WIPO-ARIPO-OAPI IP PILOT PROJECT AT JKUAT

Institutional IP Assessment

Tom Ogada and Team

Launch of the WIPO/JKUAT Project

September 16-18, 2019, Nairobi Kenya

Content

- Background of the project

- Background, Objectives and methodology of the IP Assessment

- Findings

- Strategic issues arising out of the assessment

- Recommendations

1.1: Background of the Project

- This project is being spearheaded by:

  - **The World Intellectual Property Organization – Regional Bureau for Africa**

  - **African Regional Intellectual Property Organization (ARIPO) – Harare Zimbabwe**

  - **OAPI – French Speaking countries**

- Overall objective is to strengthen the capacity of Africa universities to generate, protect and commercialise the products of R&D by providing support and capacity building for the formulation and implementation of Intellectual Property Policies

1.2: Background of the Project

- Policy support levels targets:

  - ❑ Universities without IP policies to prepare robust policies that addresses their unique situation

  - ❑ Universities that have IP policies but are in the process of revising their policy to do so in a manner that takes advantages of the best practices and lessons learned

  - ❑ Supports those universities that are implementing IP policies to get the best benefit out of the process

- WIPO Guidelines:

  - ❑ Developed through the support of African IP experts.

  - ❑ Validated and approved in December 2017.

1.3: Background of the Project

🌐 Piloting of the guidelines:

- ❑ Two year programme (2019-2020):

- ❑ A call was made for expression of interest in 2018

- ❑ Over 44 universities and research organizations applied, four from Kenya

- ❑ Five universities and research organizations competitively selected from five African countries to participate in the pilot

- ❑ Process started in 2019 with two universities, JKUAT (Kenya) and Koforidua Technical University (Ghana)

- ❑ ACTS is the Lead consultant in both

- ❑ The two universities are at different stages

2.1.: Background of the WIPO/JKUAT Project

Strong points for JKUAT

- Second generation of IP Policy. First Policy developed in 2010 which is currently at final stage of revision

- Elaborate support structure for IP management since 2014

    ❑ Directorate of Intellectual Property Management and University-Industry Liaison (DIPUIL)

    ❑ 4 staff supporting the office (Director, Patent Drafter and two Research Assistants

- JKUAT is also a centre for the WIPO Technology Information Support Centre (TISC)

- JKUAT is leading public universities in IP applications (8 patents, 10 utility models, 32 trademarks and 29 IP applications pending grants

2.2: Background of the WIPO/JKUAT Project

Weak points for JKUAT

- Rate of conversion of research outputs to IP assets is still very low despite the capacity and institutional framework in place

- Level of commercialization of IP assets is extremely low despite some successes in IP applications and grants

2.3.: Objectives of the WIPO/JKUAT project

Overall objective of the JKUAT project

The overall objective of this project is to increase the number of IP applications to a level that is commensurate with the current R&D output capacity of the university and to enhance the level of commercialization of IP assets.

2.4: Objectives of the WIPO/JKUAT project

Specific objectives of the JKUAT project

- To conduct an audit/assessment of the current IP management practices and support structures to identify gaps, challenges and areas of improvements;

- To use the information obtained to revise the existing policy and IP support structures.

- To formulate an IP actions plan with proposed interventions aimed at addressing the gaps, challenges and areas for improvement and

2.5: Activities of IP Assessment

BOX 1: AGREED ACTIVITIES FOR IP ASSESSEMENT/AUDIT
1. IP Awareness of researchers and technical staff of JKUAT,   2. IP training and education in the university,   3. Actual IP assets owned by the university   4. Identify the potential IP assets in the university,   5. Review R&D contracts and agreements,   6. Identify the bottlenecks in generation, protection and commercialization of IPRs,   7. Review the effectiveness of the current institutional framework   8. Review the incentives for innovation, protection and commercialization of IP rights   **9. Formulate and promote strategies that should be put in place to enhance generation, protection and commercialization of IP assets based on the findings of the audit to implement the policy.**

2.6: Intellectual Property Audit Team

1. Tom P M Ogada   –   Team Leader
2. Rose Mboya   –   Member
3. Mr. Jerry Omulo   –   Member

Internal
1. Eng. Benson K. Kariuki –   Director, DIPUIL
2. Mr. Fredrick O. Otswong'o   –   Staff, DIPUIL
3. Mr. Simon Njuguna   -   Staff, DIPUIL
4. Mr. Jenner Akwale   -   Staff, DIPUIL
5. Ms. Mercy Maloba   -   Intern, DIPUIL
6. Mr. Calvince Adhere   -   Staff, Corporate Communication, JKUAT
7. Mr. Richard Midigo   -   Staff, University Library, JKUAT

2.7: Assessment Methodology

The audit team used a nine-step methodology to address the ToRs

1. Preparation and submission of an Inception report

2. Review of existing documents

3. Interviews and administration of questionnaires

4. Analysis of the data collected

5. Preparation of the draft report

6. Workshop to validate the final report

7. Preparation of the final report

8. Review the existing IP Policy

9. Prepare IP Policy implementation strategy

2.8 Approach

1. The assessment approach was participatory and learning.

2. JKUAT team participated in data collection and reports preparation

3. Selected JKUAT team members were trained on techniques for data collection particularly the case of Technology mining

4. This was done for the purpose of ownership of the final product but also to ensure smooth implementation of the recommendations.

5. Nevertheless the external team retained independency in terms of interpretation of the data collected and making recommendations.

2.9: Data collection

✓ IP Audit Team reviewed documents including IP reports, IP policy, strategic plan, research policy, policy on promotion, Contracts, MoUs, and Agreements.

✓ The data collected through desk review has been complemented with field data collection, which was done through administration of questionnaires and face-to-face interviews assisted by two Research Assistants.

✓ Online administration of questionnaires was also undertaken.

✓ Finally, the Audit Team complemented the data collection through questions with face-to-face or telephone interviews.

2.10 : Units and persons interviewed

Representatives from the following units were interviewed:

1. Income Generating Units
2. University Library
3. DIPUIL
4. Inventors, Creators and Breeders
5. FOTEC
6. CPC
7. IBR
8. Heads of Departments
9. Researchers
10. Students

PART THREE

FINDINGS

FINDINGS

1. Current IP Management Structure

2. Existing IP Portfolio

3. Achievements and Challenges in IP Management by DIPUIL

4. Level of awareness of IP by JKUAT Research Community

5. IP Training and Education

6. Potential IP Assets: Technology Mining from Thesis and Dissertations

7. Potential IP Assets: Income Generating Units

8. Commercialization of IP Assets and Related Technologies

9. JKUAT enabling policies and tools

10. Review of existing contracts

1.1: Current IP Management Structure - DIPUIL

<u>Directorate of IP and University-Industry Liaison DIPUIL</u>

- Provided for in the IP policy 2010

- Started as University-Industry Liaison Office (UILO) in 2010

- UILO transformed to DIPUIL in 2014

- Has two departments IP Management Office and University-Industry Liaison Office and pursues the following functions:

  ❑ IPMO: Protection of Intellectual Property

  ❑ UILO: Commercialization of Intellectual Property rights

1.2: Current IP Management Structure - DIPUIL

Reporting and coordination role of DIPUIL

- Reports to the office of Vice Chancellor

- Relates to various JKUAT organs

  - Directorate of Research and Production

  - Directorate of Innovation and Technology Transfer

  - University Legal Office

  - Industrial and Technology Park

1.3 Current IP Management Structure - DIPUIL

Staffing

- Director: Senior Lecturer. Has good training and training on IP management

- Patent Drafting Officer: a registered patent agent and a former patent examiner. Has MSc in biochemistry

- Research Assistant, BSc electronic and computer engineering. Currently pursuing MSc in IP through the support of WIPO

- Graduate Assistant, BSc biomechanical engineering

- Staff lacks skills in IP valuation, IP audit, technology licensing and negotiations
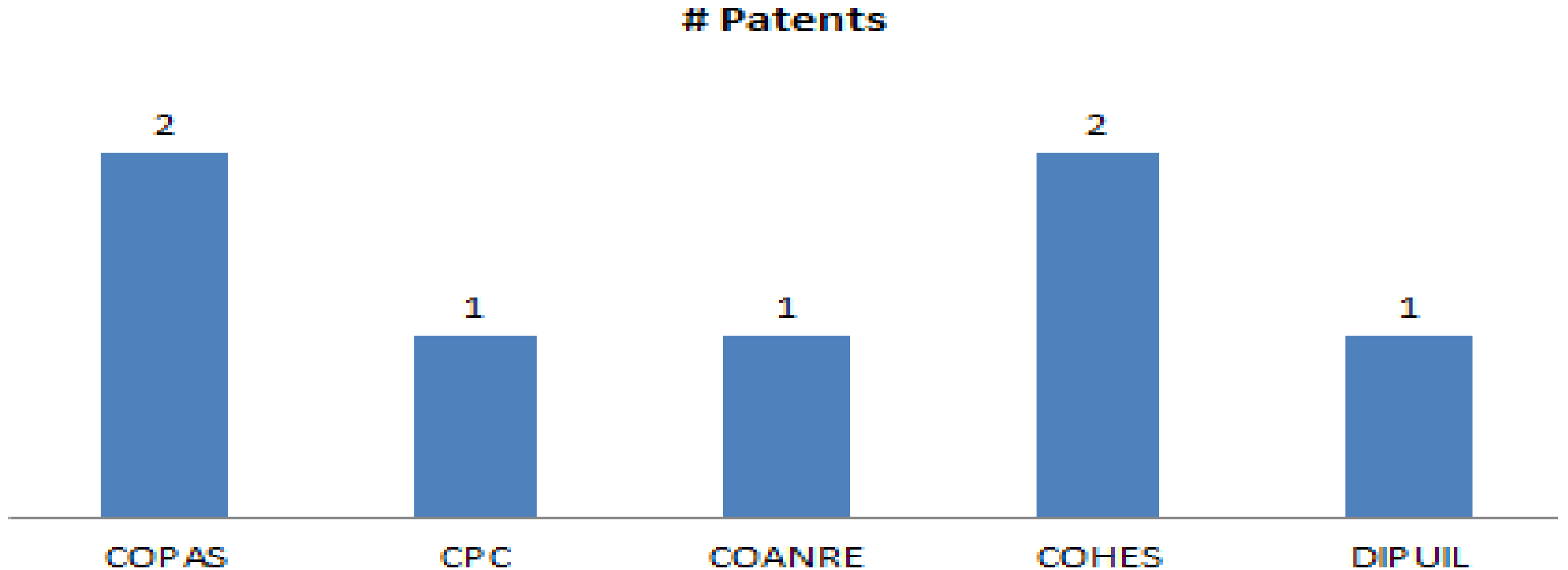
2.1: Current JKUAT's IP Portfolio

JKUAT has a portfolio of 83 IP Assets, 57 grants and 26 pending

S. No.	IP Category	Number		
		IP Applications	IP Grants	Total
1.	Patents	19	7	26
2.	Utility Models	6	15	21
3.	Industrial Designs	-	1	1
4.	Trademarks	1	31	32
5.	Registered Copyright	-	3	3
6	Plant Breeders' Rights	-	-	-
	Total	**26**	**57**	**83**

2.2: Current JKUAT IP Portfolio

Patent Grants - 7

Patents

COPAS	CPC	COANRE	COHES	DIPUIL
2	1	1	2	1

2.3: Current JKUAT IP Portfolio

Granted Patent and UM By Field of Technology

S. No	Field of Technology	Number of Patents	Number of UM	Total
1	Engineering	1	5	7
2	Hygiene and Health Sciences	2	1	3
3	Food, Agriculture & Livestock	3	5	8
4	Environment & Waste Management		1	1
5	ICT		2	2
6	Social Sciences		1	1
	Total	8	15	23

2.4: Current JKUAT IP Portfolio

Patent and UM Applications By Field of Technology

S. No	Field of Technology	Number of Patent Applications	Number of UM Applications	Total
1	Engineering	7	1	8
2	Hygiene and Health Sciences	5	1	6
3	Food, Agriculture & Livestock	3		3
4	Environment & Waste Management	5		5
5	ICT		4	4
6	Social Sciences		1	1
	Total	20	7	27

3.1: Achievements of DIPUIL

Increase in JKUAT's IP Portfolio

The JKUAT's IP assets increased from 28 in 2014 (when DIPUIL was established) to 83 in 2018 Table 2.2:

a. Patent application increased from 4 to 30

b. Applications for utility models increased from 1 to 23

c. Trademarks applications increased from 23 to 32

d. Industrial design from 0 to 1
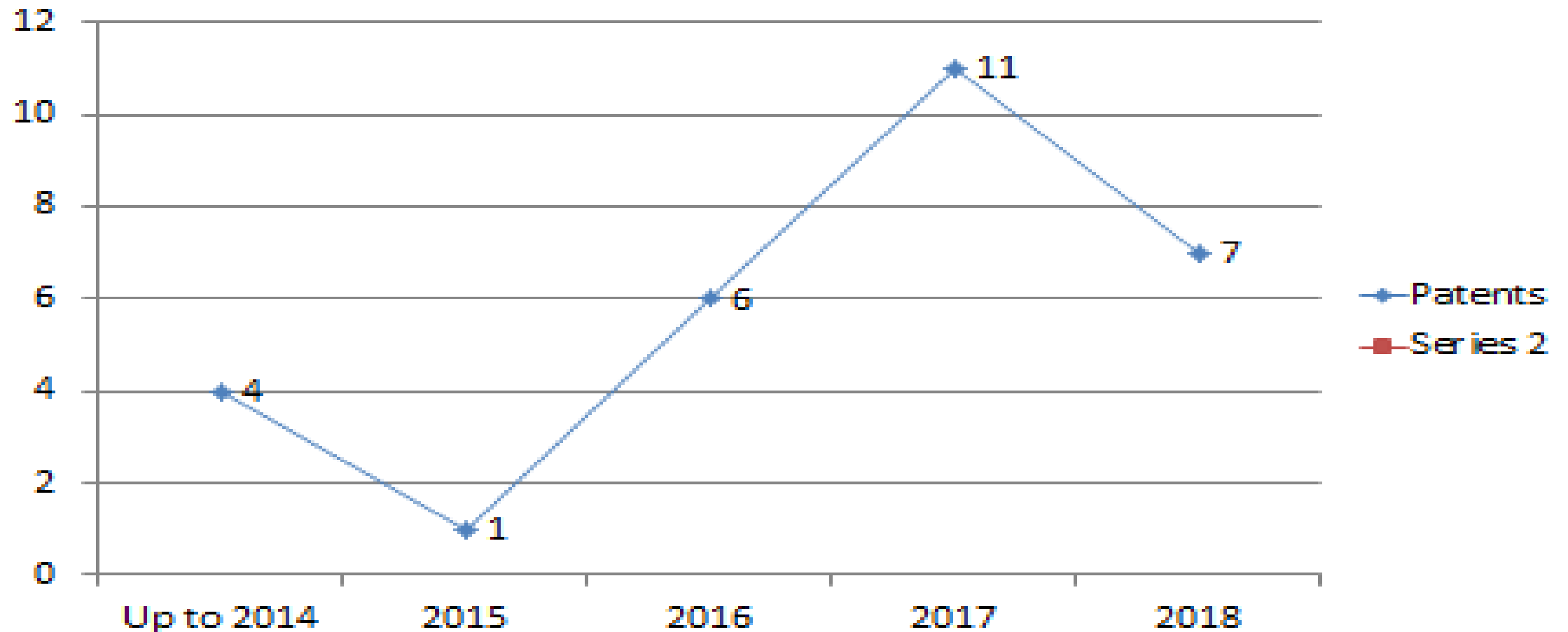
e. Copyright application increased from 0 to 3.

3.2: Achievements of DIPUIL

Annual JKUAT IP Filings

NO	IPRs	Up to 2014	2015	2016	2017	2018	Total
1	Patents	4	2	6	7	7	26
2	Utility Models	1	0	5	10	5	21
3	Trademarks	23	1	3	3	2	32
4	Industrial Designs	0	0	1	0	0	1
5	Copyright	0	0	2	1	0	3
	Total	28	3	17	21	14	83

3.3: Achievements of DIPUIL

JKUAT Patent Filing Trend

3.4: Achievements of DIPUIL

Applications for grants of patents and utility models from various university 1993-2018

JKUAT	45
Moi University	22
University of Nairobi	17
Kenyatta University	14
Egerton University	10
Technical University of Kenya	5
Others	12
Total	**125**

Table 2.3a Applications for Patents Grants

JKUAT	37
Kenyatta University	29
Technical University of Mombasa	18
University of Nairobi	7
Technical University of Kenya	3
Others	3
Total	**97**

Table 2.3b Applications for utility models

3.5: Achievement of DIPUIL

IP Training of JKUAT's Staff and students

❑ Since 2015 DIPUIL has trained 1397 students and staff of basic aspects of IP.

❑ Furthermore, the number of people trained has been increasing over the years.

❑ This has helped to create some level of awareness in the university.

2015: 28
2016: 143
2017: 173
2018: 410
2019: 635
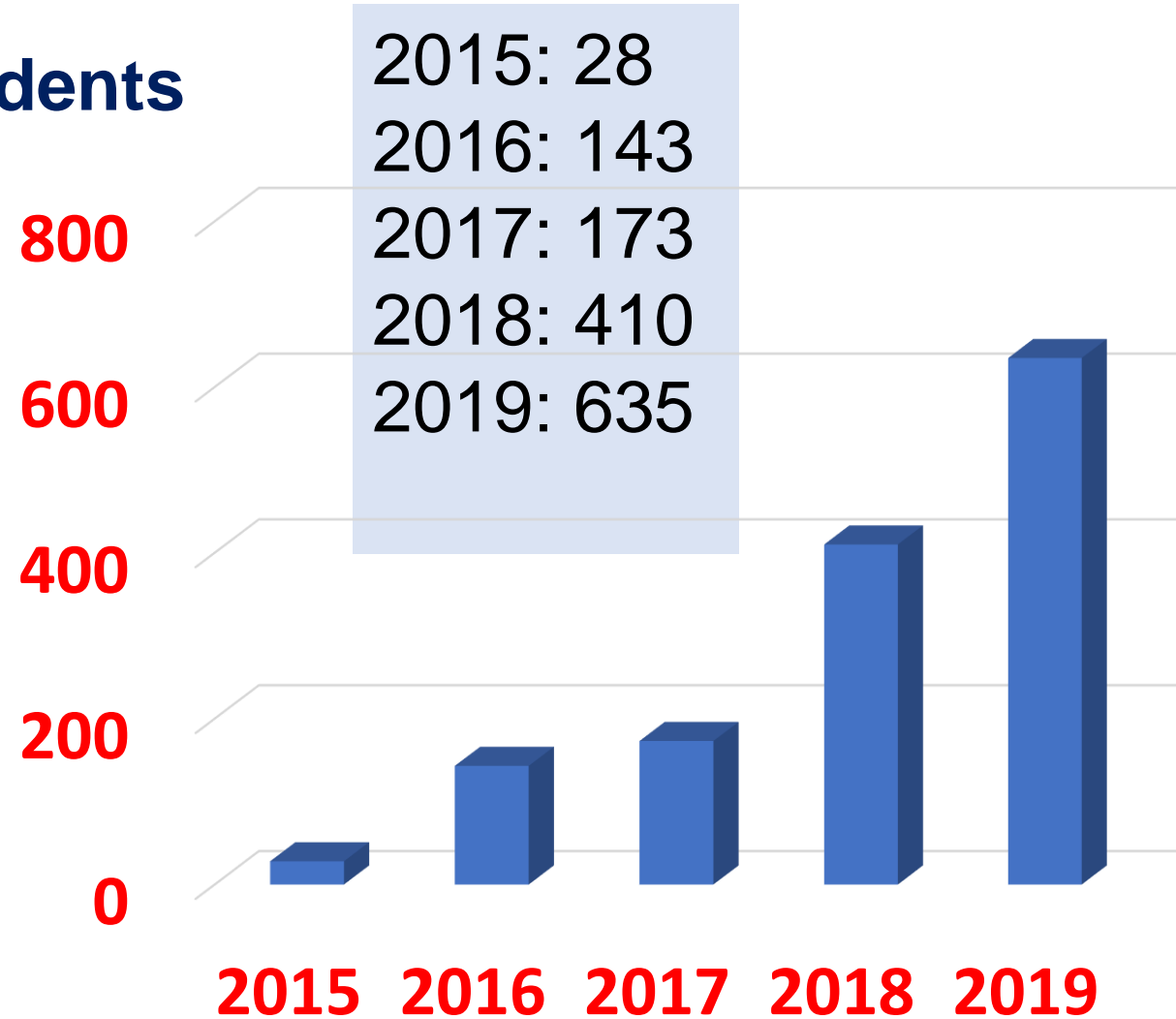
4.1: Challenges of DIPUIL

✓ **Low level of IP awareness:** One of the main challenges for creation and protection of IP rights.

✓ **Limited Financial Resources:** University management has been supporting the office by allocating budget for day to day running of the office. However, the revised IP policy, office structure and roles, more resources will be required to enable DIPUIL to effectively discharge its mandate

✓ **Low level of commercialization:** Commercialization has remained to be a big challenge within the university. Even the few IP that have been commercialized have not been done in a coordinated manner. There are several players involved but with very little results.

4.2: Challenges of DIPUIL

✓**Limited capacity to police IP rights against infringements:** Whereas to date the university has done very well by pay statutory fee for the maintenance of protected IP, however, policing against infringement is a capacity that has been lacking that need to be strengthened.

✓**Incentives and benefit sharing:** Whereas the IP policy 2010 provides guidelines for benefit sharing, this has not been properly implemented or publicized.
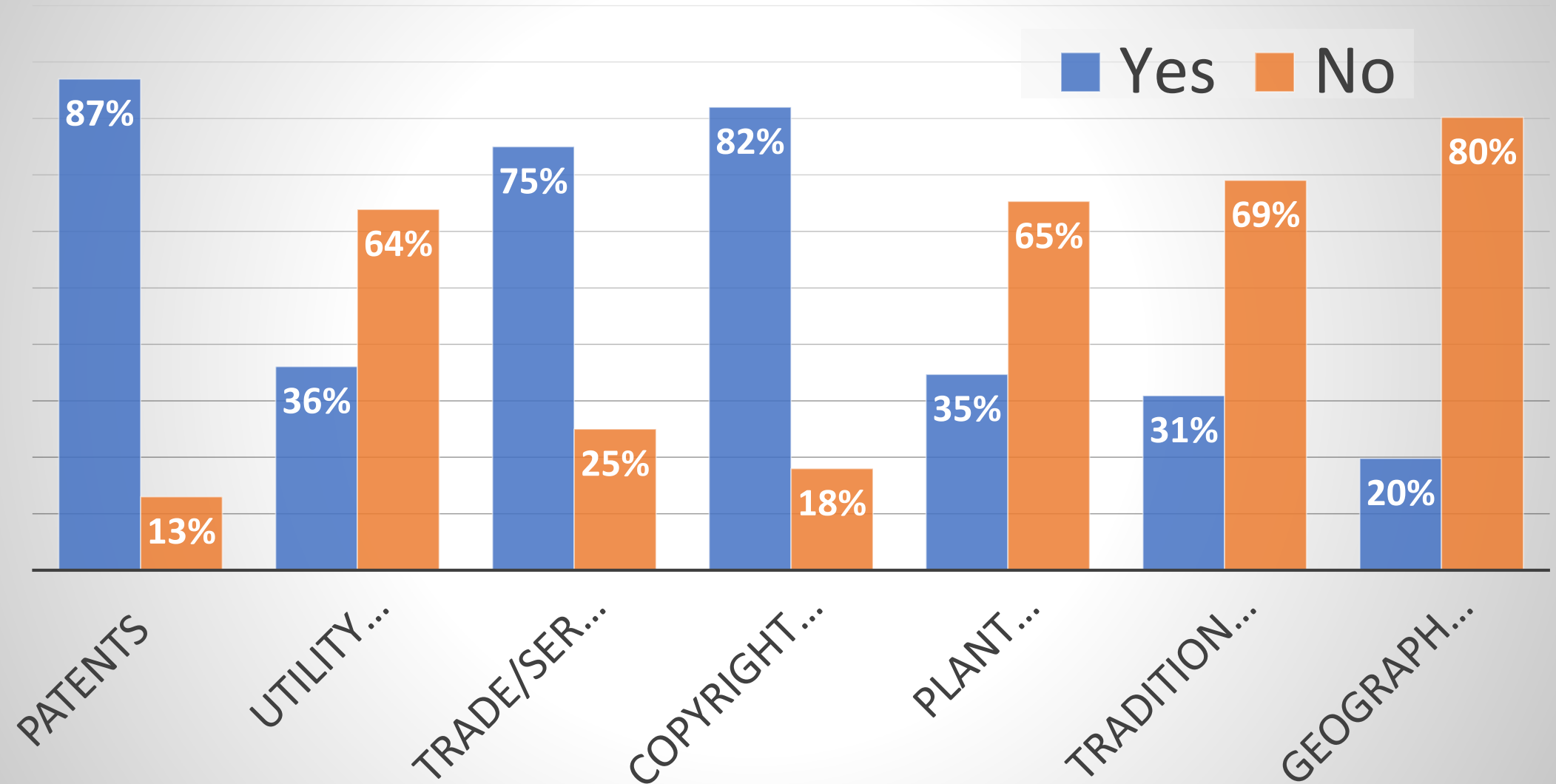
4.3: Challenges of DIPUIL

✓ **Staffing and Office space: The implementation of the revised DIPUIL structure will require** more staff, adequate office space; furniture; and equipment. Eventually a vehicle to ease mobility will be required. This will call for additional investment by the university.

✓ **Low awareness of DIPUIL:** As per the online survey, the level of awareness of the DIPUIL by university stakeholders low. 58 % of the respondents are aware of its existence. There is need for more publicity.

✓ **Low awareness of the IP Policy**: Similarly only 38 % of the respondents are aware of the existence of the IP Policy; 21 % having read it and only 8 % have used it. This too calls for efforts to improve.

5.1: Level of IP Awareness of JKUAT Community

a. Only 15 % are having IP awareness, while 85 % are not aware

b. Out of the 15 %, the majority (more than 65 %) are aware of patents, utility models, trademarks and copyrights while less than 35 % are aware of plant breeders' rights, TK and GIs.

c. 70 % of those who are aware about intellectual property are not aware what **utility model** protects and 49 % do not consider it important for research, and yet this is a very important intellectual property right for a technology-oriented university like JKUAT.

d. Similarly, 65 % do not know what **plant breeders right protects**, and yet this is a very important IP for agriculture-based faculties.
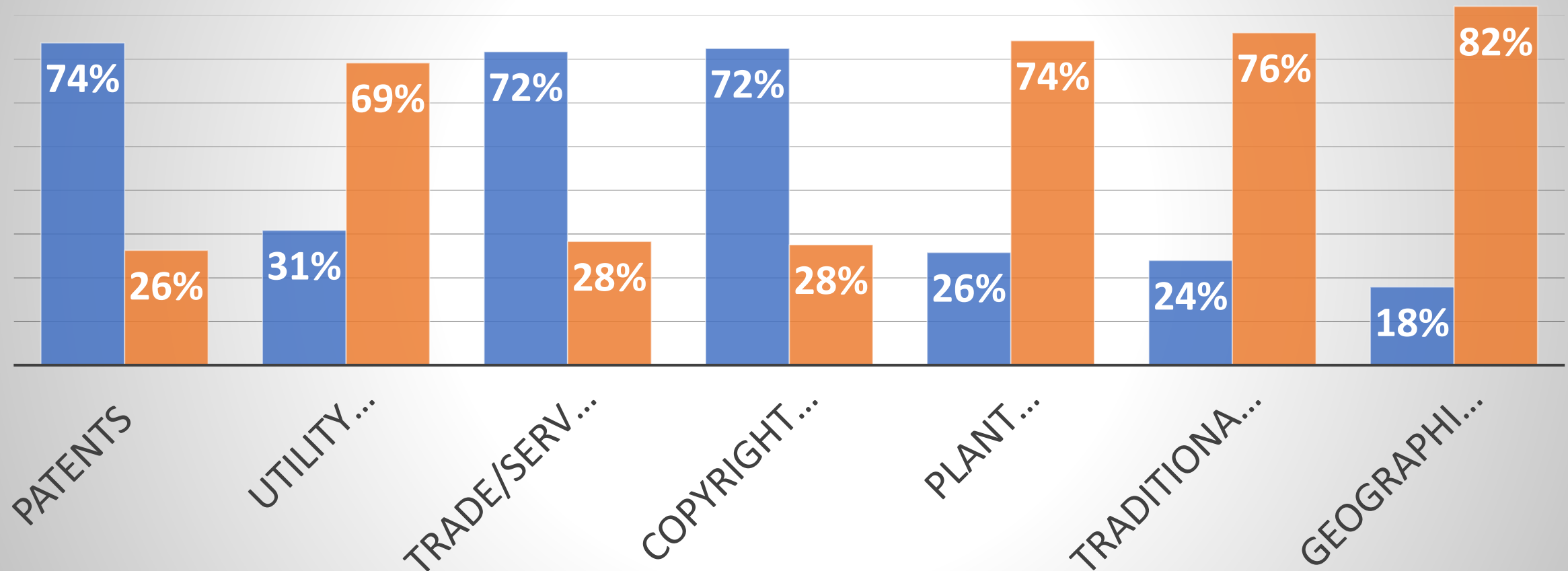
5: Level of IP Awareness of JKUAT Community

AWARENESS OF IP RIGHTS

Legend: ■ Yes ■ No

Category	Yes	No
PATENTS	87%	13%
UTILITY...	36%	64%
TRADE/SER...	75%	25%
COPYRIGHT...	82%	18%
PLANT...	35%	65%
TRADITION...	31%	69%
GEOGRAPH...	20%	80%

5: Level of IP Awareness of JKUAT Community

AWARENESS OF WHAT IS PROTECTED IN

■ Yes ■ No

	Yes	No
PATENTS	74%	26%
UTILITY...	31%	69%
TRADE/SERV...	72%	28%
COPYRIGHT...	72%	28%
PLANT...	26%	74%
TRADITIONA...	24%	76%
GEOGRAPHI...	18%	82%

5: Level of IP Awareness of JKUAT Community
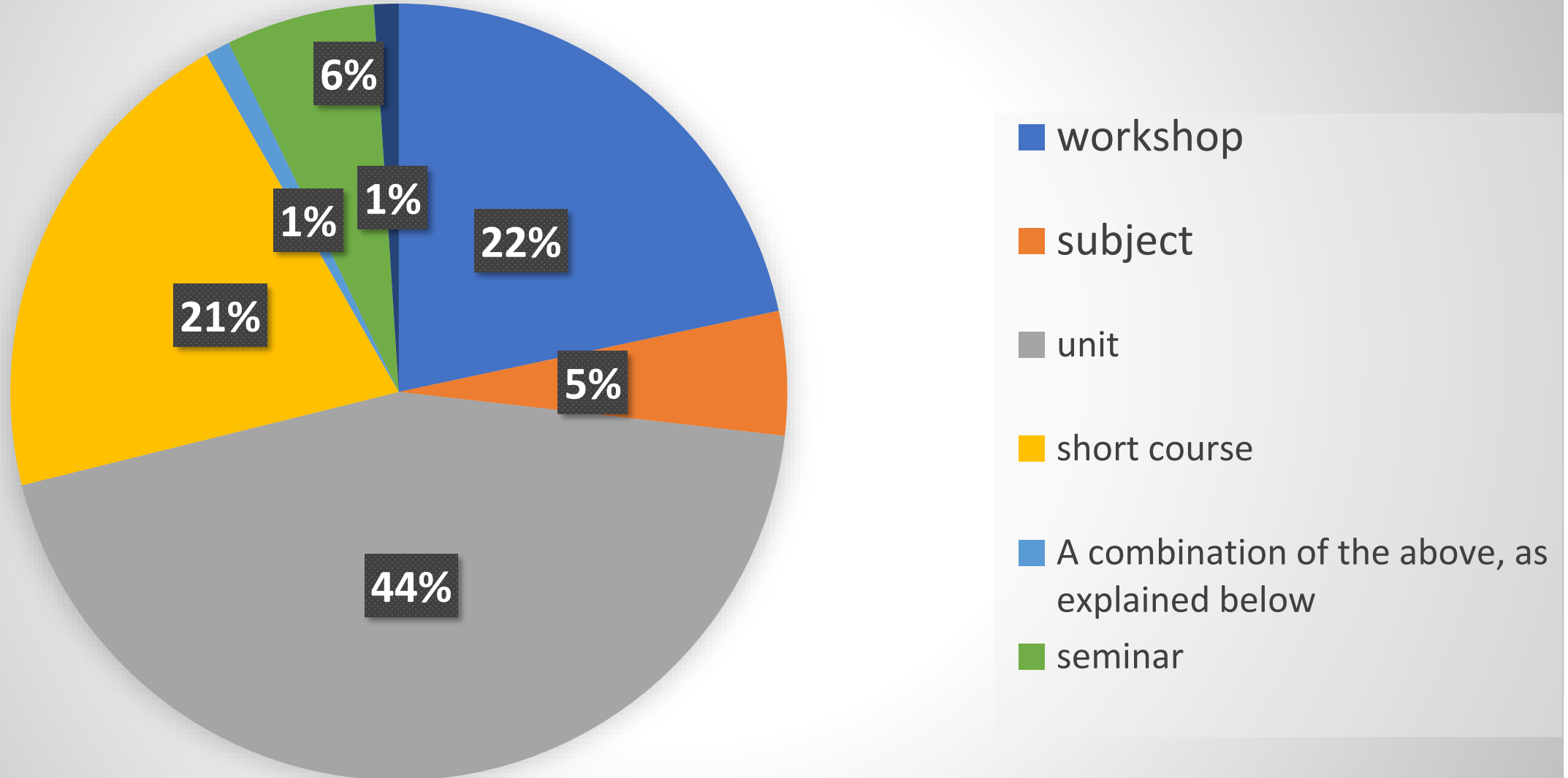

IMPORTANCE OF IPR IN RESEARCH
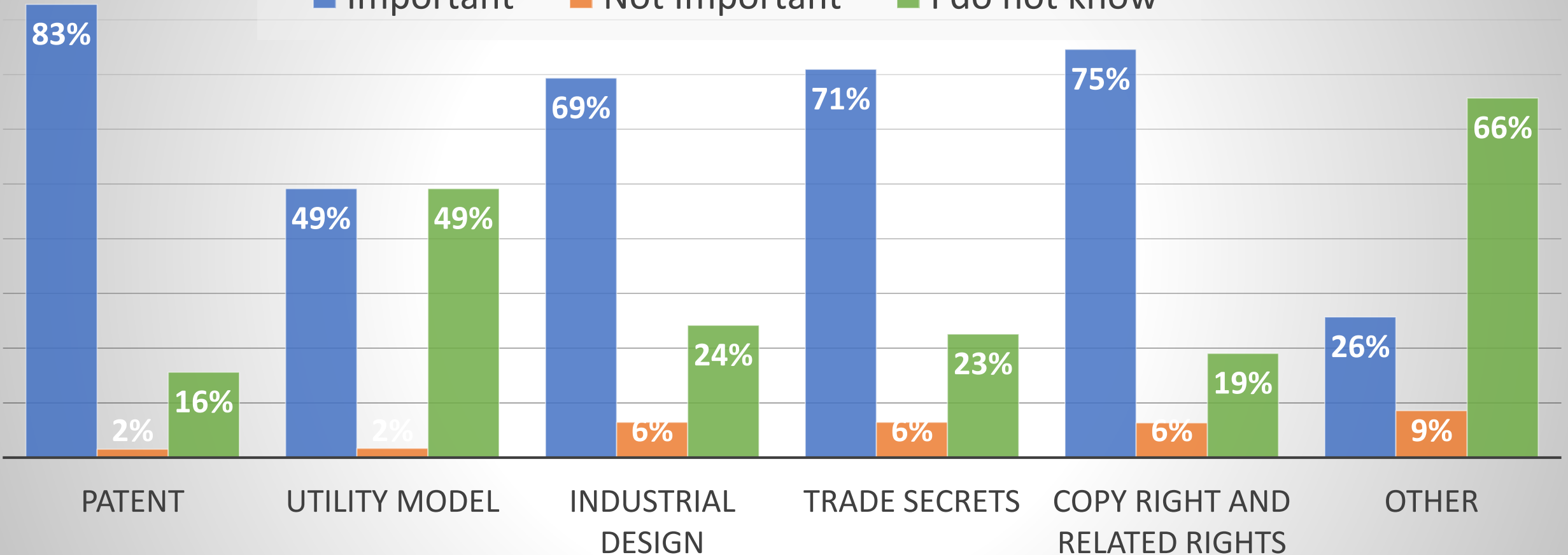
6.1: IP Training and Education in JKUAT Community

✓ Out of the respondents who are aware of IP:

a)49 % have had training on IP

b) 28 % indicated that their departments offer training on IP in one way or the other.

c) 97 % feel that IP training is important for the university, with majority preferring face to face training mode

✓ IP training is offered include computing, information technology, botany, zoology, mechanical engineering, and entrepreneurship, technology and leadership. It is mostly offered as a topic in a unit.

✓ School of Law as a comprehensive IP training program

6.2: IP Training and Education in JKUAT Community

FORMS IN WHICH IP TRAINING AND EDUCATION OFFERED

- workshop — 22%
- subject — 5%
- unit — 44%
- short course — 21%
- A combination of the above, as explained below — 1%
- seminar — 6%

6.3: IP Training and Education in JKUAT Community

BEST MODE OF OFFERING IP TRAINING

- face to face — 74%
- online — 17%
- take away materials — 4%
- distance learning — 3%
- hybrid — 1%
- taught — 1%
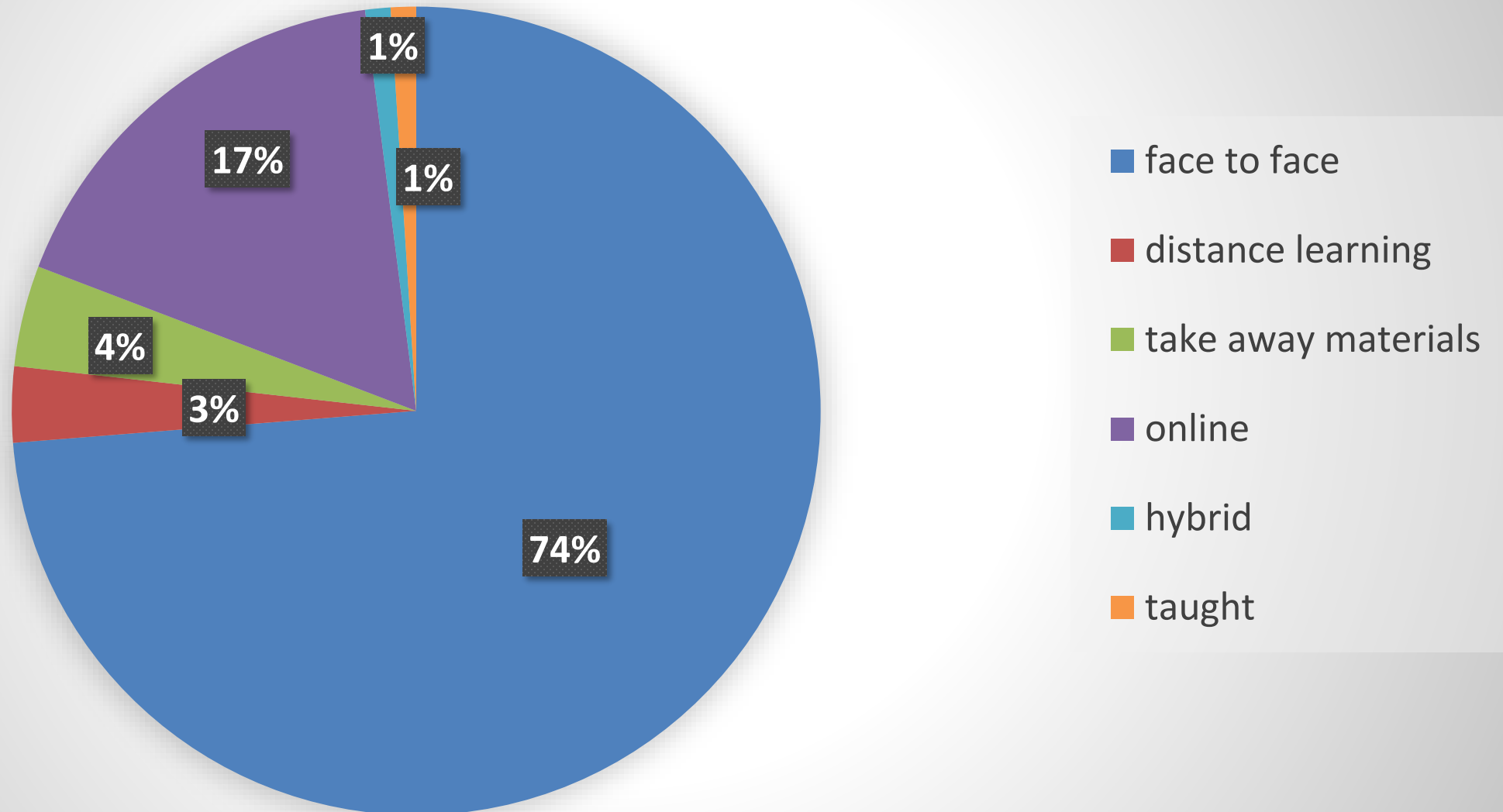
7.1: Screening for potential IP assets through patent and technology mining

A technology mining exercise was undertaken to identify potential technologies which may have been lost due to non-screening of theses and dissertations. This has been done by reviewing research outputs of:

a. Completed MSc and PhD research thesis submitted to the University Library
b. Completed Research Projects, published and unpublished
c. Contract research project

Specifically, the technology mining exercise looked for; technologies, processes and products mining from research theses and dissertations; research projects and publications; as well as collaborative research reports. The audit Team reviewed about 1000 out of 2240 publications

7.2: Screening of publications for potential IP assets

Distribution of publications

S. No.	College	Research Papers	Thesis/Dissertations
1	COETEC		219
2	COHRED		769
3	COPAS		304
4	COHES		494
5	COANRE		137
6	IEET		58
7	SABS		33
8	PAUSTI		172
9	IBR		54
	Total	**1677**	**2240**

7.3: Patent and Technology Mining

Potential technologies identified

S. No.	College	Theses Screened	Stage 1	Stage 2	Final stage
1	COETEC and SABS	101	58	23	18
2	COHES	100	43	18	9
3	IBR	54	29	20	18
4	COPAS				
5	COHRED	769	0	0	0
6	COANRE	50	28	17	9
	Total	**1,074**	**158**	**78**	**54**

8: IGUs and Research Units with potential for IP

i. Food Technology Centre,
ii. Chemistry Production Centre
iii. Engineering Workshops
iv. University Farm
v. JKUATES
vi. JKUAT Industrial Park
vii. Institute of Biotechnology Research
viii. ALISO
ix. ICT Computer Lab

8.1: Food Technology Centre

❑ The FOTEC products are certified by the Kenya Bureau of Standards and are available for sale to the public.

❑ These include: Yoghurt –Strawberry and Vanilla; Ready- to-drink juices (mango, beetroot cordial, carrot cordial, carrot- pineapple cordial, etc.); Jams (marmalade, mixed fruit); Sauces (Chili , tomato); Concentrated juices (passion, mango, pineapple, lemon); Natural Honey; Uji bora; Baked products (bread, scones, buns, cakes, doughnuts); and Meat and fish products (sausages, bacon, meat loaf, smoked products).

❑ **Some of these products have trademarks whereas some are commercialized to small scale can be up-scaled**

8.2: Institute of Biotechnology

a) Tissue culture banana, Aloe Vera, Jatropha and rose plantlets that are free of diseases and have high yields.

b) Organic farming practices- development of Vermiculture compost and its benefits

c) Oyster and button mushroom production and other useful plantlets.

d) Bioprospecting and characterization of microbes with industrial potential.

All these have potential for IP protection and commercialization

8.4: JKUATES

- ✓ Training (entrepreneurship, ICT, and production processes)
- ✓ Research & development and proof of concept
- ✓ Baseline surveys
- ✓ Enterprise development services
- ✓ Technology transfer
- ✓ Business process outsourcing
- ✓ Biotechnology products
- ✓ Software development
- ✓ Computerization and digitization
- ✓ Architectural and engineering design
- ✓ Consultancy

ALL THESE ACTIVITIES HAVE POTENTIAL FOR IP GENERATION

8.5: JKUATE Industrial and Technology Park

- ✓ JKUAT Industrial and Technology Park Ltd (NITP) is the key vehicle providing infrastructure that supports growth into SME's.
- ✓ Its aim is to facilitate the transformation of innovations and research findings into sustainable enterprises by availing an incubation process.
- ✓ The Parks is important vehicles through which the growth of Kenya's manufacturing sector can be fast-tracked.
- ✓ The Park is a JKUAT/GoK/Private Sector initiative. It provides a location in which the government, private sector and universities cooperate to foster collaboration and innovation.

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8.6: Challenges

- ✓ Inadequate skills of the staff for identification of potential IP assets
- ✓ Lack tailor made policies for IP management
- ✓ Lacks or inadequate structure to manage IP

9.1: Commercialization of IP rights

Despite having several units involved in commercialization, the actual level of commercialization and its impact has remained low.

a. Out of the 54 granted IP rights, only four trademarks are commercialized.

b. None of the patent and utility model grants has been commercialized.

c. None of the pending grants have been commercialized,

d. Whereas some Kenyan universities have had success in commercialization of the plant breeders' rights due to their huge demand and easier to commercialize that has not been the case in JKUAT

9.2: Commercialization of IP rights

a. Success stories have not been adequately documented and publicized internally to provide motivation to other researchers (inventors, breeders, innovators). Elsewhere it has been asked – *show me a professor millionaire professor from IP commercialization*

b. Inadequate implementation of the provision of benefit sharing in the IP policy 2010. Out of the commercialized four IP assets, it is not clear if the benefit sharing has not been in accordance with the existing IP policy.

c. Currently commercialization is undertaken in uncoordinated manner in the university.

9.3: Commercialization of IP rights

a. Several do undertake commercialization without due consideration of intellectual property. Best practice shows that intellectual property rights is a requisite for successful commercialization. As a matter of facts, most industries will be reluctant to take up products or services which are not protected through IP.

b. Currently the university does not have a university-wide accepted procedure for commercialization

c. Whereas the current research policy (2017) provides that – *findings which have commercial potential, guidance shall be provided by JKUAT Intellectual Property Policy*. This provision has not been adhered to by the various units

d. The skills required for effective commercialization (legal, business, IP and technology Transfer) cannot be provided cost effectively in all the units involved in commercialization. Best practices show that these skills are better provided centrally to serve all the organization,

9.4: Units mandated to undertake commercialization of IPR

1. DIPUIL

2. Institute of Biotechnology Research

3. JKUATES

4. JKUAT Industrial Park Limited

5. PAUSTI through its Innovation Centre for Product Development and Commercialization (iPDeC).

6. RPE through Extension and Technology Transfer Directorate

10: Summary of areas that will require attention

The assessment has established the following areas that will require attention

1. Low level of IP awareness

2. IP training particularly to undergraduate and post-graduate students

3. Loss of potential IP assets due to lack of screening of research publications

4. Lack of skills to identify potential IP in IGUs

5. Lack of customized policies to support IP management at IGUs

6. Low level of commercialization

10: Summary of areas that will require attention

The assessment has established the following areas that will require attention

7. Weak coordination of commercialization process

8. Lack of university wide accepted commercialization procedures

9. Inadequate skills to support generation, protection and commercialization of IP assets

10. Low visibility of DIPUIL

11. Staffing and resourcing DIPUIL

THANKS