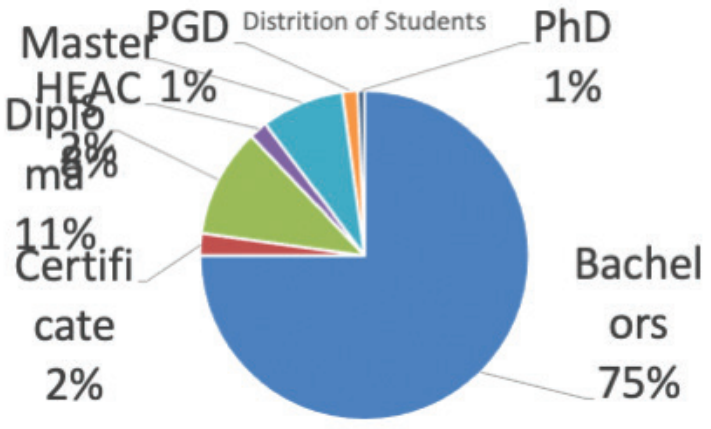
Institution type by Funding			
Institutions	**Private**	**Public**	**Total**
ODAI	19	2	21
OTI	128	56	184
University	45	10	55
Total	**192**	**68**	**260**



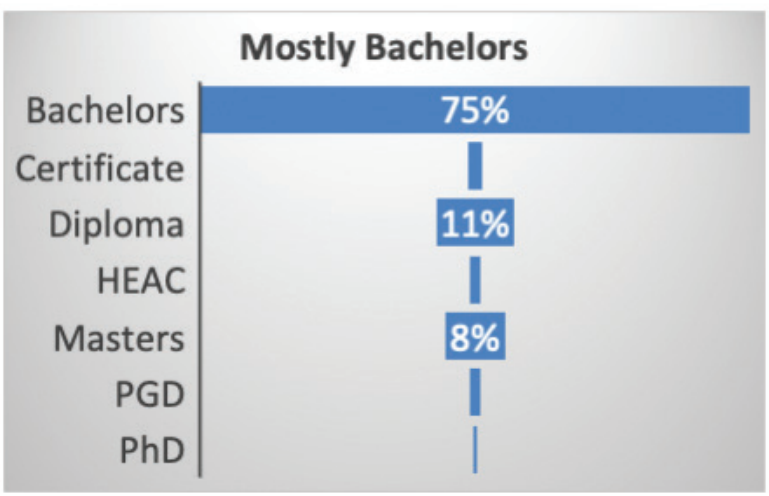
The shape of HE in Uganda

- About **250,000** students
- About **180,000** in universities (including degree awarding);
- About **70,000** in OTI;
- **70%** of enrolment is at universities;

Distribution of Enrolment in HEIs



The love for degrees



What is required in knowledge generation

- Talent (Human resource);
- Institutions;
- Governance;
- Articulation;
- Infrastructure;
- Facilities and Inputs;

Talent

- The majority of researchers are found in universities;
- The majority of publications are produced by people with PhDs.
- The country produces 16 publications for every one million people as of 2020 according to OWID
- about 704 articles as of 2020
- this is dubious according to Scopus Citation index.
- Should be 26 as per table below.
- A need to collect accurate primary data for submission into international databases to avoid misreporting;

Talent: Uganda Publications indexed by Scopus citatin index

Publication Year	Total
Year 2017	1015
Year 2018	968
Year 2019	1117
Year 2020	1333
Year 2021	1638
Year 2022	1569
Year 2023	945
Total	**8585**

Top Ten Ugandan Researchers 2017-2023

	Author	2017	2018	2019	2020	2021	2022	2023		Grand Total
1	Kamya, Moses Robert	38	32	39	51	36	31	22		249
2	Wanyenze, Rhoda Kitti	22	18	16	21	26	24	15		142
3	Sewankambo, Nelson Kaulukusi	25	19	19	23	28	20	7		141
4	Waiswa, Peter	18	10	11	22	34	18	10		123
5	Opoka, Robert Opika	15	10	21	20	18	27	7		118
6	Kirenga, Bruce James	6	14	18	14	31	18	16		117
7	Joloba, Moses L	16	15	16	15	24	18	7		111
8	Makumbi, Fredrick Edward	22	11	19	16	18	17	8		111
9	Tumwine, James Kashyugyera	10	17	11	29	15	11	4		97
10	Nakasujja, Noeline	7	5	17	15	22	13	13		92

Academic Staff in HEIs

- Researchers 14,484
  - Makes it 329 researchers per one million people;
  - This is not what is in the World Bank database;
  - What is required?

- PhDs in Higher Education Institutions: **2524 (17.4%),**
- Acceptable percentage 15% -50% by NCHE;
- Institutions are at different level

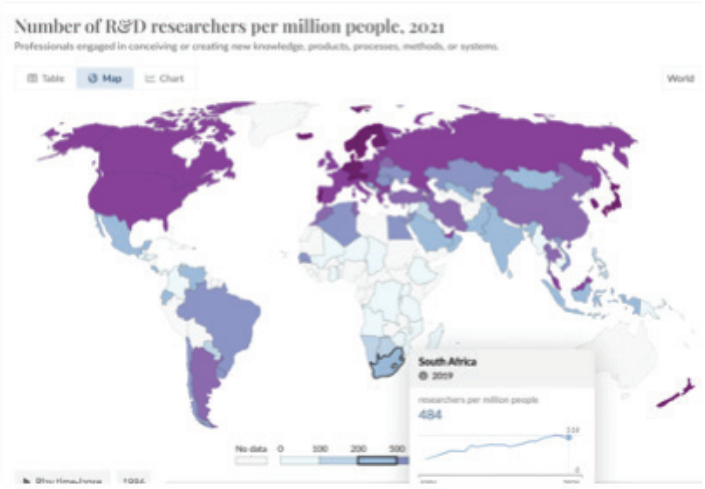
Top Ten Universities with PhDs

	Institution	Male	Female	Total
1	Makerere University	585	196	781
2	Kampala International University	301	56	357
3	Kyambogo University	79	39	118
4	Gulu University	72	13	85
5	Mbarara University of Science and Technology	59	22	81
6	Kampala University	61	14	75
7	Kabale University	63	11	74
8	Busitema University	48	10	58
9	UNICAF	31	23	54
10	Uganda Christian University	30	22	52

Proportion of Female with PhDs: 22%

Researchers per one Million People

Researchers per one Million People



Researchers per one Million People

Researchers per one Million People

Researchers per one Million People

Research Output

- Research Outputs
  - Most of the research is in Health and Medicine
  - mostly foreign funded (whose priorities?)
- Relevant Agenda
- SDGs, Africa we Want, EAC, Vision 2040, NDP III, STI Value Chains
- Areas of Research – Discipline orientation;

Articulation

- Nested Development Agendas

Relevance

Sustainable Development Goals

Agenda 2063:

Agenda 2063

- By 2063, African countries will be amongst the best performers in global quality of life measures.
- This will be attained through strategies of:
  - Inclusive growth;
  - job creation;
  - increasing agricultural production;
  - investments in science, technology, research and innovation;
  - gender equality;
  - youth empowerment;
  - provision of basic services including health, nutrition, education, shelter, water and sanitation.

EAC Vision 2050

EAC Vision 2050

- Access to Safe Water;
- Access to Electricity;
- Access to Health Services;
- Food Production;
- Adulty Literacy;
- ICTs;
- Paved Roads;
- Railway Network.

Vision 2040

Vision 2040:

A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years

- Theme: "Accelerating Uganda's Socioeconomic Transformation".
  - (a) Independence and sovereignty;
  - (b) Democracy and the rule of law;
  - (c) Stability and peace;
  - (d) Knowledgeable and skilled;
  - (e) Able to exploit and use its resources gainfully and sustainably;
  - (f) In a strong federated East Africa with an effective African Common Market and a strong African Defence Mechanism.

Agricultural Production

- Mainly dominated by smallholder farmers engaged in food and industrial crops, forestry, horticulture, fishing and livestock farming;
- The country is one of the leading producers of coffee and bananas in the World.
- A major producer of tea, cotton, tobacco, cereals, livestock and fishing products;

A leading Coffee producer

	Country	Metric Tonnes
1	Brazil	2,592,000
2	Vietnam	1,650,000
3	Colombia	810,000
4	Indonesia	660,000
5	Ethiopia	384,000
6	Honduras	348,000
7	India	348,000
8	Uganda	288,000
9	Mexico	234,000
10	Guatemala	204,000

Production of Bananas

Rank	Country	Tonnes	Production Value
1	India	29,666,973	$8,355,139,000
2	Uganda	12,000,000	$3,107,962,000
3	China	10,400,000	$2,928,962,000
4	Philippines	9,165,043	$2,323,044,000
5	Ecuador	7,427,776	$2,091,891,000
6	Brazil	7,329,471	$2,064,206,000
7		6,132,695	$1,727,157,000

NDP III

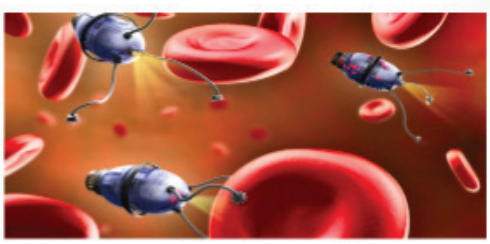
•The overall development strategy of the plan is hinged on the need for rapid industrialization based on increased productivity and production in agriculture, while nurturing the potential of the ICT, minerals, oil and gas sectors.

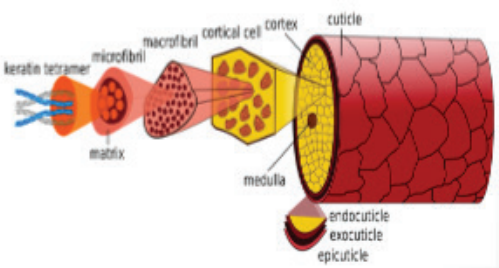
Nano-science and nanotechnology

Nano-science and nanotechnology are at the intersection of almost all disciplines, including biology, engineering, medicine, physics and chemistry.

Government will support special Nano science- nanotechnology programme and sponsoring at least 200 students every year in various fields.

These Ugandans will be sponsored in top American, German, India, China and UK universities and on return be deployed and bonded in appropriate fields.





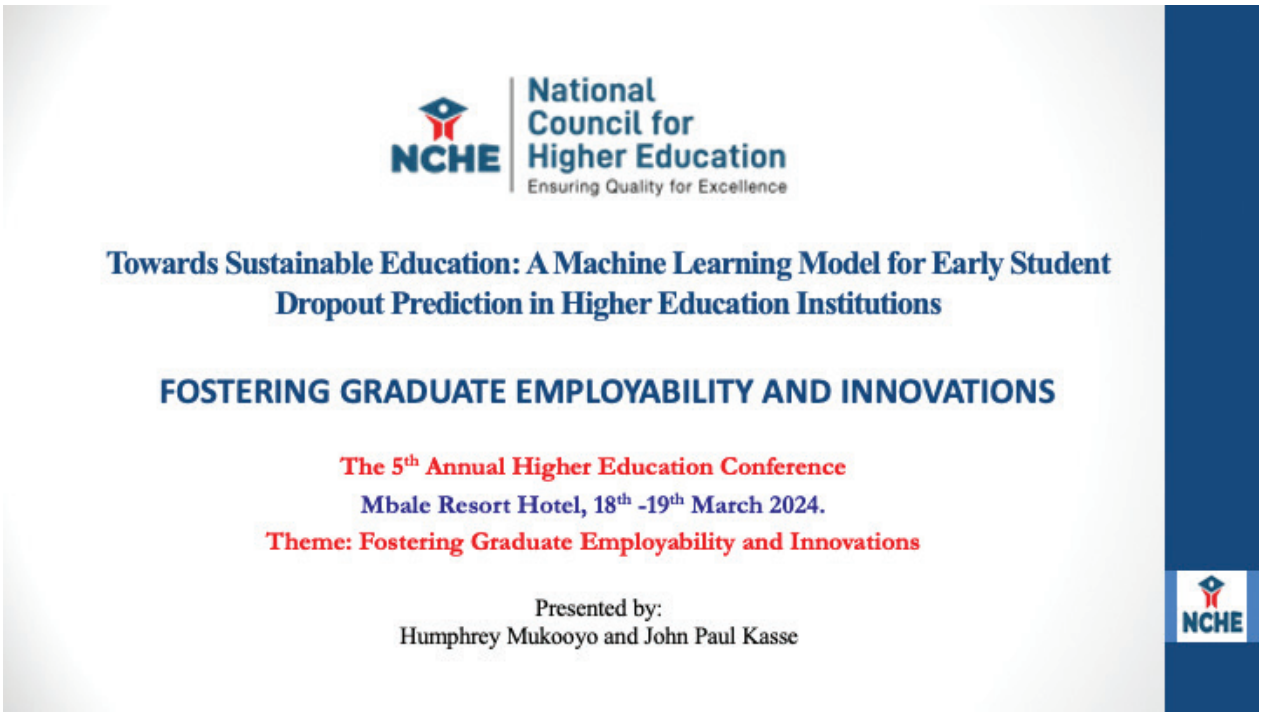
Work in Progress

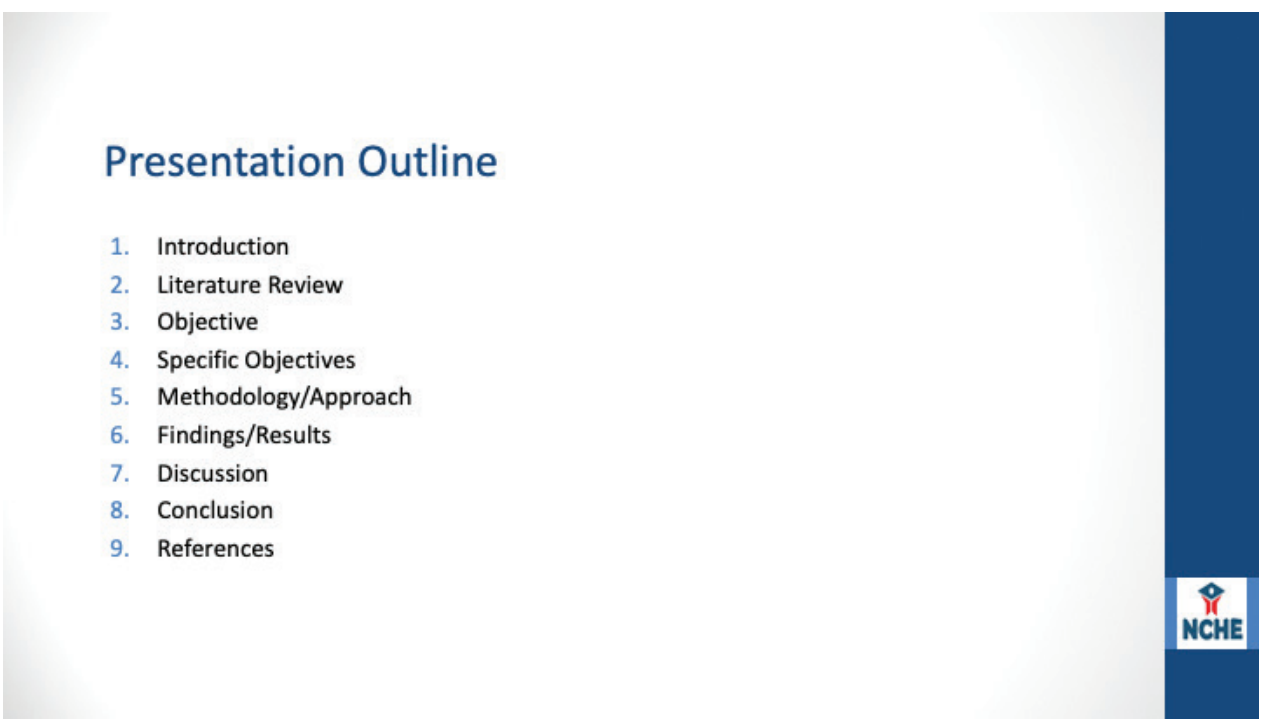
- How shall we get there?
- National Policies and Research Governance;
- Institutions
  - Curriculum
  - Academic Staff with appropriate qualifications
  - Enrolment
  - Research Agenda
  - Facilities
  - Equipment
- Funding
- Incentives;
- Monitoring and Evaluation

Thank You

Presentation
Towards Sustainable Education: A Machine Learning Model for Early Student Dropout Prediction in Higher Education Institutions

Mr. Humphrey Geoffrey Mukooyo,
PhD Student
Nkumba University





Introduction

- Role of Higher Education in Global Transformation.
- Impact of Universities and Colleges in the Globalization Age.
- Role of Universities in education Sustainability.
- Challenges in Sustainability for Higher Education.
- Impact of sustainable education towards employability

Background

Technology Role in Education Sustainability

- AI-Based Digital Learning Systems (Kokku et al., 2018).
- AI in Higher Education: Enhancing Administrative Efficiency(Gansemer-Topf & Schuh, 2006; Yu et al., 2010)
- Application of Machine Learning to Predict Student Attrition (Delen, 2010).
- Improving Retention Policies in Higher Education (Sani et al., 2022).

Concern ??

1. What challenge are we solving?
2. How is it a problem?
3. Who is it affecting?
4. How is it a national or global concern?
5. How have u tackled the issue?

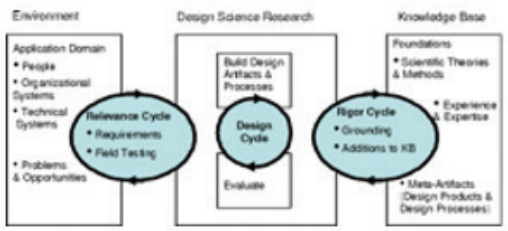
Aim

We aimed at early prediction of student dropout likely hood to support timely intervention during learners' study cycle.

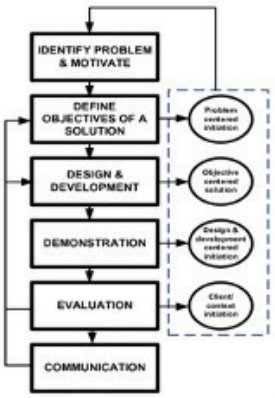
- A prediction model was developed supported by a predictive algorithm
- This was achieved through:
  1. Studying key institutional, academic and personal factors influencing student dropout.
  2. Established the model requirements that informed its design
  3. To develop the predictive algorithm correctly to predict learners' who are likely to drop out of school.

Methodology/Approach

Design Science Cycles



Design Science steps

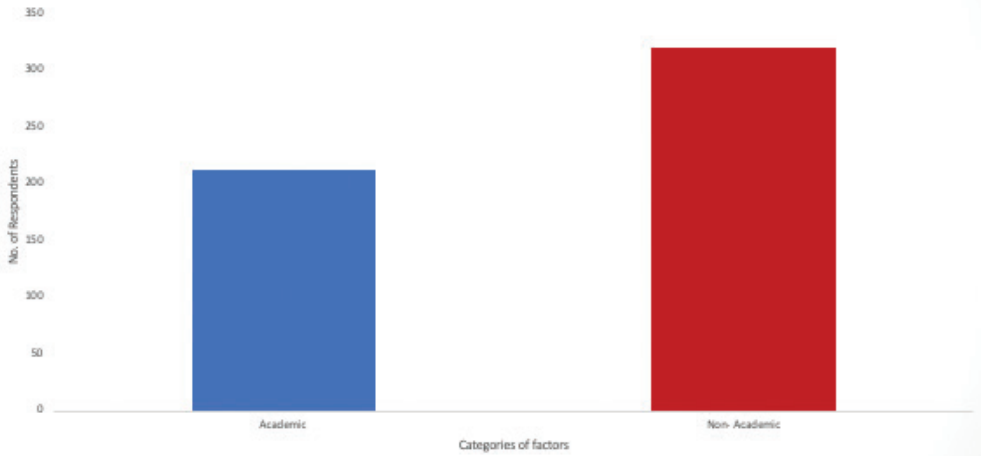


Methodology

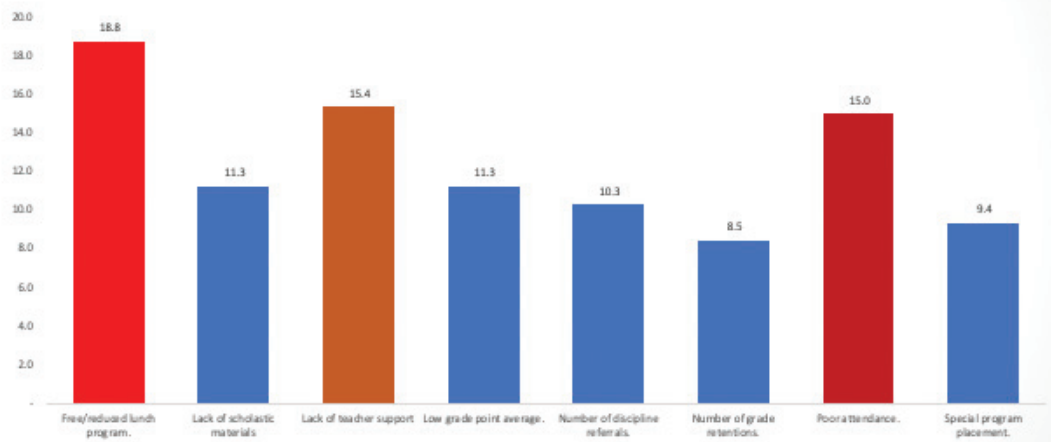
Sample population = 532 Students

- Data gathered from continuing and senior students during exit surveys.
- Data prepared for ML via Extract, Transform and Load (ETL) process.
- Cleaned, outliers eliminated, and formatted for machine learning algorithms

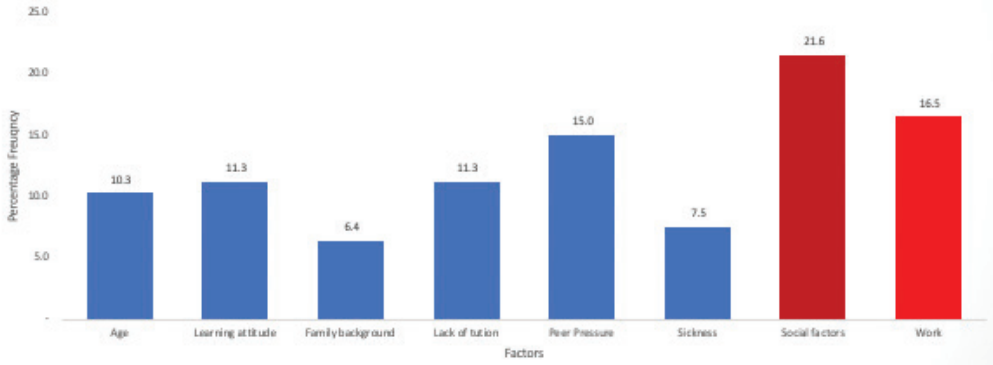
Findings/Results



Academic factors responsible for learner drop out



Non Academic factors for learner drop out



Discussion

Besides Academic Dropout Factors there were other factors that cause drop out namely:-

- Personal Factors
- Factors Affecting School Dropout: Financial and Professional Aspects,
- Student Engagement in Learning Environments,
- Course Engagement and Motivation.

Model Design

- AI-Based Model Design and Development
  1. Employed integrated DSR methodology for designing predictive artefacts.
  2. Utilized big data analytics and AI techniques to enhance predictive accuracy.
  3. Adjusted classifier algorithm parameters, optimized datasets, and applied ML algorithms for crucial predictive attributes.
  4. Designed supporting predictive Algorithm

Model Design

Stages for designing and developing an AI-based model using integrated DSR methodology are outlined below.

1. The process deployed the use of big data analytics over a range of AI techniques to achieve predictive accuracy,
2. Moderating classifier algorithm parameters,
3. Tuning the dataset, and
4. Applying ML algorithms to choose the best key predictive attributes.

Model Evaluation in Higher Education

1. Conducting different experiments with structured phases.
2. Assessing model using real data from higher education establishments.
3. Embedding model into institutional learning management systems.
4. Providing optimal strategies for support systems to tackle the issue of school dropout.

Predictive Model

Aims

1. Predicting Dropout Probability Using Machine Learning Techniques,
2. The process involves developing a set of validated mathematical models and then determining the most appropriate model(s) for prediction

Recommendations – Sponsors/Parents

Sponsors/Parents should	Strongly Disagree	Disagree	Not sure	Agree	Strongly agree
- Be supportive	4.1	6.4	1.9	66.2	21.4
- Communicate with learners	-	-	8.3	27.1	64.7
Counsel learners about career realities	5.6	-	3.8	66.9	23.7
Encourage a break at the point of quitting	77.6	4.1	-	10.3	7.9

Recommendations - Institutions

Institutions should	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Adopt active learning	0.6	2.6	3.8	75.2	17.9
Adopt early-intervention strategies	0.4	6.2	1.9	65.8	25.8
Develop mentoring/tutoring programmes	6.2	2.3	-	41.4	50.2
Lower study costs	-	-	-	6.0	94.0
Provide family support systems	0.4	5.6	6.2	43.2	44.5
Support learner mental health	-	5.1	3.8	45.1	46.1
Support learner to make informed decisions	4.1	8.1	1.9	63.9	22.0
Use life coaches	2.1	4.1	1.9	38.5	53.4

Recommendations - Learners

Learners should	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Engage in other activities	7.5	5.6	6.2	24.6	56.0
Monitor my performance	3.8	5.6	2.1	27.1	61.5
Seek help	0.4	0.8	3.8	15.0	80.1
Set life goals	-	-	15.0	75.2	9.8
Set study goals	1.1	1.7	5.5	22.6	69.2

Conclusion

Future Work.

1. Establish a structure for continuous model evaluation and updating to ensure that the predictive model remains relevant and successful over time. Regularly assess the model's performance, recalibrate parameters, and include new data and insights to increase predicted accuracy.
2. Insights regarding student behavior and engagement levels can be gained from real-time data, such as interactions with course materials, participation in extracurricular activities, and online learning platform usage. Predictive models' timeliness and accuracy in identifying learners who are at risk can be enhanced by incorporating various data sources into them.
3. Conduct a longitudinal study of the learners using academic and non academic features.

Thank you so much for listening

Presentation: RENU

National Council for Higher Education
Ensuring Quality for Excellence

RENU

5TH ANNUAL HIGHER EDUCATION CONFERENCE

- The Context
- RENU at a Glance
- RENU Services
- RENU Products
- Why Join RENU

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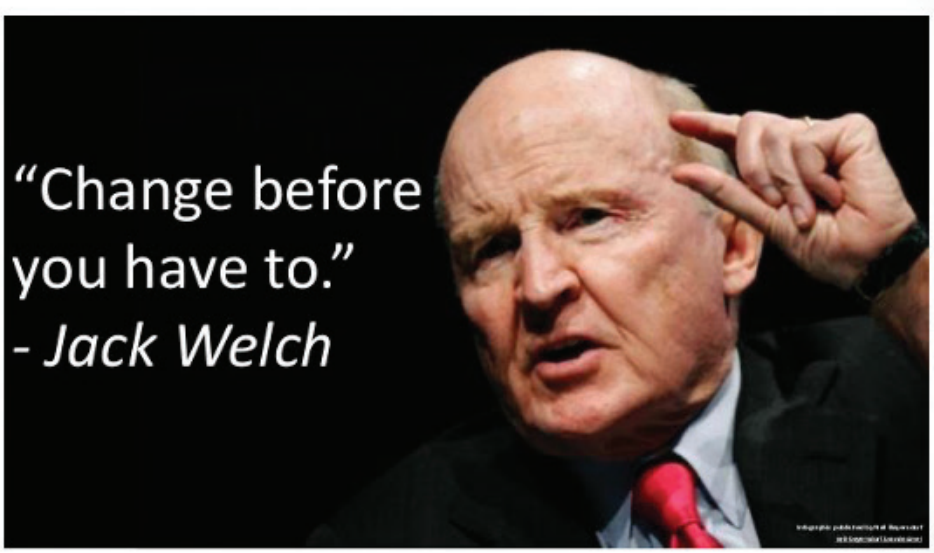
The Context



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RENU at a Glance

- Founded in 2006, by the Vice Chancellors of the Universities
- Not-for-profit organization
- Uganda's National Research and Education Network (NREN)
- Enabling academic and research communities to excel in knowledge creation, dissemination, and practical application for societal benefit

RENU Services

- Internet Connectivity
- eduroam
- Metro eduroam
- Moodle LMS
- Zero-rated Mobile Access
- Email Hosting
- Colocation
- RENU Cloud
- Cybersecurity
- LoRaWAN
- CNaaS – Campus Network as a Service
- Capacity Building

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RENU Products

NCHE

Why Join RENU

- Service Quality
- Innovative Solutions
- 24/7 Support
- Expertise
- Client Care
- Training & Workshops

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CLOSURE:

The conference was closed by Dr. Jenipher Twebaze Musoke Chairperson ICT, Research & Innovation Committee.

END OF CONFERENCE

Appendix 1

THE 5th ANNUAL HIGHER EDUCATION CONFERENCE AT MBALE RESORT HOTEL, 18th & 19th MARCH 2024

THEME: FOSTERING GRADUATE EMPLOYABILITY AND INNOVATIONS

CONFERENCE PROGRAMME

DAY ONE	18th March 2024	
Time	Activity	Responsible
8:00 – 9.00:	Arrival and Registration	Ms. Susan Nanyombi & Ms. Ingrid Achan
SESSION ONE: CONFERENCE OPENING		
Master of Ceremony: Dr. Nora Mulira, Director IRI, NCHE & Mr. Arthur Babu Muguzi, Director FPA, NCHE		
9:00 -9:10	Opening Prayer	Rev. Canon Dr. Alex M. Kagume Deputy Executive Director, NCHE
	Anthems	National Anthem East African Anthem
9:10-9:15	Welcome Remarks	Professor Mary J.N Okwakol Executive Director, NCHE
9:15 -9:25	Opening Remarks	Prof Eli Katunguka Rwakishaya Chairperson, NCHE
9:25-9:35	Official Opening	Hon. Dr. Monica Musenero, Minister of Science, Technology and Innovation
9:35-10:10	KEYNOTE SPEAKER PRESENTATION	Hon. Dr. Monica Musenero, Minister of Science, Technology and Innovation
10:10-10:30	The role of higher education in Uganda's transformation through production and value addition.	Assoc. Prof. Saphina Biira, Deputy Vice-Chancellor (AA) Busitema University
10:30-10:45	DISCUSSION: Question and answer	Plenary
10:45-11:00	Break Tea	

SESSION TWO: CONSULTATIONS ON ALIGNING THE HIGHER EDUCATION CURRICULUM WITH THE NEW LOWER SECONDARY CURRICULUM.		
CHAIRPERSON:	Dr. Vincent Ssembatya, Director, Quality Assurance and Accreditation, NCHE	
11:00-11:30	Aligning the Higher education curriculum with the new lower secondary curriculum.	Dr. Bernadette N. Karuhanga, Deputy Director, Curriculum, Review & Instructional Materials Development, NCDC.
	PANEL DISCUSSION	
11:30-13:00	Topic: Strategies for tailoring HEIs curriculum towards new lower secondary curriculum How does the NLSC affect the Higher Education curriculum and entry requirements? i. Obtain highlights from NCDC about the NLSC ii. Provide highlights of the current teacher curriculum at HE institutions iii. Discuss anticipated changes and what has to be maintained in the curriculum iv. strategies for alignment of HEIs curriculum where necessary	1. Dr. Jami Sserwanga, DVC Academic Affairs Islamic University in Uganda. 2. Dr. Maria Nakachwa Ssemakula, Acting Head of Programme Accreditation, NCHE 3. . Moses Mugizi Research Officer, UNEB. 4. Assoc. Prof. Elizabeth Kyazike Dean Faculty of Arts & Humanities Kyambogo University
13:00-13:30	Discussion: Question and answer	PLENARY
13:30-14:30	Lunch	

DAY TWO	19th March 2024	
SESSION THREE: CONTINUATION:		
Time	**Activity**	**Responsible**
8:00 – 9.00	Arrival and Registration of Participants	Ms. Susan Nanyombi & Ms. Ingrid Achan
Master of Ceremony: Dr. Nora Mulira, Director IRI & Mr. Arthur Babu Muguzi, Director FPA, NCHE		
9:00-9:40	KEYNOTE SPEAKER PRESENTATION The Private Sector's role in enhancing graduate skills and employability through Technological Innovations.	Ms. Sarah Kitakule Director, Sustainable Business for Uganda Platform (SB4U)

SESSION FOUR: THE ADOPTION OF EMERGING TECHNOLOGY IN THE DIGITAL TRANSFORMATION OF HIGHER EDUCATION		
CHAIRPERSON: Professor Jessica Norah Aguti, Head ODeL, Busitema University		
9:40-10:00	The Ugandan Graduates in the digital world.	Mr. Michael Niyetegeka Executive Director Refractory Limited
10:00-10:10	Readiness of Graduates from Ugandan Higher Institutions of Learning for Work in the Fourth Industrial Revolution	Dr. Abdal Kasule Senior Lecturer Makerere University Business School.
10:10-10:20	Development and evaluation of interactive multimedia courseware for quantitative data analysis.	Dr. Ashadi Bashir, Islamic University in Uganda
10:20-10:45	DISCUSSION: Question and answer	Plenary
10:45-11:00	Break Tea	
SESSION FIVE: THE PRIVATE SECTOR'S ROLE IN ENHANCING GRADUATE SKILLS AND EMPLOYABILITY THROUGH TECHNOLOGICAL INNOVATIONS.		
CHAIRPERSON: Professor Aaron Mushengyezi, Vice Chancellor, Uganda Christian University		
11:00-11:40	Social Impact entrepreneurship through innovations	Dr. Milos Despotovic, CEO and Co-founder Demika Software.
11:40-12:10	The use of innovation hubs in enhancing the employability of Ugandan graduates	Prof. Wasswa Balunywa
12:10-12:30	Work readiness program and its implementation	Mr. Ham Wilson Lukurwe, Sector Expert-policy and Institutional Governance, ENABEL.
12:30-13:00	DISCUSSION: Question and answer	Plenary
13:00-14:00	LUNCH	
SESSION SIX: IMPROVING ACCESS AND INCLUSIVITY TO HIGHER EDUCATION IN UGANDA: ADDRESSING UGANDA'S LOW GROSS ENROLLMENT RATIO.		
CHAIRPERSON: Dr. Henry Buregea, Vice Chancellor, Livingstone International University		
14:00-14:20	Strategies for improving higher education accessibility, inclusivity, and graduate employability	Mr. James Okello, Academic Registrar, Soroti University

14:20-14:40	Graduate employability in Uganda's manufacturing subsector: The potential influence of Technical and vocational training in narrowing gender wage differences.	Dr. Martin Iremaut Osikei, Head of Department, Statistics and Data Management, NCHE
14:40-15:00	Knowledge production and sustainability development	Dr. Vincent A. Ssembatya, Director of Quality Assurance and Accreditation, NCHE
15:00-15:15	Towards Sustainable Education: A Machine Learning Model for Early Student Dropout Prediction in Higher Education Institutions	Mr. Humphrey Geoffrey Mukooyo, Ph.D. Student Nkumba University
15:15-15:50	DISCUSSION: Questions and answers	
15:50-	CLOSURE	Dr. Jenipher Twebaze Musoke Chairperson ICT, Research & Innovation Committee

Rapporteurs:
1. Dr. Olive Lunyolo
2. Mr. David Musimaami
3. Ms. Naomi Turyahabwa

Conference Coordinator: Mr. Cosmas Muhumuza

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National Council for Higher Education

Ensuring Quality for Excellence

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