



# **REGIONAL BUREAU FOR AFRICA SERIES OF WEBINARS FOR UNIVERSITIES AND R&D INSTITUTIONS - SESSION 3**

**Loretta Asiedu**

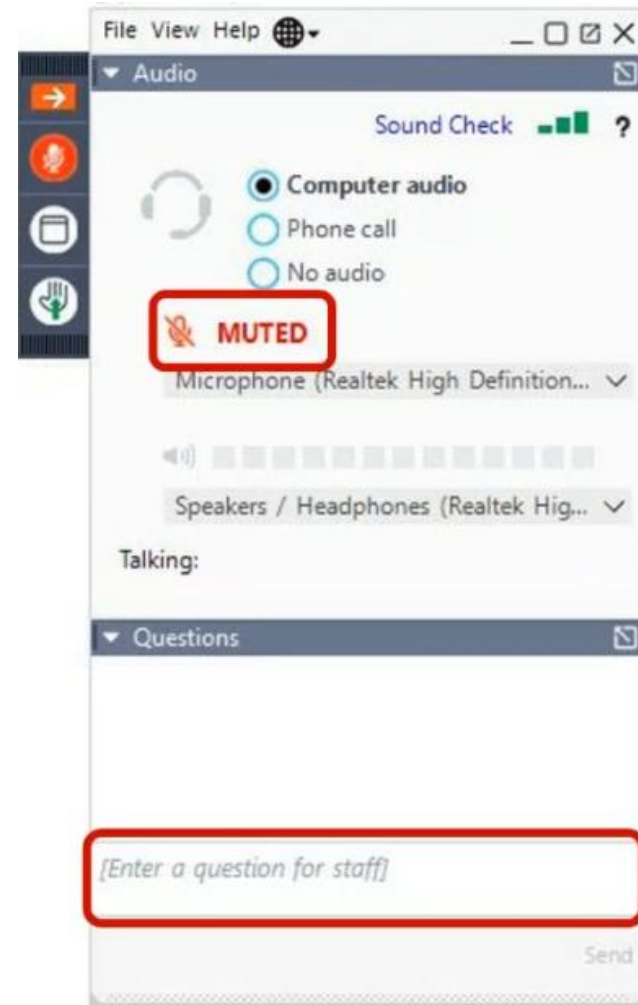
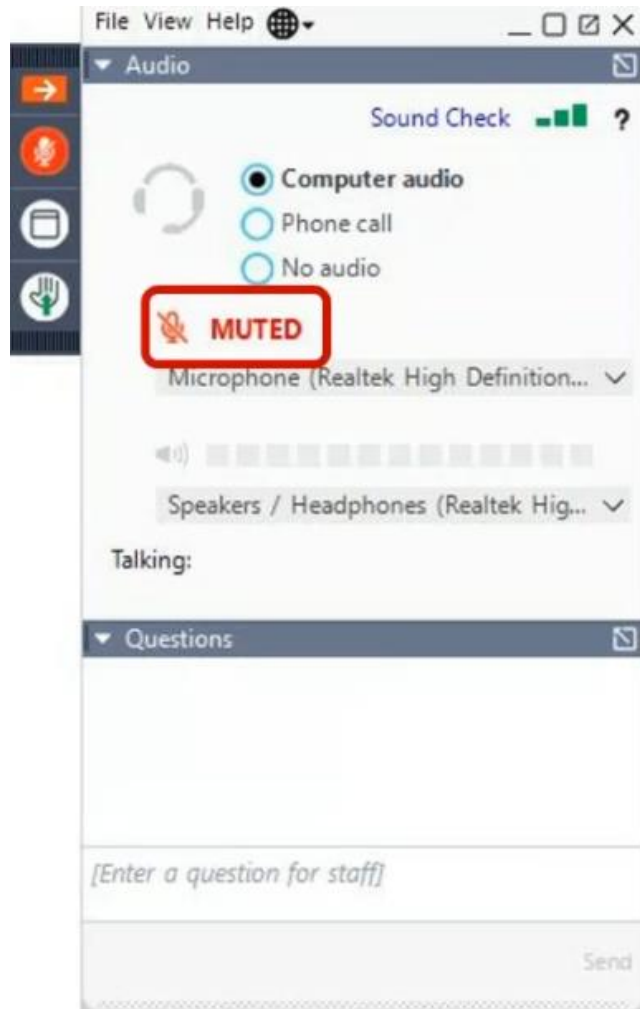
Senior Counsellor,  
Regional Bureau for Africa  
Department for Africa and LDCs

**Online  
5 August a.m.  
2020**

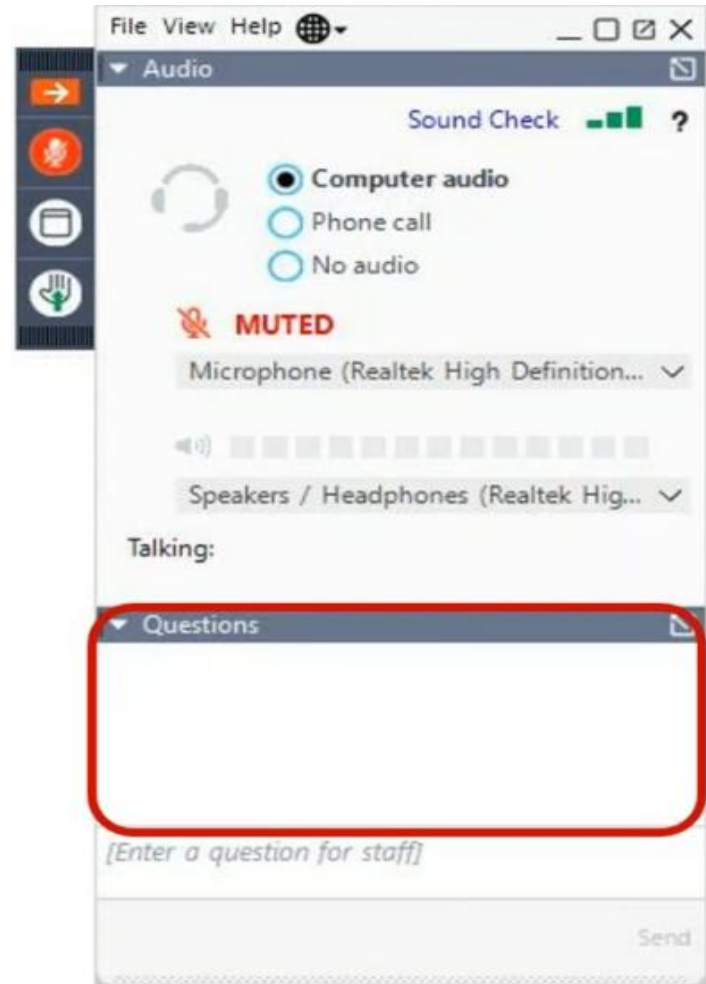
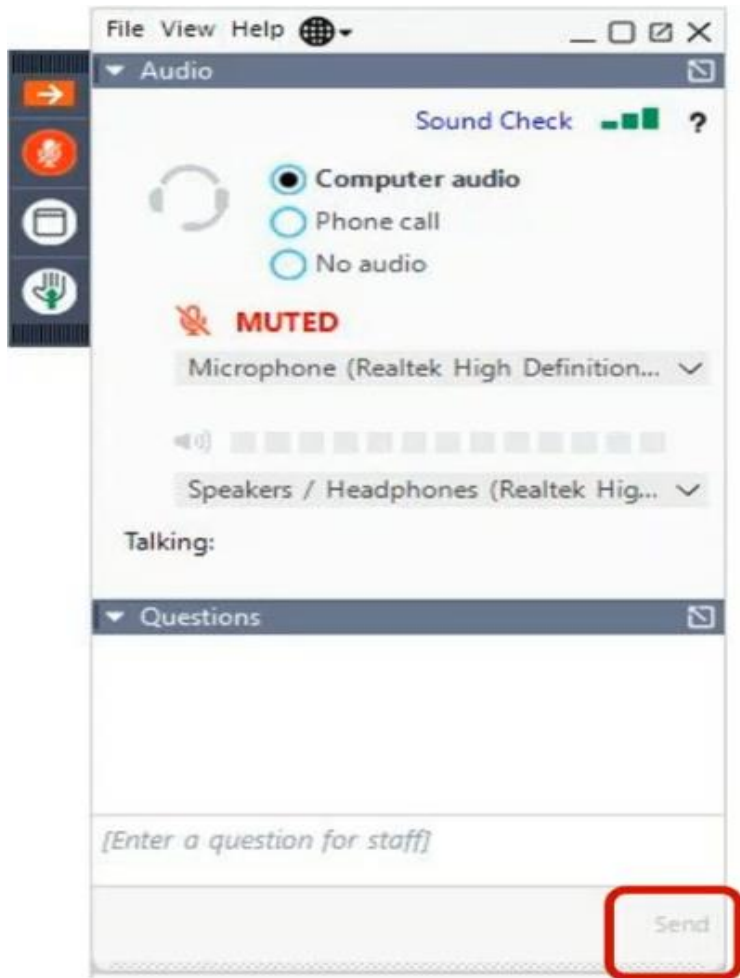
# TOPICS

- **Developing and Implementing Institutional IP Policy**
- **Designing, Establishing, and Managing a Technology Transfer Office**
- Q&A session (20 minute)

# How to ask questions?



# How to ask questions?



# Q&A



- Do not worry if we can't address all your questions in today's session
- You can always reach us at the following email address for further questions or information:

[rba@wipo.int](mailto:rba@wipo.int)

# Professor Tom Ogada



- Background in Mechanical Engineering.
- Executive Director of the African Centre for Technology Studies (ACTS), which is an STI policy African Think
- Chairman of the Kenyan National Commission for Science, Technology and Innovation (NACOSTI).
- Lecturer in Moi University for 19 years.
- Former Head of Department, Dean of faculty and was the founder Managing Director of Moi University Holdings Limited, a Technology Transfer Office of the University.
- Former Managing Director of the Kenya Industrial Research and Development Institute, where he helped set up a Technology Transfer Office and a Business Incubation Facility. 2009-2012.
- Former Advisor for the British Council on African Knowledge Transfer Partnership, linking universities and industries.
- Consultant for the World Intellectual Property Organization (WIPO) since 2000 in the areas of national IP policies, strategies as well as technology transfer and commercialization of IP assets

# Next sessions

- Session 4:
  - Practical examples of IP commercialization universities and research organizations – pilot projects, technology incubation services, joint ventures, technology licensing
  - **Date:** August 6 from 10.00 – 12.00 CET
  - **Register here:** [https://www.wipo.int/meetings/en/details.jsp?meeting\\_id=58068](https://www.wipo.int/meetings/en/details.jsp?meeting_id=58068)

# **TECHNOLOGY TRANSFER AND IP ASSET MANAGEMENT**

**TOM OGADA**





# content

- » Why technology transfer
- » Developing and implementing institutional IP policy
- » Designing, establishing and managing a technology transfer office
- » Practical examples of IP commercialization by universities and research organizations – Part 1
- » Practical examples of IP commercialization by universities and research organizations – Part 2

# MODULE DELIVERY

**5TH**

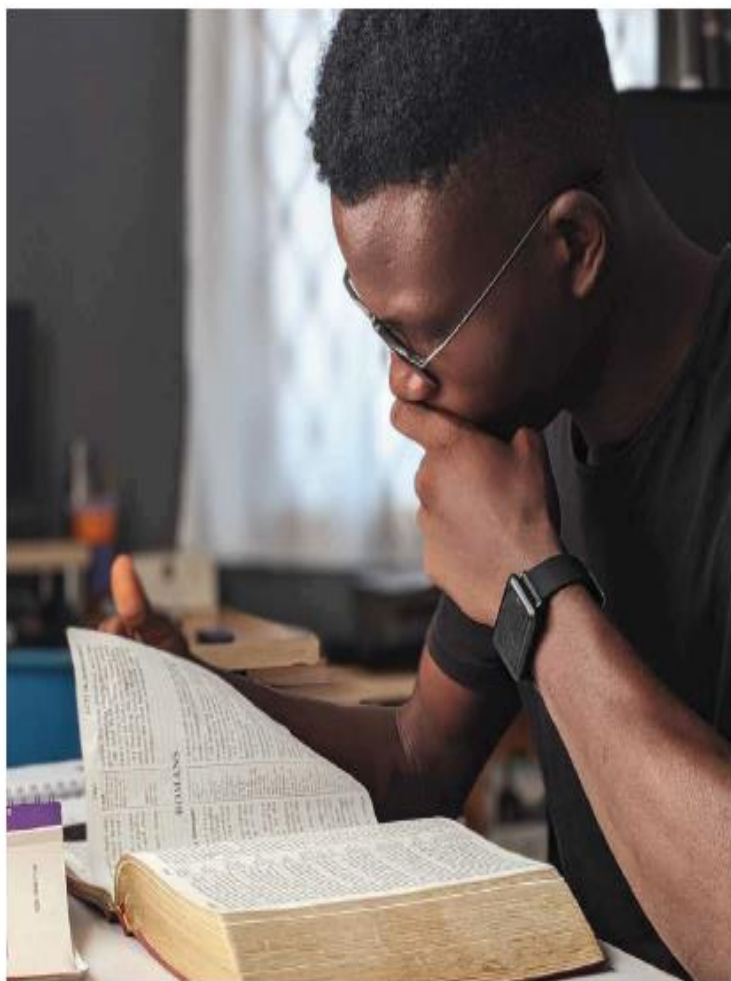
August 2020

- » Why technology transfer
- » Developing and implementing institutional IP policy
- » Designing, establishing and managing a technology transfer office

**6TH**

August 2020

- » Practical examples of IP commercialization by universities and research organizations – Part 1
- » Practical examples of IP commercialization by universities and research organizations – Part 2



## DELIVERY STRATEGY

- NOT Teaching but Experience Sharing
- Impacting Practical Skills
- Q and A



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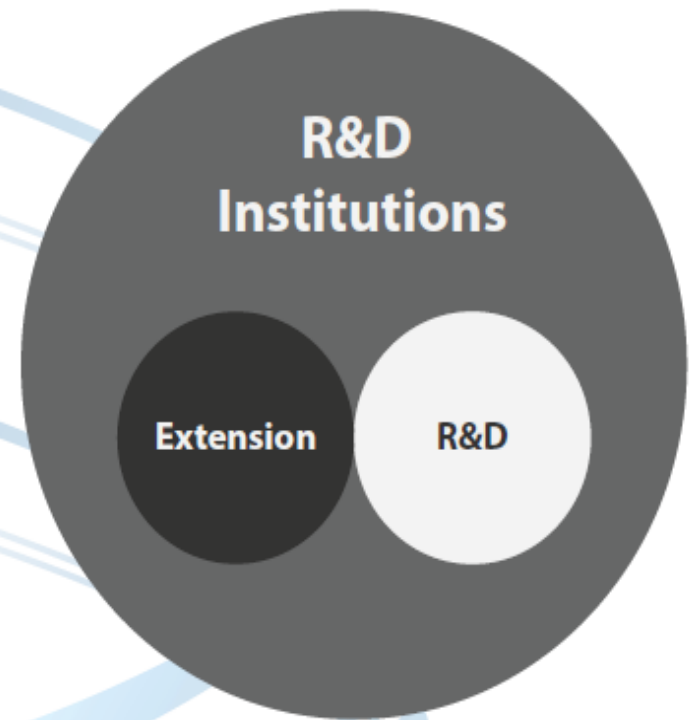
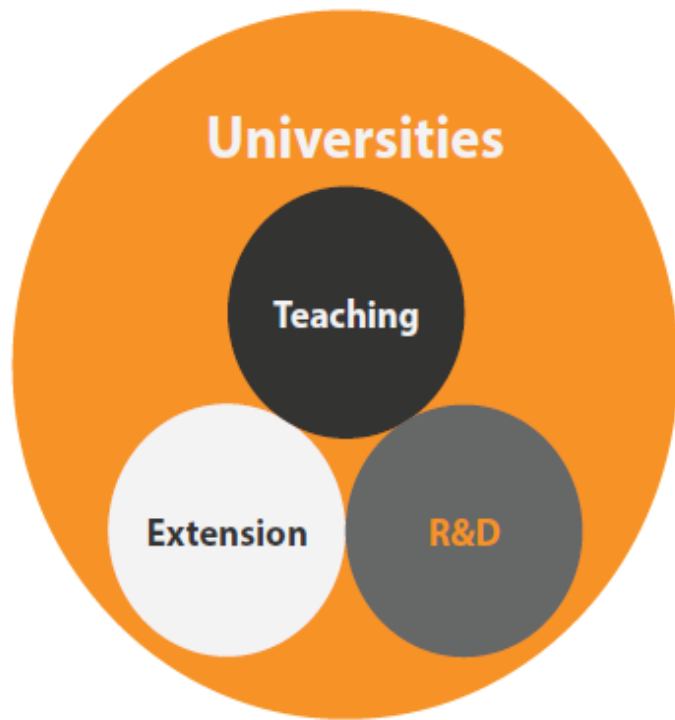
ORGANIZATION



The background of the right half of the slide is a dark blue field filled with a complex network of glowing blue lines and dots, resembling a digital or neural network. The lines connect various points, some of which are highlighted with small, bright blue light effects.

# **WHY TECHNOLOGY TRANSFER AND IP ASSET MANAGEMENT**

# MANDATES OF RTOS



- » Capacity Building
- » New knowledge
- » Knowledge Transfer



**Technological  
development**

# RESEARCH PRODUCTS



The direct product of research is knowledge. It can be in the form of;

- » New Technology
- » New Product
- » New Process
- » Improvement in existing product, process or technology



# UTILIZATION OF RESEARCH PRODUCTS

- » Publication a traditional R&D output
- » The dissemination of knowledge through publications is not enough.
- » R&D is only useful if its products can lead to;

1. Economic development
2. Industrialization
3. Job creation
4. Poverty Reduction

**It is only through  
technology transfer that;**



- » R & D institutions can become more relevant to the society
- » institutions can drive economic benefits
- » Researchers "inventors" can be rewarded for their innovativeness.





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# DEVELOPING AND IMPLEMENTING INSTITUTIONAL IP POLICIES



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**TOM OGADA**

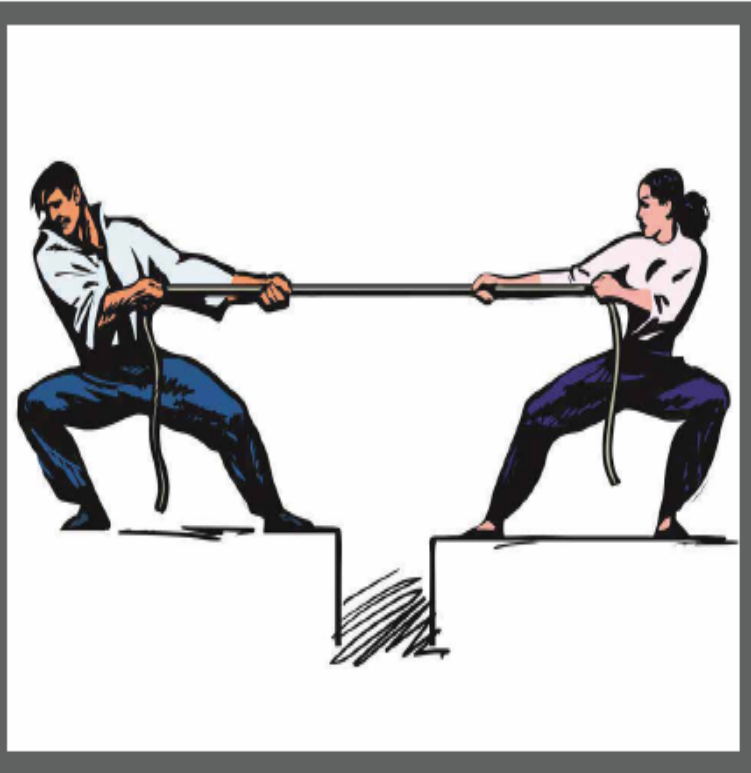
**WIPO 2020**



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# SCRAMBLE FOR IP

## OWNERSHIP – REAL LIFE STORY



Vice chancellor: **It is ours**

Professor: **No! It is mine**

Students: **Never! it is mine**

Industry: **Stop it, you are joking, it is mine!!**

Minister: **You guys stop misbehaving, have some respect!!**



# RECOGNITION

## Current status of African universities and research institutions with respect to IP policies

- » Earlier adopters - *those who have IP policies and desire to revise and upgrade*
- » Those who are in the process of developing their IP policies
- » Those who have not started



# 01

# IP POLICY

## Objectives of IP Policy;

- » Harmonize conflicting interest on various stakeholders
- » Promote creation, protection and commercialization of IP Assets
- » Ensure equitable distribution of the commercial results of R&D
- » Encourage and reward RTO staff for innovation and creativity
- » Provide environment for dissemination of R&D products for the benefit of the society



# 02 THE STAKEHOLDERS



- » Universities
- » Inventors (Researchers, Students, Research Assistants, Guest Researchers etc)
- » Sponsor
- » Industry
- » Collaborators
- » Government
- » Public
- » RTOs
- » National IP Offices



# UNIVERSITY AND R&D INSTITUTIONS AS A **KEY STAKEHOLDER**

RTO is a key stakeholder since it provides

- » R&D Infrastructure
- » Salary
- » Goodwill

*RTO has a say on the generation, protection  
and commercialization of IP generated using  
university recourses*

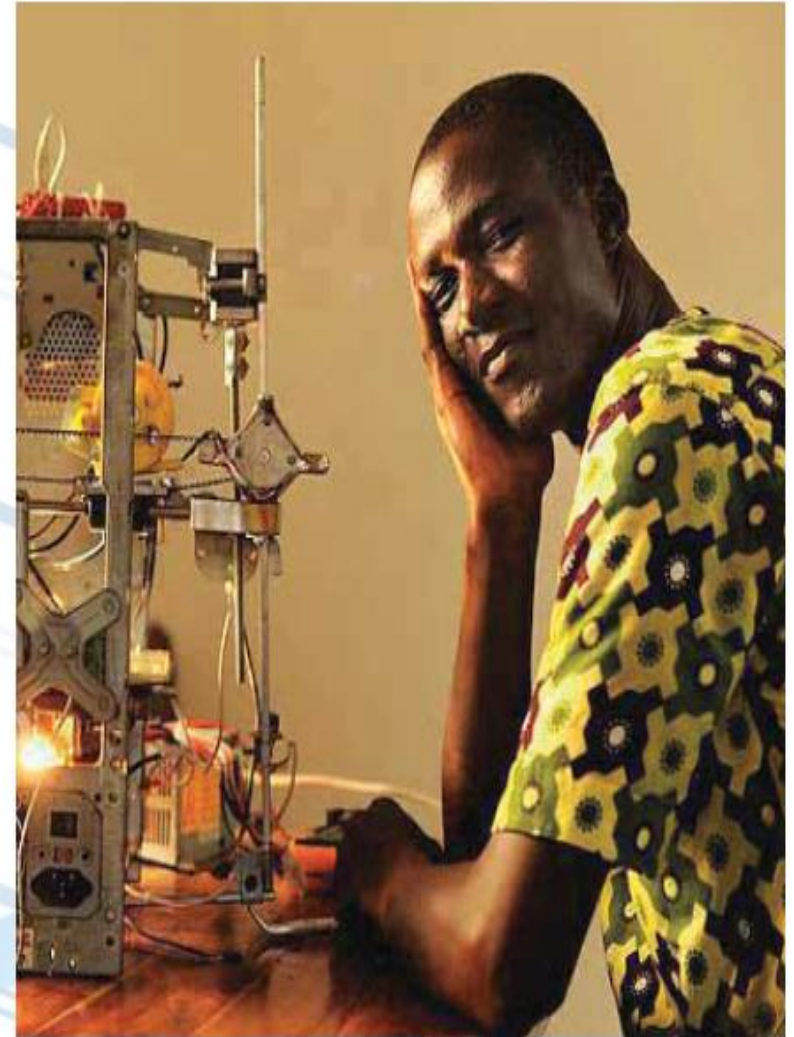


# THE INVENTOR AS A **KEY STAKEHOLDER**

- » Develops proposals and Sources for R&D funds
- » Undertakes R&D
- » Intellectual inputs

## *Inventor requires*

- » *Adequate recognition and reward for intellectual input*
- » *Need for publication and promotion must be safeguarded*







## SPONSORS, INDUSTRIES AND COLLABORATORS

- » Provides R&D funds
- » Equipment
- » Research material
- » Intellectual input

**The interests of the sponsors, industries and  
Collaborators must be taken care of**



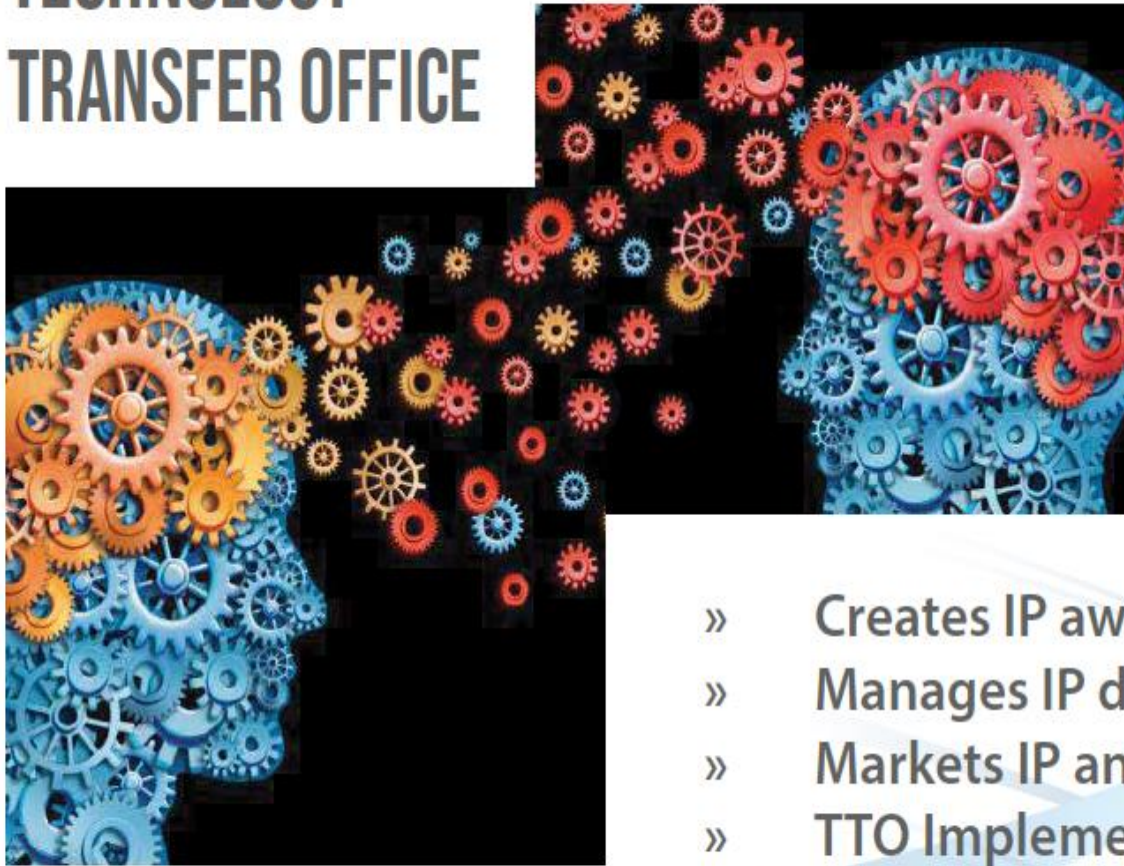
## GOVERNMENT AND PUBLIC ARE MAJOR STAKEHOLDERS

- » General source of funding for R&D infrastructure and operation expenses
- » Invest in universities
- » Expects returns

Cares that the **benefits** reaches the widest  
scope of the society at **affordable cost**



# TECHNOLOGY TRANSFER OFFICE



- » Creates IP awareness
- » Manages IP disclosure, filing and protection
- » Markets IP and negotiates for licensing
- » TTO Implements
  - *Obligation of University*
  - *Obligations of Inventors*
  - *Confidentiality*



## ISSUES COVERED BY IP POLICY

- » Ownership of IP Rights - publicly funded research
- » Ownership of IP Rights - privately funded research
- » Ownership of IP Rights - collaborative research
- » Government rights
- » Revenue or benefit sharing
- » IP Assets management
- » Research Commercialization
- » Spin-off companies and licensing
- » IP protection and maintenance
- » Invention Process
- » Conflict of interest and commitments



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# OWNERSHIP OF IP FROM PUBLICLY FUNDED RESEARCH

## OF IP RIGHTS

Who owns the IP rights generated from publicly funded research?

- » State,
- » Inventor
- » The RTO?

S/N	Ownership Type	Examples of countries
01	By State	USA1982 Bayh Dole Act
02	By Inventor	Italy, Sweden, German, Japan
03	By Institutions	USA, Japan, Kenya





# OWNERSHIP OF IP FROM PUBLICLY FUNDED RESEARCH

## BEST PRACTICE

- » Ownership by RTO enhances possibility of commercialization
- » Researchers are recognized as inventors in the application form
- » Students can be recognized as inventors in the application form
- » Some universities and R&D institutions already recognize IP applications and grants for the purpose of promotion to address the issue of **publish or perish**

# OWNERSHIP OF IP FROM PRIVATELY FUNDED RESEARCH

## KEY ISSUES



- » Who owns the IP assets and why
- » Perception of most researchers
- » Hidden interest and fears of the private sector
- » Who pays for IP protection and maintenance
- » What type of licensing possibilities
- » Possibilities of delayed publication



## STARTING POINT

- » RTO unless specified otherwise in the contract

## WHAT TYPE LICENSING POSSIBILITIES

- » RTO owns, industry given exclusive licensing
- » RTO owns, industry given non-exclusive rights
- » Joint ownership
- » Industry Owns



# OWNERSHIP OF IP FROM COLLABORATIVELY FUNDED RESEARCH

	Country	%GDP	Contributed by:		
			Government	Business	Foreign
1	Zambia	0.34	-	-	-
2	Burundi	0.12	60	-	40
3	Ethiopia	0.61	81	0.9	-
4	Ghana	0.38	68.3	-	31.2
5	Kenya	0.79	41	4.3	47
6	Mozambique	0.46	19	3	78
7	Namibia	0.14	79	-	-
8	Nigeria	0.22	96.5	-	-
9	South Africa	0.73	45.4	38	13
10	Tanzania	0.52	57.5	-	42
11	Uganda	0.48	21.9	27.9	57.3
12	China South	4.4	2.08	1.59	0.73
13	Korea	4.1	1.00	3.14	-
14	Germany	2.78	29	666	4
15	Denmark	3.02	29	60	7
16	Netherlands	-	34	47	14

# OWNERSHIP OF IP FROM COLLABORATIVELY FUNDED RESEARCH

## KEY ISSUES

- » Many African universities collaborate with those from the North
- » There can be equity problem in terms of ownership of intellectual property
- » The best practice is joint ownership



# OWNERSHIP OF IP FROM COLLABORATIVELY FUNDED RESEARCH

## PRACTICAL OBSERVATIONS

- » Most Northern universities have very comprehensive IP policies which are administered by competent managers, no contract can be signed without agreeing on IP issues
- » Researchers from African countries find IP policies hindrance to fund raising
- » There is weak monitoring and evaluation of implementation of research contract with respect to IP policies
- » Despite huge numbers of research contracts with joint ownership of IP there are very few registered IP







# GOVERNMENT RIGHTS

## Key rights

- » Match in rights
- » Manufacture in a country
- » Preference to national companies
- » Compulsory licensing
- » Ownership reverting to government

*These are entitlement to the government  
where the IP is owned by a different entity*

# BENEFIT

## SHARING

S/N	Elements	Details
01	Main benefits for sharing	Income, Royalty, equity
02	Key beneficiaries	Inventor, RTO, Inventor's group, and department, TTO
03	Sharing principle	<ul style="list-style-type: none"><li>» Only net revenue is shared</li><li>» Net revenue = gross income – administrative expenses</li><li>» Sharing can be in terms of equity</li></ul>
04	Duration of income stream	<ul style="list-style-type: none"><li>» As long as there is revenue stream i</li><li>» Revenue receipt even after inventor leaves employment</li><li>» Next of kin entitled to benefits</li></ul>



# BENEFIT

## SHARING ( PRACTICAL EXPERIENCE )

- » It is the most contested issue during policy formulation
- » The percentage distribution is different from universities to universities and countries to countries
- » Researchers normally confuse it with ownership of IP rights
- » Is useless when there is no commercialization of IP rights therefore researchers require additional incentives such as academic promotion and rewards
- » In some universities implementation of this policy has been weak which is a disincentive
- » In others the policy is not known to many researchers

# IP ASSETS

# MANAGEMENT

- » Technology managers
- » Patent drafters
- » Patent attorney
- » IP valuers
- » IP licensing professionals
- » IP Policing experts
- » IP judges
- » IP auditors
- » IP strategic managers

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## IP COMMERCIALIZATION ROUTES

- » Donation
- » Licensing
- » Outright sale
- » Join Ventures
- » Spin outs = Creation of a company by RTO to commercialize an IP
- » Start ups = Creation of company by investors from outside based on IP Assets of an RTO





## AGREEMENTS REQUIRED FOR IMPLEMENTATION

- » Participation Agreement
- » Material Transfer Agreement
- » Confidentiality Agreement
- » Contract Research Agreement
- » Disclosure Agreement
- » Consultancy Agreement

# INVENTION PROCESS



- » What are the IP related issues during concept development, proposal writing, constituting a research team and implementing the research work-plan
- » What is the importance of disclosure of an invention and should the process be managed?
- » How should these issues be incorporated in an IP policy?

# CONFLICT OF INTEREST AND COMMITMENTS

Conflict of interest refers to using employers resources for personal benefits whereas conflict of commitment is using employers time for personal benefit or for the disadvantage of students

## Other Examples

- » Where industry funds research and influence the design, conduct and reporting of research findings
- » Companies may seek to delay publication
- » RTO may tailor the licensing terms in favor of a given industry
- » Altering data in order to benefit a company when publishing results







## SUCCESS CRITERIA

- » Procure commitment from the Top
- » Appoint a drafting team- internal, external, a driver
- » Educate the stakeholders
- » Discussion of the drafts by various stakeholders
- » Public launching



# PRACTICAL EXPERIENCE

- » Do not assume that people know about the policy
- » There are several IP policies which have remained unimplemented
- » Most of the 1st generation of IP policies were done without an implementation plan
- » IP audit is a sure way of preparing a robust and implementable IP policy
- » Second generation of IP policies should focus more on commercialization
- » IP policy should provide for an organ to oversee its implementation

# Q & A



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# DESIGNING, ESTABLISHING AND MANAGING A TECHNOLOGY TRANSFER OFFICE

WIPO 2020

TOM OGADA



# CONTENT

## » Designing

1. Need for technology transfer office (Challenges of U- I linkages)
2. Solutions (bridging the gap)
3. What is required
4. Examples of TTOs in Africa
5. Benchmarking and best practice from abroad
5. Possible functions of a TTO
6. Factors to consider when designing a TTO

## » Establishing a TTO

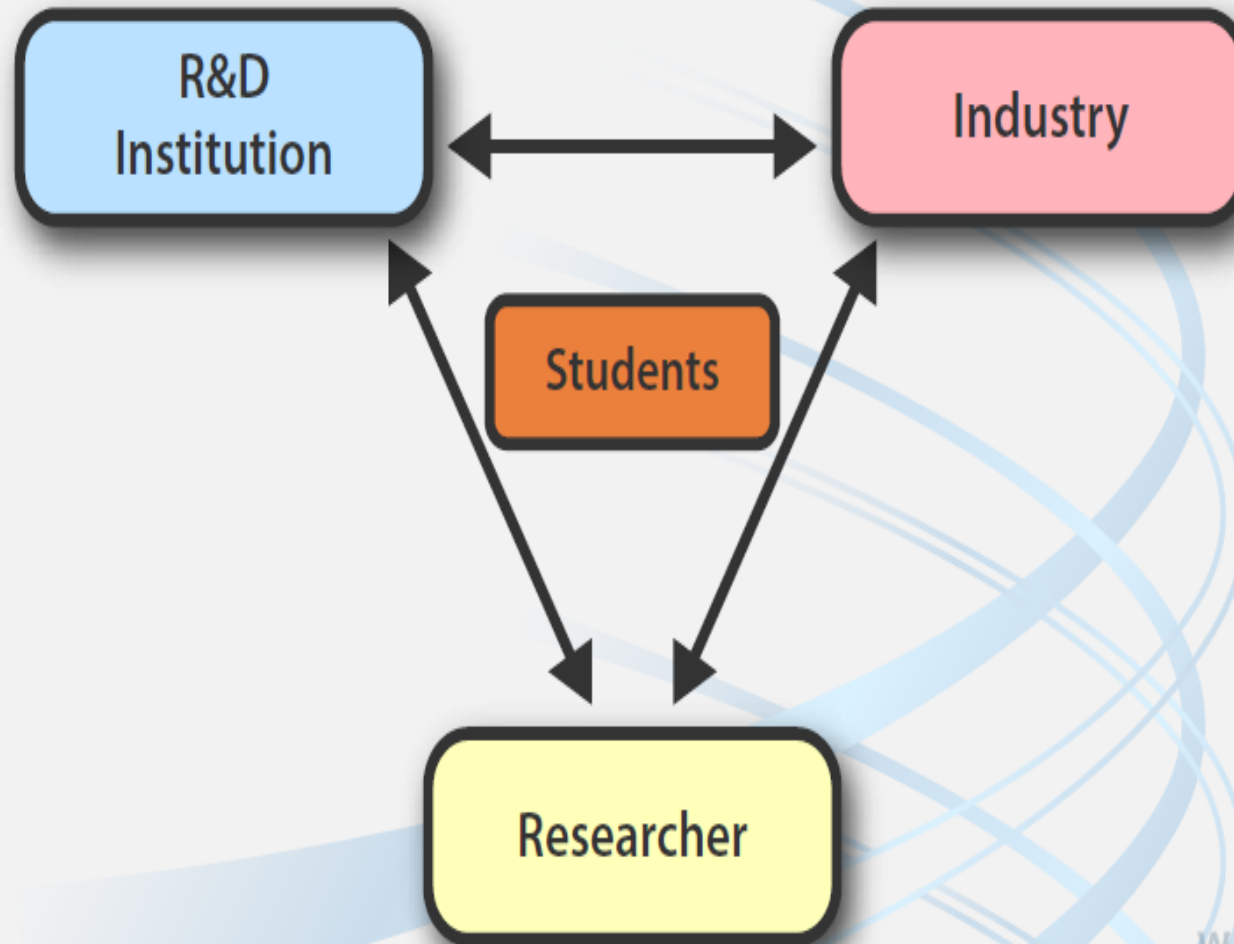
## » Managing a TTO

1

# NEED FOR TECHNOLOGY TRANSFER OFFICE



# PLAYERS IN TECHNOLOGY TRANSFER AND COMMERCIALIZATION OF R&D RESULTS





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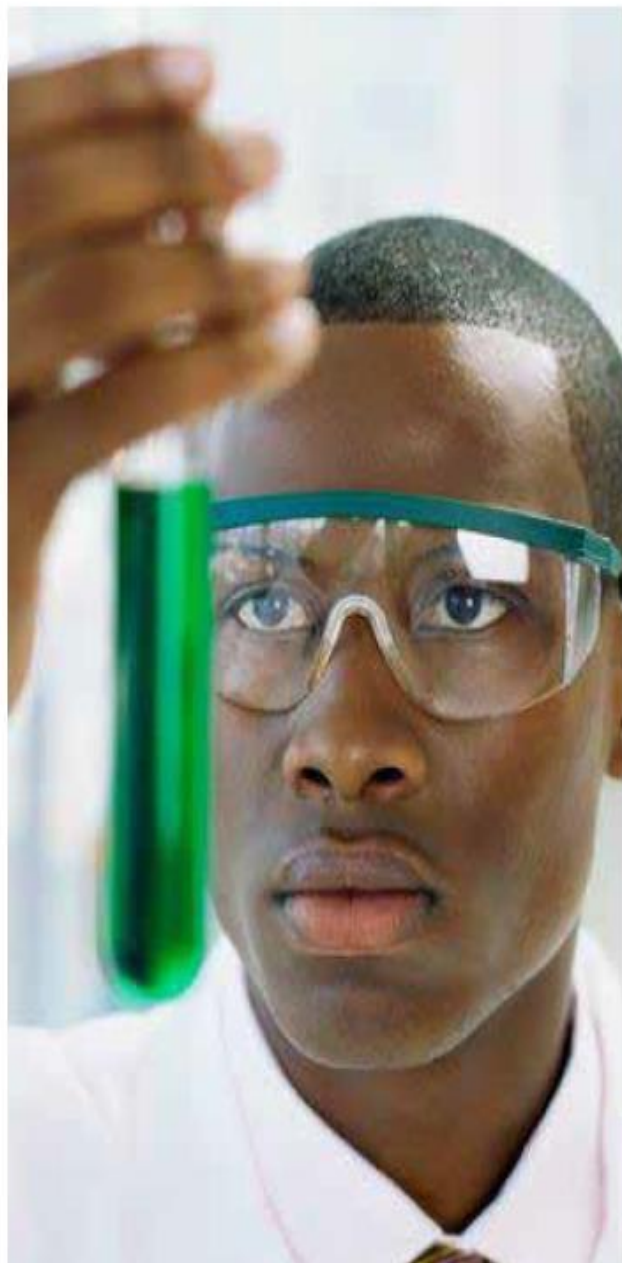
## CHALLENGES AND BARRIERS: R&D INSTITUTIONS

- » Service oriented
- » Bureaucratic
- » Weak marketing

**THE PSSP STORY**







**CHALLENGES AND BARRIERS:**

## **RESEARCHERS**

**Researchers lack legal, business,  
negotiation and marketing skills  
for technology transfer**

**THE FRENCH BEAN  
STORY**



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CHALLENGES AND BARRIERS:

# INDUSTRY

Profit driven

Industry sees RTOs to be bureaucratic,  
theoretical and slow in decision making

THE BIOFIX STORY



2

# SOLUTIONS (BRIDGING THE GAP)



# CHANGING THE PARADIGM



**Old Paradigm**

**Relationship driven by Service**

**No pains if nobody uses  
products of R&D**

*we are mandated to generate knowledge,  
it's not our business to ensure that the  
knowledge is used.*



**New Paradigm**

**Relationship driven by Business**

**Industry=Customer**

**R&D = Enterprise**

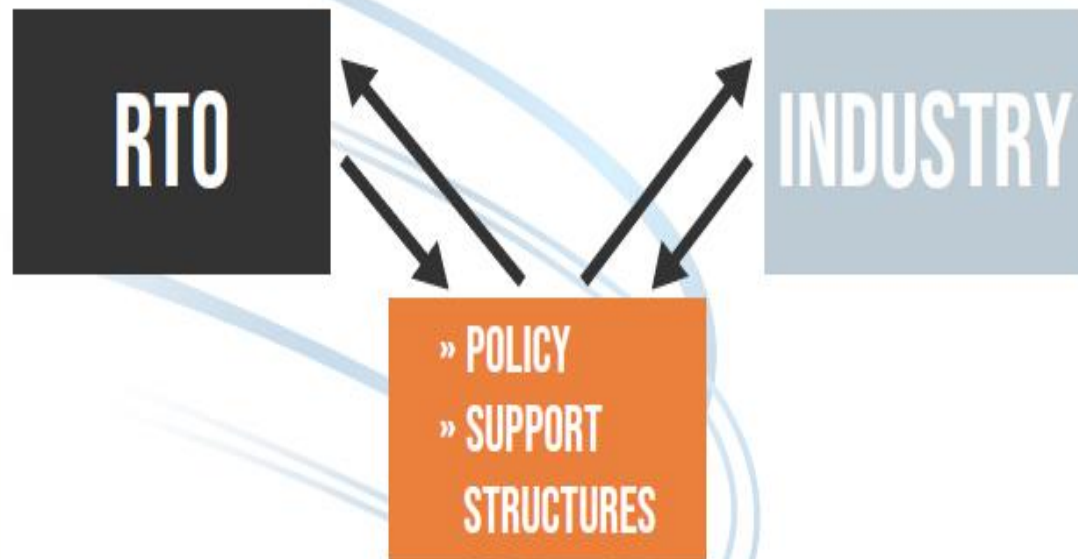
**Product = Knowledge**

**Researcher = Marketer**



# RULES

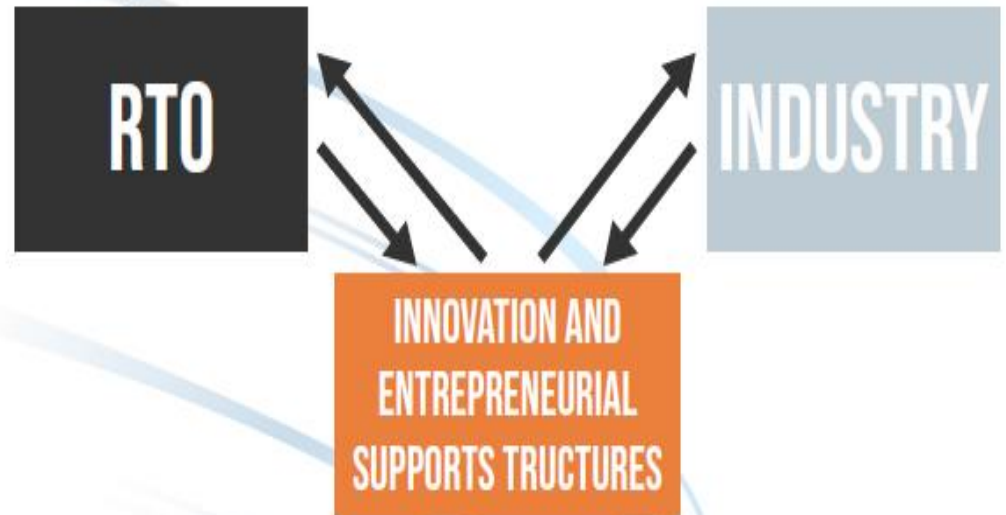
## WHAT IS REQUIRED



**Policies and Administration Units that supports and facilitates technology transfer and commercialization of R&D results**



## WHAT IS REQUIRED



Understands **RTO culture**, speaks  
the language of industry and behaves  
like a private enterprise

THE UNIVERSITY  
COMPANY STORY

# EXAMPLES OF TTOS IN AFRICA

## Africa - Progress

- » Significant progress since 2004 on TTOs
- » Several variation of support structures
  - Technology transfer office
  - IP office
  - Commercialization unit
  - Technology extension and outreach services
  - Incubation services
  - Industrial parks
  - Innovation hubs



# EXAMPLES OF TTOS IN AFRICA

## Africa - challenges

- » Clarity of mission
- » Functions
- » Funding
- » Staffing
- » location within the university structure
- » Death





# BENCHMARKING

## Australia

» Two models Internal TTOs and External companies

» Companies:

1. Generate money through consultancy, professional development programs and conference management to support technology transfer activities
2. University provides seed money to establish the company

» Internal TTO:

1. Are funded by like a department of a university.
2. The amount provided depends on the perceived importance of technology transfer activities



# BENCHMARKING

## Japan

- » TTOs are established by law
- » By 2004, 92 % of the universities were having TTOs
- » TTOs are funded initially by the government and were supposed to be self sustaining thereafter
- » TTO created companies and allowed faculty members to invest in them.
- » This facilitated creation of spin-of companies





# BENCHMARKING

## China

- » Most universities have TTOs
- » Originally supported by government
- » As China moved to market economy, TTOs changed and are currently operate as associated private companies



# BENCHMARKING

## Netherlands

- » Concept of companies most popular
- » Amsterdam University and University of Maastricht have companies



# BENCHMARKING

## ASSOCIATION OF UNIVERSITY TECHNOLOGY MANAGERS

### - USA

- » Over 3000 Technology Transfer Offices
- » University and research center licensing (2000)

1. 5198 license agreements
2. US \$ 1.3 billion income
3. 4000 start up companies formed
4. Some companies grown into large companies
5. 400,000 jobs created
6. US \$ 50 billion generated annually on sales
7. US \$ 10 billions received as tax revenue

# BENCHMARKING

CHALMERS UNIVERSITY OF TECHNOLOGY

- SWEDEN

Created 240 companies from its products of R&D during  
30 years from Its Technology Park



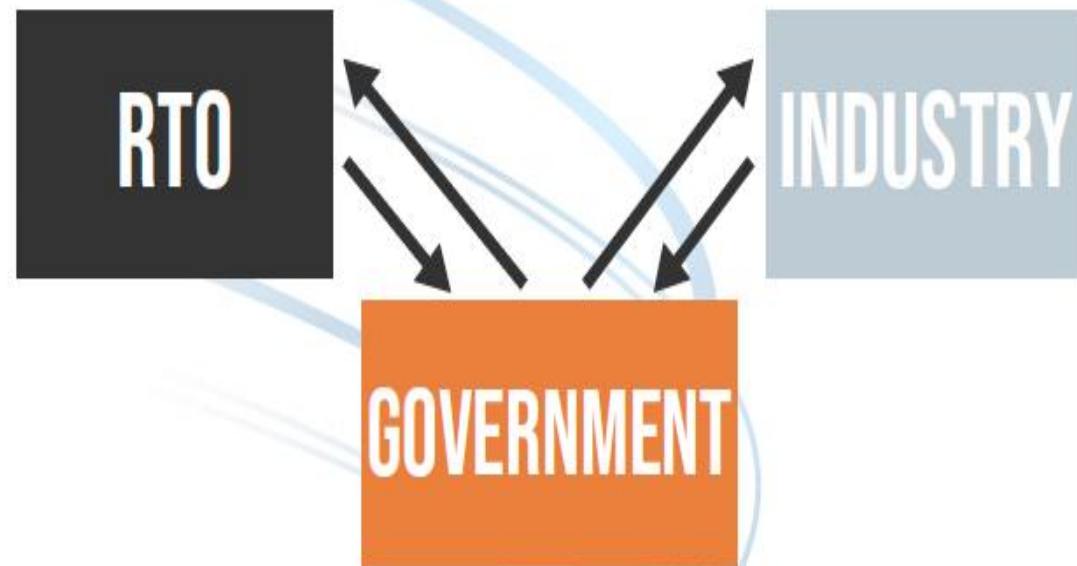
# BENCHMARKING

## BEST PRACTICES

- » TTOs are established by law (Japan)
- » TTO, created companies and allowed faculty members to invest in them
- » TTOs are initially funded by the government and thereafter allowed to run on their own
- » Universities create spin - off companies
- » Dual model of having companies and TTOs
- » Concept of companies becoming popular
- » Association of university technology managers



# WHAT **SHOULD** UNIVERSITIES **DO** ?



- » Technology Transfer Office
- » Business Incubation Services
- » University Companies
- » Industrial/Science Park
- » Create enterprises





# POSSIBLE **FUNCTIONS** OF **TECHNOLOGY** TRANSFER OFFICE IN A DEVELOPING COUNTRY

- » Promotion of IP awareness
- » Management of IP disclosure
- » Contract Research
- » Protection of R&D Results
- » Marketing of technology
- » Technology Licensing
- » managing of revenue sharing
- » Implementing IP policy



# POSSIBLE **FUNCTIONS** OF **TECHNOLOGY** TRANSFER OFFICE IN A DEVELOPING COUNTRY

**WHERE FINANCIAL SUSTAINABILITY IS KEY**

- » Management of consultancy services offered by the institutions
- » Marketing of short courses and related capacity building programs offered by the institutions
- » Management of contract research and related projects
- » Marketing other capacities of the institutions such as laboratory services
- » Any other income generating activities identified by the institution

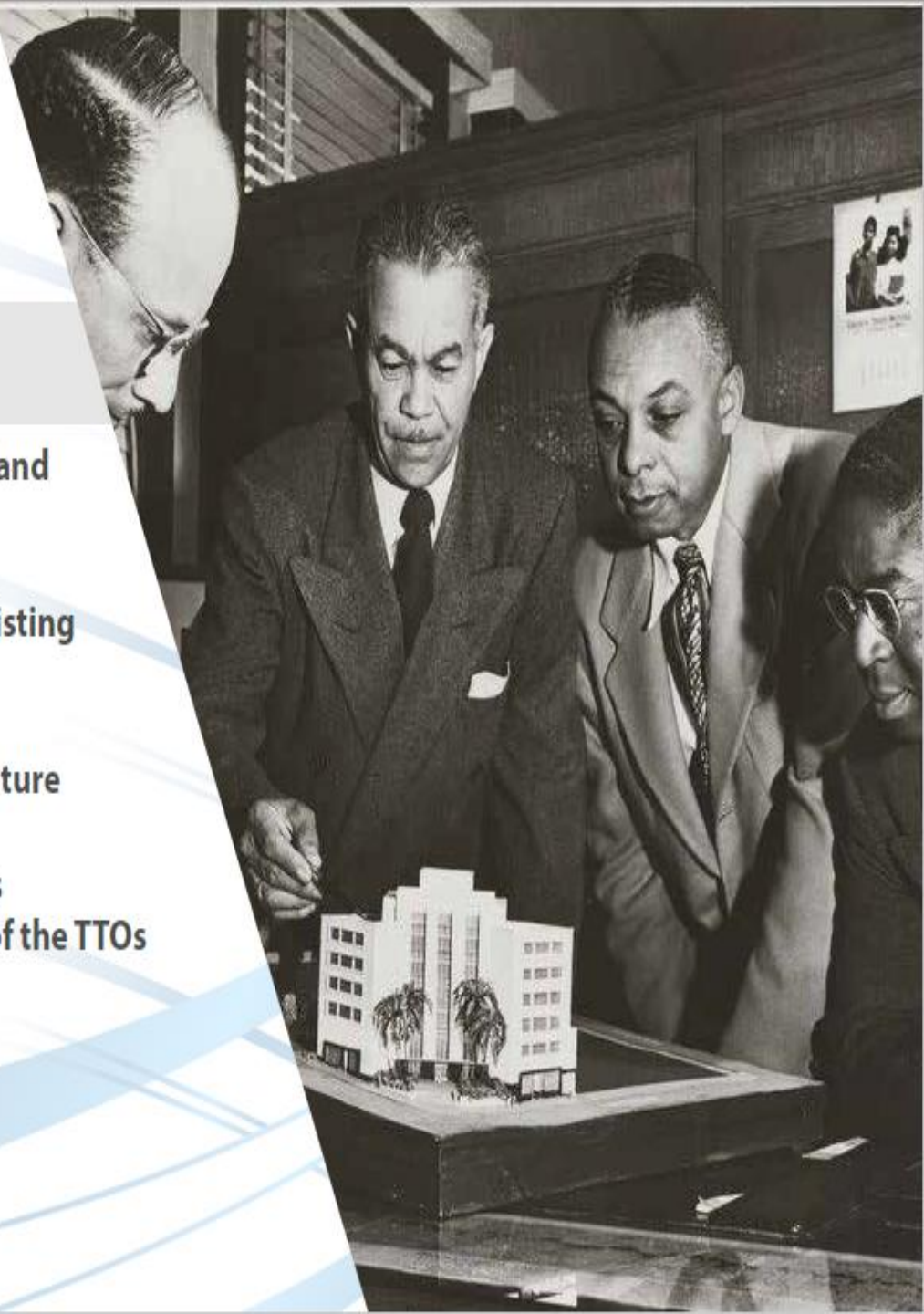


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## FACTORS TO CONSIDER WHEN DESIGNING TTOs

- » Assessment of IP management practices to understand what challenges you plan to address
- » Defining the mission of the TTOs
- » Defining the functions taking into consideration existing structures
- » Agreeing on the human resource requirement
- » Agreeing on the location within the university structure
- » Definition the outreach
- » Agreeing on financing of the operations of the TTOs
- » Agreeing on the expected performance indicators of the TTOs
- » Prepare an implementation plan







# ESTABLISHING

## IMPLEMENT THE PLAN

**Do not wait, start**

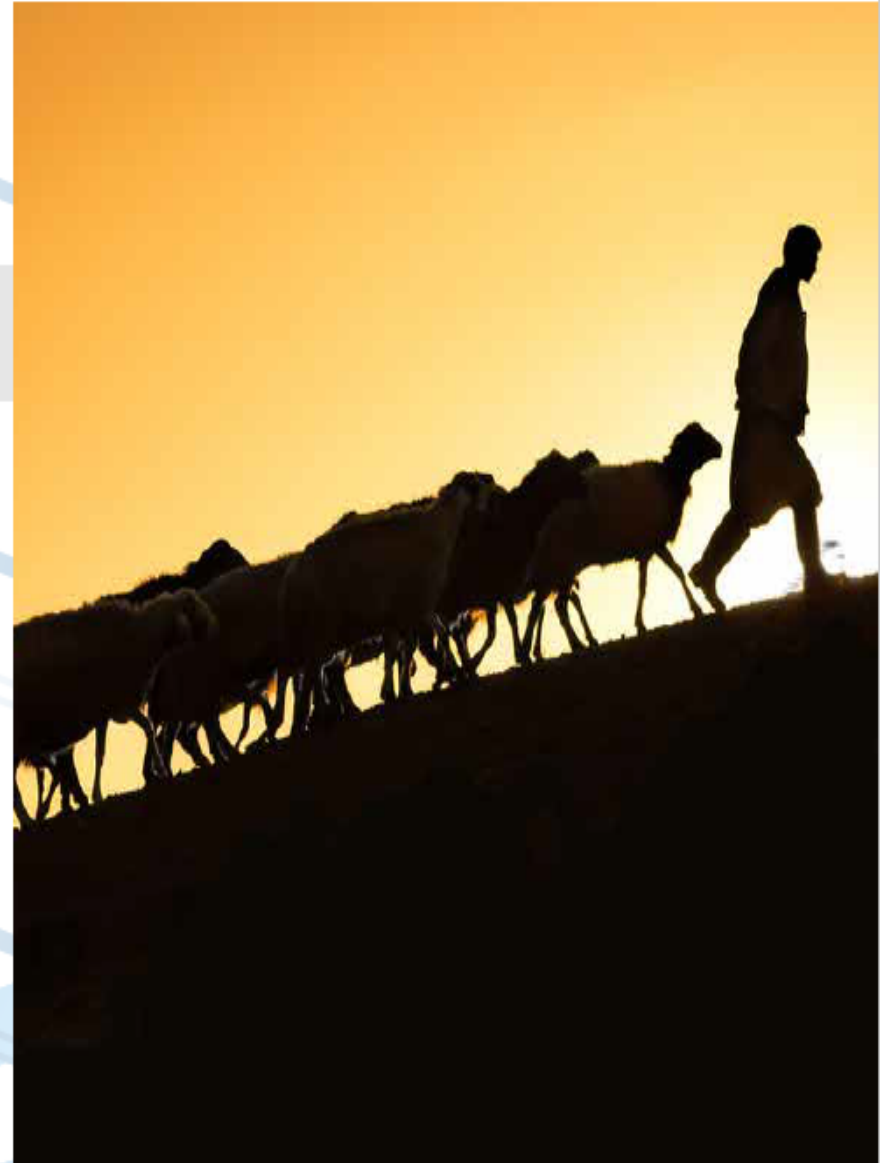
- » **Start small**
- » **Identify existing staff**
- » **Identify existing office**
- » **Identify key opinion leaders and supporters**
- » **Get attention of senior managers**





# MANAGING

- » Post successes
- » Provide private sector oriented service
- » Manage expectations
- » Manage publicity
- » Look inside! Look outside
- » Manage internal politics
- » Manage money



# Q&A



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# Thank for your attention!