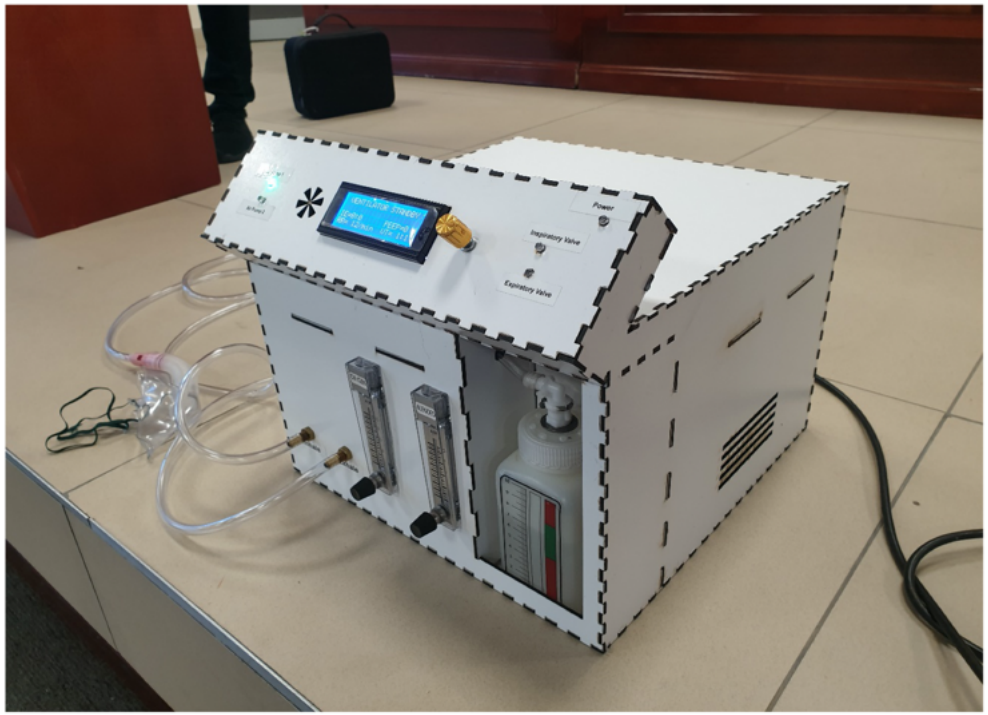
Cont'd…

MUBAS produced and distributed 100 000+ units of reusable protective face shields

MUBAS produced and distributed 150+ units of foot pedal operated hand washing machines

Low Cost Electronically Controlled Ventilator



Low Cost Electronically Controlled Ventilator

- A low-cost medical ventilator designed and manufactured to help move breathable air in and out of the lungs of the patients who are physically unable to breathe on their own as is the case with COVID-19 patients.
- This locally made full feature ventilator offers hope to local health personnel in the fight against coronavirus amid global lack of ventilators. The ventilator is made by assembling a variety of electronic instruments set up to move breathable air in and out of the device in a controlled manner.
- This process involves designing and fabricating electronic circuit boards and enclosure from Computer Aided Design (CAD) models. Additionally, the process, involves writing a computer program that capacitates the device to listens to user inputs or commands from within the device and control operations automatically.

Flexible 3D-Printed Masks

- The individualized 3D printed protective mask is reusable custom-made three dimensionally (3D) based on materials and techniques of 3D printing.
- MUBAS created these digital files that are fed into 3D printers to produce 3D parts of the mask assembly.

Challenges

- Supply chain management (Equipment and machine spare parts)
  - These being developed at the hike of COVID-19
  - Closed borders
- Impacted by Country Lockdowns: Facing interruptions in work schedules due to nationwide lockdowns and health restrictions.
- Shortage of Equipment for Scaling: Confronting difficulties due to the insufficient equipment needed for large-scale production.
  - Existing equipment primarily tailored to fulfill prototyping requirements.
  - Adapting to circumstances that necessitated the transition to manual production methods.
- Invaluable Support from Unskilled Volunteers: Receiving valuable assistance from unskilled volunteers in managing the production workload.

Safeguarding University Intellectual Property

Intellectual property

- Intellectual property plays a pivotal role in fostering innovation and generating revenue for universities
- University Intellectual Property (IP) includes inventions, discoveries, creative works, and innovations generated within the university's research and academic activities.
- Forms of university IP include patents, copyrights, trademarks, trade designs, and trade secrets.
- These assets are valuable not only for the university but also for fostering progress and innovation in society

Importance of University IP

- University IP plays a vital role in research, innovation, and commercialization.
- It serves as a source of revenue for universities through licensing, partnerships, and startups.
- University IP contributes to regional economic development and fosters an environment of innovation.

IP Creation at Universities

- Universities create IP through research, innovation, and academic activities.
- Examples of university-generated IP include new technologies, academic publications, software, and more.
- University research and inventions often lead to novel and practical solutions.

Ways of safeguarding MUBAS IP

- Legal Frameworks(National and International)
- Clear and comprehensive University IP policies e.g. National IP policy., University IP Policy, Copyrights act, Trademarks act, patents act, etc that define ownership, rights, and procedures for handling university IP.
- Establishment of Technology Transfer Offices (TTOs) responsible for managing and safeguarding university IP and ensures technologies leaves university lab spaces to the market; facilitate partnerships with external entities to utilize and benefit from university IP
- Research and Collaboration Agreements(TTO collaborates legal counsel and patent attorneys) that needs careful consideration and negotiation of these agreements are crucial
- Patenting(TTO facilitated+ patent attorneys), which grants exclusive rights to the inventor or university to make, use, and license the patented technology
- License agreements(TTO facilitated+ patent attorneys) that grant others the right to use the university's IP for specified purposes
- Spin-offs(TTO facilitated+ patent attorneys)
- Co-owned ventures(TTO facilitated Legal Counsel)

Collaborations with industry partners

- IP is protected through collaboration with funders, partners and industries to ensure proper R&D and smooth translation of technologies from universities to the society.

IP Training and Awareness

- Educating university staff and students about IP is vital.
- Training programs and awareness initiatives raise knowledge about IP rights, policies, and best practices.
- IP education fosters a culture of IP protection.

THANK YOU

- INNOVATE
- CREATE
- GENERATE

www.mubas.ac.mw

MALAWI UNIVERSITY OF BUSINESS AND APPLIED SCIENCES
MUBAS

CASE STUDY 3

Dr. Isaac Mugume

The drive to research

- Re-think the partnership between academia and industry to avoid ineffectual partnerships (Fransman & Newman, 2019);
- What research is being carried out? Basic – so as to publish as many papers as possible?
- Move to differential weighting of commercialized products
- 6 criteria for R&D projects → technology, marketing, finance, intellectual property, resource & beneficial impact (Karaveg, *et al.,* 2014)

Research environment in Uganda

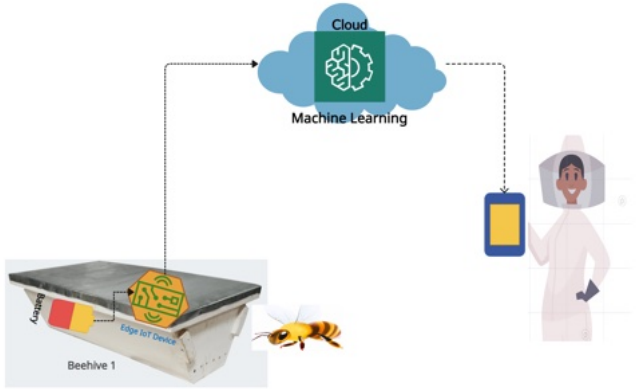
- The government of Uganda actively supports research → NARO, UNCST, STI-President Office, RIF-Mak, & several Presidential initiatives;
- High pay for Scientists right from Secondary School Teachers;
- Support to promising research initiatives e.g. the Kiira Motors corporation;
- Wide range of donor support → NORAD, DANIDA, World Bank, DAAD, Welcome Trust, Bill & Mellinda Gates, SIDA, KOICA, JICA, USAID ...

The case study of IoT-ra lab AWS

- In 2013, the WIMEA-ICT project funded by NORHED embarked on improving weather information management in EA;
- The solutions ranged from NWP, WDR, AWS, WIDS → at the center was research;
- The AWS were tailor made at low cost and deployed to improve density of network in Ug. Tz & S.S
- Research; and engagement of industry was a critical success factor

The case study of IoT-ra / AdEMNEA Smart Bee Hive

- Bees, the key plants pollinator are being threatened due to the anthropogenic applications of chemical spraying;
- Monitoring the health of bees is thus critical; but how do you monitor without distroting their habitat → smart bee hive
- With the growing apiary industry, the smart bee hive is envisaged to make both scientific and commercial case



Key references

- Fransman, J. & Newman, K. (2019). Rethinking research partnerships: evidence and the politics of participation in resaerch partnership for internal development
- Karaveg, C., Thawesaengskulthai, N., & Chandrachai, A. (2014). Evaluation model for research and development commercialization capbility

Universities safeguarding their IP

HOW UNIVERSITIES ARE SAFEGUARDING THEIR INTELLECTUAL PROPERTY

Presented at UbuntuNet-Connect Conference 26. 10. 2023

BY CANON GODDY MUHANGUZI MUHUMUZA

LLM; LLB (UPPER SECOND) Mak,DIP.LP; UDBS; ADVOCATE

COMMISSIONER FOR OATHS &NOTARY PUBLIC

CERT. IPR-THAILAND; CERT. IP -SWEDEN; DIP. IP- CHINA

MANAGER IPM@Mak, MAKERERE UNIVERSITY

WHAT IS INTELLECTUAL PROPERTY?

Simply put, it is the creation of the mind.

- **Ideas born in the mind but once these ideas move from thoughts into some form of expression then Intellectual Property(IP) is created.**
- **The expression determines how you best will protect your creation.**
- **Protection is based on what the applicant discloses**

LAWS GOVERNING IP

1. The Trademarks Act 2010 and the regulations under it,
2. The Copyright and Neighbouring Rights Act 2006 and its regulations,
3. The Trade Secrets Act 2009 and
4. The Industrial Property Act of 2014 and the regulations thereunder, which repealed the Patents Act Cap 216

PURPOSE OF PROTECTING INTELLECTUAL PROPERTY

- Intellectual property protection is **critical to fostering innovation and Technology Transfer (TT)**.
- Without protection of ideas, researchers, students, staff and individuals would not reap the full benefits of their innovations/inventions and would focus less on research and development.

WHAT IS TECHNOLOGY TRANSFER (TT)

TT is a collaborative process that allows scientific findings, knowledge and Ipto flow from Creators/Innovators, such as University Reasearchers, Staff, Students and Other Research Istititutions, to private and public users.

TT is the movement of data, designs, inventions, materials, software, technical knowledge or trade secrets from one organisation to another or from one purpose to another. The TT process is guided by the policies, procedures and values of each organization/University involved in the process.

TT can be categorized into three basic types:

1) Technology push which takes place when a University or company ***patents*** its invention and ***licenses*** it to other companies.
2) Market pull-which is when new technologies are developed in response to demand for a product or service.
3) Technological spillover- where firms can acquire information created by others without infringement.

Benefits of TT- Everyone wins

- Public benefit.
- Community engagement.
- Corporate engagement.
- Attribution and recognition.
- Translation of academic discoveries for greater good.
- Support for regional economic growth and development.
- Revenue generation.

- **Another important function of TT is to help scientists to gather pre-seed Research & Development (R&D) funding (Max Planck Innovation, 2015) and to reduce the asymmetric information or "information failure" problem by sorting unprofitable from profitable innovations.**

- **Efficient intellectual property (IP) management** gives a business an **advantage over its competitors** and is key to market dominance. Market know-how is therefore a valuable business asset which must develop to create new IP assets, which in turn gives the business a competitive edge in the marketplace.

It is therefore essential for every University **to build an IP protection strategy to manage and protect the results of any intangible assets,** including the **creation of an in-house IP department or TT Office (TTO),**

- specialising in the **protection of the assets,**
- **supporting innovation and**
- **development**

IP Assets include:

1. **Patents & Utility models,**
2. **Trademarks**
3. **Copyright**
4. **Industrial Designs**
5. **Geographical Indications**
6. **Trade secrets**

Patent

- Protects new and Inventive solutions.
- A patent is an exclusive right granted for an invention which is a product or a process.
- The product or process should provide in general, a new technical solution to a problem of any industry.
- The exclusive rights are territorial and patent protection is granted for a limited period, generally 20 years.

Requirements for patentability

- Novel/new– must have some new characteristic which is not known in the body of existing knowledge in its technical field (prior art).– The invention should not be described in any publication published anywhere in the world.
- Inventive – The new product or process should not be obvious to a skilled person with average knowledge of the technical field.

- Industrially applicable- Invention must be useful/ have utility.
- The subject matter must be accepted as patentable under the national patent law. (scientific theories, mathematical methods, plant or animal varieties, discoveries of natural substances, methods for medical treatment are examples of things that are not patentable).

Utility Model

- A Utility Model just like a Patent also protects inventions/innovations but for a shorter period. The main difference between a Patent and Utility Model is that the requirements for granting a Utility Model are less stringent than for Patents.
- A Utility Model is commonly referred to as a “Petty Patent”. In practice, protection for utility models is often sought for innovations of a rather incremental character which may not meet the patentability requirements. The term of protection for utility models is 10 years.

Utility Model con't

- For **example**, the ball pen is an existing invention but you observe that when exposed to air the quality of ink decreases so you have come up with the cover and that cover is the **utility model** - a development to an existing invention, or for pen you have created the eraser and that is also an improvement or part of.

Who protects the intellectual property?

- Employer/University/Funder
- Inventors, designers, developers and authors can protect the ideas they have developed, for instance by means of copyright or patents. The aim is to prevent others from wrongly profiting from their creations or inventions. It also gives them an opportunity to earn back the money they invested in developing a product

Trademarks

- These are signs, symbols, labels, logos, names, slogans that identify and distinguish goods and services. They are on every product. The idea is that everyone is manufacturing that particular product or doing that particular service, so there is necessity to allow users to distinguish.
- Registration is required to guarantee protection.

Trademark cont'd

- TM may be any word, symbol, slogan, logo, sound, smell, colour, drawing, symbol, letters, numerals or a combination thereof.
- TM must be distinctive.
- Not deceptive or misleading to customers.
- Not violate public order or morality.

Copyright

- Protects literary and artistic works
- Last for the lifetime of the author plus fifty years after his/her death
- Protects: songs, books, poems, publications, art pieces, sculptures, arrangements of music, mobile apps etc.
- Copyright subsists from the moment the work is created.

Industrial Designs

- Design is the unique outer appearance of a product. Industrial designs are what make an article attractive and appealing Designs can be seen everywhere: bottles, shoes, clothing, cars, cups.
- Protect the appearance of a product.
- Lasts for a total of fifteen(15) years depending on renewal
- Protects; Shapes, colour, texture, patterns etc
- Registration is required to protect the object.

Geographical Indications

- Protect the unique characteristics that products derive from their geographical location.
- Protection is indefinite dependent on renewal
- Allows producers in a region to gain value through the unique qualities that can only be attributed to the region eg. Soil quality, PH climate etc.

Trade Secrets

- Protects information that is important to the success of the business but is not publicly known for the purpose of maintaining a competitive advantage.
- Protection is indefinite as long as the information is not disclosed.
- Protects: recipes, formulas, client lists, growing conditions, methods of doing business (Coca Cola formula has been protected the special taste of Coca-Cola for more than 130 years only

ROLE OF A UNIVERSITY IP UNIT/DEPARTMENT OR TTO

- Before creating a specialised IP department, a business must first ascertain **what is required of such a department**.
- An IP department specialises in a multitude of issues, but its general role within a University is **centred around**:
- **Identifying** and **Ordering** the **business's existing IP rights**
- **Advising** on securing **IP Rights** and **Protections**
- **Identifying** solutions to minimise costs, including the **costs of IP:**

  - Registration
  - Applications
  - Renewals and,
  - Reducing Management Costs
  - **Negotiating** and **Drafting**
  - Licences and,
  - Rights Transfer Agreements

STRUCTURE AND ORGANIZATION

The structure and organization of TTOs can affect its overall performance and can vary among universities. Since TTOs deal with both academic research and industry, they consist of a diverse set of individuals, including:

- Scientists;
- Lawyers;
- Analysts;
- Licensing Experts;
- Financial Experts; and
- Business Managers.

By having individuals (particularly different scientists, engineers, and analysts) with varying sets of expertise in research, TTOs attempt to more effectively assess, protect, and profit from the research developments taking place in multiple disciplines throughout the university (wikepedia)

TTOs can by classified into three different types or models of operation:

- Internal: existing as an integrated part of the university and controlled by university administration.
- External: existing as an independent company that does not operate under the control of university administration.
- Mixed: having components of both internal and external TTOs.

SITUATION ANALYSIS

Global Context

- In recent decades, almost all research universities in the US and Europe have established **Innovation and Technology Transfer Offices** (**ITTO**s) to commercialize their IP.
- In the US, the **Association of University Technology Managers** (**AUTM 2013**) reports that the annual number of patents granted to U.S universities rose from less than 300 in 1980 to 5,145 in 2012, while licensing of new technologies has increased almost six-fold since 1991.
- Annual licensing revenue generated by US universities rose from $160million in 1991 to $2.6 billion in 2012.
- *University based startup companies numbering 705 were launched in 2005 alone; while 6,834 new firms based on university owned intellectual property have been created since 1980.*

NATIONAL CONTEXT

According to the 2017-2017 Global Competitiveness Report, Uganda is ranked 77th with regard to Innovation and 104th in terms of ***Intellectual Property Protection*** (***IPP***).

- The 2019 Global Innovation Index ranks Uganda at 102 out of the 129 countries compared to Kenya, Rwanda and Tanzania ranked at 77, 94 and 97 respectively. The country's expenditure on R&D was only 0.4 percent of GDP, business expenditure on R&D was 0.01 percent and the country logged about 250 patent applications with only 2 registrations.
- Todate, the level of IP registration in Uganda remains low, compared to other countries.

JUSTIFICATION

- The Vision 2040 has set a target of 6000 patents registered per year by the year 2040.
- The National Development Plan III (2020/2021 – 2024/2025) has set a target of 50 Intellectual Property Rights registered per year by the year 2025 through various interventions including strengthening the Intellectual Property (IP) value chain management.
- Institutions of Higher Learning are expected to produce a large percentage of these patents on the basis of the research and knowledge activities they undertake.
- Policy Objective 3(c) of the National IP Policy aims to adapt and exploit IP driven technology transfer and commercialization through strategy that purposes to establish institutional Technology Transfer Offices (TTOs) for effective and sustainable transfer, adaptation and exploitation of technologies.

RENs' facilitating role in the transfer of academic knowledge to the industry

Panel

Interaction