



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Department of Research and Innovation

Departement Navorsing en Innovasie
Kgoro ya Dinyakišišo le Tšweletšopele

2019

ANNUAL REPORT

TECHNOLOGY TRANSFER OFFICE



UP TECHNOLOGY TRANSFER OFFICE

A SNAPSHOT OF UP'S TTO

The University of Pretoria strives to be a university that is known for its international competitiveness and local relevance through continuous innovation. UP's Technology Transfer Office (TTO) aims to ensure that its internal and external stakeholders, as well as its clients, receive an elevated level of service. The TTO is committed to contributing towards economic growth within South Africa, with positive social impact within the country and beyond its borders.

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PUBLICATION INFORMATION

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LOOKING BACK AT 2019

During 2019, the TTO received 15 invention disclosures and filed 25 patent applications and two trademark applications (one that was filed in the USA and the other in South Africa). A number of meetings took place with researchers, some of which resulted in new invention disclosures.

In 2019, two induction workshops and three intellectual property (IP) and research commercialisation workshops took place to increase the level of awareness of IP protection and commercialisation among the University's research community. For the first time, the TTO organised a benefit-sharing event to honour inventors whose technologies had been commercialised, and those whose patents had been granted.

The TTO held meetings with external stakeholders to try and understand their needs and establish good relationships as successful and meaningful technology transfer is demand driven. Only one license agreement was signed, while four were still under negotiation.

Internal stakeholders continue to be an important target group of the TTO. In order to accelerate a culture change and increase the number of invention disclosures, the TTO Manager continued to visit researchers in the faculties of Veterinary Science, Natural and Agricultural Sciences, and Engineering, the Built Environment and Information Technology. Her point of departure was to encourage them to transfer their research from the University's laboratories to the broader society.

Continued positive relations with researchers have been crucial to the growth of the TTO and have improved the overall quality of the disclosures it receives. A number of researchers entered innovation competitions and won innovation awards. Prof Namrita Lall, a researcher in the Faculty of Natural and Agricultural Sciences, received the NIPMO IP Creator Award.

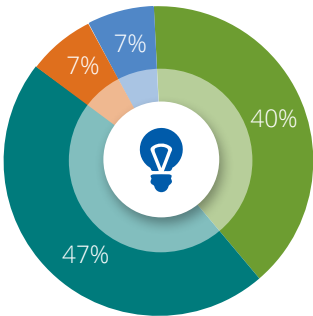
In 2019, the TTO saw an increase in the number of student inventors. It established a good working relationship with TuksNovation, UP's high tech business technology incubator, which aims to promote job creation by supporting the commercialisation of technology, networking, mentoring and establishing sustainable spin-off technology companies.

The TTO once again benefitted from the significant support it receives from NIPMO.

INVENTION DISCLOSURES

TTO PERFORMANCE

The TTO received 15 invention disclosures in 2019. The highest number of invention disclosures was received from the Faculty of Engineering, Built Environment and Information Technology, followed by the Faculty of Natural and Agricultural Sciences. The TTO plans to increase the number of invention disclosures by increasing the number of visits to the different faculties to raise awareness of intellectual property and the technology transfer process.



- 7 Faculty of Engineering, Built Environment and Information Technology
- 6 Faculty of Natural and Agricultural Sciences

- 1 Faculty of Health Sciences
- 1 Faculty of Humanities

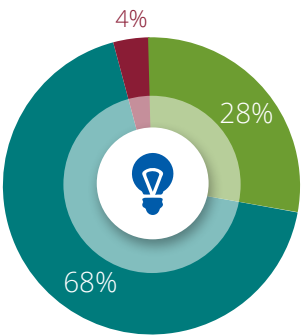
TOTAL: 15

Invention disclosures received by the TTO in 2019

15	Invention disclosures received	1	Licence agreements signed
9	Provisional patent applications filed	13	International patents granted
25	Patent applications filed	5	South African patents granted
2	Patent Cooperation Treaty (PCT) applications filed	2	Trademarks filed

PATENTS FILED

The TTO filed 25 patent applications on behalf of the University of Pretoria in 2019. This number includes provisional patent applications (South Africa), as well as Patent Cooperation Treaty (PCT) national and international phase applications. Two PCT applications were filed, while previously filed PCT applications entered the national phase. Two divisional application was filed in the USA.



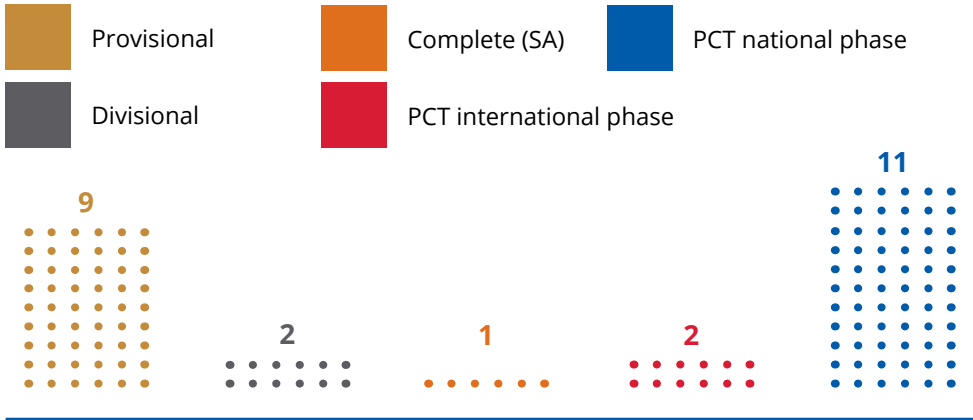
- 17 Faculty of Engineering, Built Environment and Information Technology
- 1 Faculty of Veterinary Science
- 7 Faculty of Natural and Agricultural Sciences

Patent applications filed per faculty in 2019

TOTAL: 25

Types of patent applications filed in 2019

Number of patent applications:

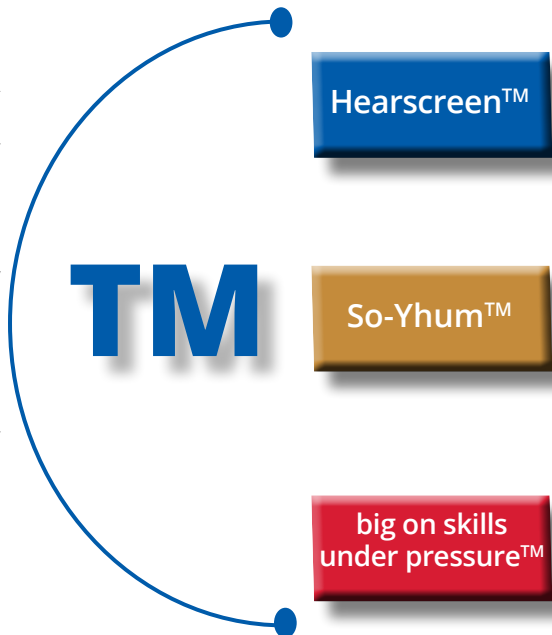


TRADEMARK APPLICATIONS AND PATENTS GRANTED

Two trademark applications were filed during 2019. The first application ("Hearscreen") was filed in the USA in Class 9 and Class 42, while the other application ("big on skills under pressure") was filed in South Africa in Class 41.

One of the University's previously filed trademarks ("So-Yhum") was registered in Botswana in Class 30.

A total of 13 patents were granted in 2019, which exceeds the number granted in 2018. This includes one in ARIPO, one in The Netherlands, Britain, France, Germany and Indonesia, five in South Africa, two in the USA, one in Brazil, two in China and one in Europe.



LICENCES

The predominant route for the commercialisation of IP at the University is licensing. During 2019, active networking with partners in relevant companies took place. However, only one licence agreement was signed. Four licenses are currently under negotiation. The licence agreement was concluded with the following company:

Delphius Commercial and Industrial Technologies (Pty) Ltd

This license agreement was signed for technology for the in-shell pasteurisation of eggs. Three parties are involved in this company

as a consortium: the Council for Scientific and Industrial Research (CSIR), Delphius and the University of Pretoria. The consortium agreed on a cost- and benefit-sharing ratio of 47% for the CSIR, 47% for Delphius and 6% for UP. The parties have been contributing in this ratio to patent costs, as well as to the second phase of technology development.



WORKSHOPS

Local

Two induction workshops took place at the University of Pretoria in 2019. In addition, the World IP Day celebration took place on the University's sports campus. Other workshops included the IP wise Workshop, which was organised in conjunction with SARIMA and NIPMO and attracted 50 attendees, and a workshop for Genetics honours students, which attracted 40 attendees.

International

Austin, Texas – The TTO's Senior Admin Officer, Mashudu Nxumalo, was awarded the AUTM Scholarship for New Technology Transfer Professionals from Developing Economies at the AUTM's Annual Meeting, which was held from 10 to 13 February 2019.

Tanzania – The TTO's Contracts and Innovation Manager, Simon Thanyani, participated in a technology transfer capacity building workshop at the Nelson Mandela African Institute for Science and Technology (NM-AIST) in Tanzania.

Raleigh, North Carolina – The TTO's Head: Contracts and Innovation, Adv. Lawrence Baloyi, attended the AUTM Regional Meeting from 3 to 8 October 2019.

BIO Africa convention – Both the TTO's Head: Contracts and Innovation, Adv. Lawrence Baloyi, and the TTO's Commercialisation Coordination Manager, Thabang QUMZA, attended the BIO Africa Convention, Africa's biotech indaba, at the Durban International Convention Centre from 25 to 28 August 2018, where University of Pretoria-created technologies were exhibited.

The theme for 2019's World IP Day was "Reaching for gold: intellectual property and sports". The event took place on the University's Sports Campus on 25 April 2019. The event's guest speaker was Prof Peet du Toit, Head of the Exercise and Neuroscience Research Group at the University of Pretoria's Institute for Cellular and Molecular Medicine. He spoke about the brain as a tool to enhance the performance of athletes and introduced the groundbreaking Limitless You programme.



Target shooting competition



Prof du Toit during his lecture



Mini soccer



Archery competition

BENEFIT-SHARING EVENT



The TTO held its first benefit-sharing event on 28 June 2019. Inventors whose technologies have been successfully commercialised were honoured and received their share of the royalties emanating from their IP. Inventors whose patents have been granted since the institution of the Intellectual Property Rights Act of 2008 were also honoured.

Prof Tawana Kupe, Vice-Chancellor of the University of Pretoria, presents the royalty cheques to inventors at the Benefit-sharing Event.



Some of the University's researchers whose inventions have been patented.



The recipients of royalty cheques: Prof De Wet Swanepoel, Prof Herman Myburgh, Prof Lise Korsten and Prof Nico Labuschagne.



Dr Nthabiseng Taole, Director of the Department of Research and Innovation, welcomed guests and explained the purpose of the event.



Adv Lawrence Baloyi, Head of Innovation and Contract Management discussed the role of technology transfer at the University.

INNOVATIVE MALARIA CONTROL

Researchers in the Institute of Applied Materials in the Faculty of Engineering, Built Environment and Information Technology, Mthokozisi Sibanda and Prof Walter Focke, are contributing to malaria control through several commercialised inventions.

These inventions have included the production of personal protection clothing items that entailed the development of a bi-component polymer yarn with a core containing a volatile repellent active and a sheath layer that reduce the rate at which the active ingredient is released into the atmosphere. The yarn has been successfully knitted into clothing items, such as socks, under the NoBuzz® trademark. The apparel is currently being distributed in the Kruger National Park under Tourvest Destination Retail.



NoBuzz® apparel

SUCCESS STORIES

The technology is designed to impregnate volatile liquids directly onto the yarn during the production process in such a way that they are slowly released. The method to control the release of the volatile actives is cost-effective compared to other slow-release techniques. The textile can be cold washed up to 25 times or kept under room conditions for up to six months without losing the mosquito repellent effect.

The team is currently introducing a second-generation insecticidal mosquito net that uses the fibre technology to release a natural and safe insecticide. They have also developed a natural antimicrobial textile for use in hospitals, and have expressed an interest to the government to manufacture antimicrobial face masks.



The malaria research team in the Institute of Applied Materials.

MOBILE HEARING TESTS

A multidisciplinary team of researchers from the Department of Speech-Language Pathology and Audiology in the Faculty of Humanities and the Department of Electrical, Electronic and Computer Engineering in the Faculty of Engineering, Built Environment and Information Technology, have developed a free application, hearZA™, which allows users to test their hearing on any smart device and refers them to their nearest healthcare provider if they fail the test. Since its launch in 2016, nearly 60 000 South Africans have tested their hearing through the application. The application has been trademarked and licensed to hearScreen (Pty) Ltd, the company that was established to commercialise it, which was subsequently founded with the main mission of providing hearing health to everyone, everywhere through the use of digital health solutions. Since the launch of hearZA, 11 innovative technologies have been added to the company's suite of products that include, among others, hearScreen® and hearDigits™.

HearScreen®, a proudly South African invention, was also released in 2016 and is a world-first smartphone screening audiometer. This evidence-based technology, born at the University of Pretoria, is clinically validated and has been widely published in leading peer-reviewed journals. During 2019, hearScreen® was used to screen the



The mobile hearing screening application in action.

hearing in underserved communities in Tembisa, Khayelitsha and Mitchell's Plain, aimed at detecting and improving hearing impairments of school pupils. These projects alone reached over 20 000 children who were screened for hearing loss.

Recent noteworthy developments include hearDigits™, a hearing screening widget, also validated by the University of Pretoria, in the new Discovery Vitality 65+ offering launched from August 2020.

To date, over one million hearing tests have been completed across 39 countries. These digital hearing solutions are impacting on the lives of thousands of South Africans, increasing awareness, screening and subsequent care.

PLANT-GROWTH PROMOTING BACTERIA



Presenting Prof Labuschagne with his royalty cheque for his invention involving *Trichoderma* isolates are (from left): Dr Nthabiseng Taole, Director of the Department of Research and Innovation, Prof Tawane Kupe, Vice-Chancellor and Principal, Prof Labuschagne and Mr Mmboneni Muofhe, Deputy Director-General: Technology and Innovation of the Department of Science and Innovation.

Prof Nico Labuschagne, a researcher in the University of Pretoria's Department of Plant and Soil Science, and his team have developed an agricultural solution that could help South African farmers save money by improving yields of cereal crops and reducing crop water stress. The invention involved the formulation of three plant growth-promoting rhizobacterial strains. These strains have since been developed into two biofertilizer products, which have been commercialised by the company RolfesAgri, under the trade names Rhizogro Solanum B5044 and Rhizogro Cereal B5048. Both products have organic certification for use on potatoes, tomatoes, tobacco, capsicum, and cereal crops. Other formulations of the biofertilizer, including granular and liquid products, have also been registered and will be



launched in future. These products will reduce the use of chemical fertilizers, which will benefit the farmer and the environment.

Prof Labuschagne was also involved in another invention, which involved *Trichoderma* isolates. The know-how of this invention was licensed to the company Becker Underwood, one of the leading global providers of technologies for biological seed treatment pigments and polymers. The company has been bought by Badische Anilin und Soda Fabrik (BASF). Prof Labuschagne received royalties for this invention at the TTO's benefit-sharing event.

Make today matter