NATIONAL INTELLECTUAL PROPERTY MANAGEMENT OFFICE

An initiative of the Department of Science and Technology

IP WISE™

A GUIDE TO IP FOR RESEARCHERS

2013

SARIMA

Prepared for NIPMO by the Southern African Research and Innovation Management Association

Use of this manual

This manual is intended to supplement the information presented in the IP Wise™ workshops. The IP Wise™ material is specifically designed for researchers at publicly funded institutions (including higher education institutions and research councils) in South Africa.

This manual is not intended as a substitute for advice from an Office of Technology Transfer, or equivalent, at an institution or from a suitably qualified legal practitioner or patent attorney. The processes and policies presented in this manual are typical but not definitive, and the policies and processes of the institution will always supersede the information presented in this manual.

All relevant legislation including, but not limited to, the Intellectual Property Rights from Publicly Financed Research and Development Act, Act 51 of 2008, will always supersede the information presented in this manual.

Table of Contents

A. Basics of Intellectual Property Rights

This section describes the different forms of Intellectual Property (IP) Rights of which researchers need to be aware, who qualifies as an inventor and how to protect the different forms of IP. The patenting process is also briefly described.

1. Introduction to Intellectual Property

IP includes all outputs of creative endeavour in literary, artistic, scientific and engineering fields that can be protected by law from use by any other person. It includes:

- Copyright;
- Patents, patentable and non-patentable material;
- Inventions;
- Field and laboratory notebooks;
- Registered and unregistered designs;
- Plant varieties;
- Registered and unregistered trademarks, service marks and commercial names and designations;
- Trade secrets and confidential material; and
- Know-how and other proprietary information associated with any of the other types of intellectual property.

Intellectual Property Rights as defined in terms of the IPR Act

Intellectual Property (IP) is any creation of the mind that is capable of being protected by law from use by any other person, whether in terms of South African law or foreign law, and includes any rights in such creation, but excludes copyright in a thesis, dissertation, article, handbook or any other publication which, in the ordinary course of business, is associated with conventional academic work.

Patents, registered designs, trade marks and copyright are the most common ways of protecting IP and preventing others from using or otherwise exploiting it without the owner's permission. Other types of IP include plant breeders' rights and trade secrets. Although each is a separate area of law, all are designed to provide some protection against the unauthorised use of creations.

2. Patents

2.1. Introduction to patents

A patent is an exclusive right granted for a specific period of time to a patentee (the inventor or owner of the patent) in exchange for a full disclosure of the invention to the public. A patent is intangible property and may be sold or licensed for use by others.

Patents provide the patentee with the right to exclude others from exploiting the invention for the life of the patent. It is important to note that what is granted is not the right to make, use, offer for sale, sell or import, but the right to exclude others from making, using, offering for sale, selling or

importing the invention. Patents are granted for 20 years, starting from the date on which the first patent application is filed (the "priority date"), provided that all relevant fees are paid. Patent rights are territorial which means that a South African patent, for example, does not give any rights outside the borders of South Africa.

(a) What are the legal requirements for patenting an invention?

A patentable invention is a product, process or service that is:

- new (novel, not publicly disclosed in any document or oral presentation or through use);
- inventive (not obvious in the light of the prior art); and
- capable of use in trade, industry or agriculture.

(b) What constitutes public disclosure?

Any disclosure of an invention to the public prior to the filing of a patent application will mean the invention is no longer patentable. Public disclosure includes dissemination of information on the invention (a sufficiently detailed description of the invention that allows it to be duplicated or put into use) through newspaper articles, newsletters, bulletins, textbooks, journals, theses, reports, letters to journal editors, oral presentations etc.

Specific types of disclosure to guard against are, amongst others:

- informal discussions outside of your institution;
- postings on the web, blogs;
- talks at meetings;
- abstracts;
- posters; and
- unprotected e-mail.

(c) What is not patentable?

In terms of South African patent law (other countries may have different rules), the following are not patentable:

- a discovery;
- a scientific theory;
- a mathematical method;
- a literary, dramatic, musical or artistic work or any other aesthetic creation;
- a scheme, rule or method for performing a mental act, playing a game or doing business;
- a program for a computer; and
- the presentation of information.

Computer programs

Although computer programs are, in general, not patentable in South Africa, some countries allow the patenting of computer programs provided the program allows a computer to perform a novel technical function. For example, a program that simply sorts something into alphabetical order, which can be done manually, is unlikely to be patentable.

In South Africa the "technical effect" of a computer program can be patented i.e. the application of the program.

(d) Who should be listed as an inventor on a patent?

Inventors are those people who have made an independent, original, conceptual contribution to an invention. An inventor must have made at least one intellectual contribution to the patent claims (the legal definitions of an invention) that are included in the patent application. People who have indirectly contributed to the creation and/or application of the IP are not necessarily inventors even though an invention may not have commercial application without their input.

It is important that people who are not inventors are not listed on the patent application and it is important that all people who are inventors are listed on the patent application. A patent can be revoked if it is found that people who are not inventors are listed and that people who were inventors are not listed.

Inventors must be real people: a university, research council, corporation, business association or any other form of legal entity cannot be listed as inventors.

(e) Who is the applicant?

The patent applicant is the owner of the patent application. This may be the inventor but may also be the inventor's employee or someone else to whom the inventor has assigned the invention.

(f) What is the priority date?

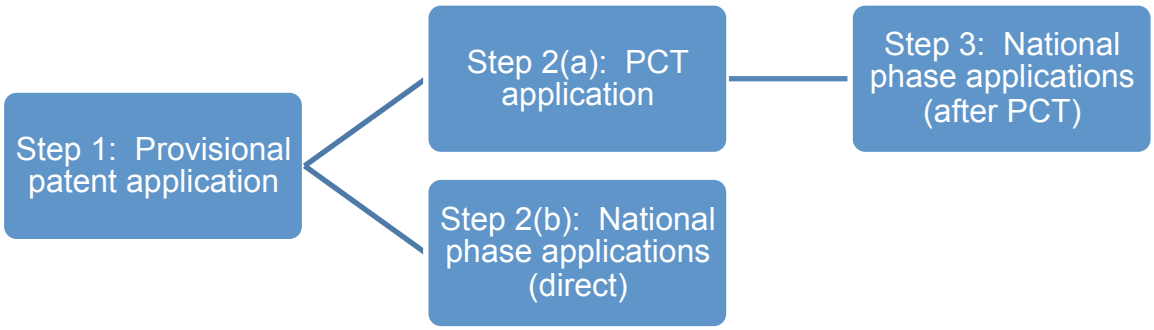
The date on which the first patent application (be it a provisional patent application, complete patent application or PCT application) is filed is referred to as the priority date, i.e. the date from which the invention is deemed to have existed and from which the invention is protected, once the patent has been granted. The priority date is important for determining priority in cases where similar inventions are patented and the date also determines what constitutes prior art (and hence whether the invention is novel).

(g) What are typical timelines for a patent?

It typically takes between three and ten years from the initial filing (i.e. the priority date) for a patent application to be granted, whereupon it is referred to as a patent, depending on the country and ease of examination. The invention is protected for 20 years from the filing date (i.e. the priority date not the date of grant), subject to the payment of renewal fees.

2.2. The patenting process

A typical patenting process is shown in the simplified diagram below and explained in the following sections. There are different processes and steps that can be followed, but these are the most common steps for South African institutions.



(a) Step 1: Provisional patent application

The patenting process usually begins with filing a provisional patent application at the South African patent office (the Companies and Intellectual Property Commission, or CIPC). A provisional patent application is usually filed to get a priority date. It gives the inventor 12 months to modify or improve the invention without having to disclose the invention publicly.

South Africa Patent law specifies that a provisional patent application has a title that indicates the subject matter of the invention and must fairly describe the invention. Anyone can file a provisional patent application and it does not have to be in any particular format. It is, however, recommended that a patent attorney be used as they can draft a good provisional patent specification.

The 12 months following the filing of a provisional patent application is usually used to further develop of the invention, to assess the commercial potential of the invention, and to identify how the invention will be exploited. If, during that time, it is clear that the invention cannot be exploited, the provisional patent application can be abandoned or withdrawn. If the invention needs further research but looks promising, the provisional patent application can be withdrawn and re-filed later, unless it has been publicly disclosed or competitors are likely to have come up with the same invention during that time.

If the invention looks promising, a complete patent application or a PCT application can be filed within 12 months from the date of filing of a provisional patent application.

(b) Step 2(a): PCT (Patent Cooperation Treaty) application

A PCT application allows an applicant to file one patent application that offers pending protection in a number of different designated countries (PCT Contracting States). The list of PCT Contracting States includes all major industrialised countries. A PCT application is filed at a Receiving Office, which is typically the European Patent Office, Austrian Patent Office or Australian Patent Office for South African applicants.

The advantage of filing a PCT application is that it provides the applicant with an additional 18 months to evaluate the marketability of the invention before incurring patenting costs in each country. In addition, a search is conducted on the application by an International Searching Authority and a search report is issued which gives an indication as to the patentability of the invention (in particular, novelty and inventiveness).

International Search Report

Within six months after filing a PCT application, the applicant will receive an international search report (ISR) listing prior art documents relevant to the claims in the PCT application that have been identified by the International Searching Authority. This will give the applicant some idea of the novelty and inventiveness of the invention. If the prior art questions the novelty and/or inventiveness of the invention, the applicant can amend the claims to better distinguish the invention from prior art or abandon the application.

The PCT patent application is usually published just after the ISR and is then publicly available. If the applicant decides to withdraw a patent application it should be done before it is published in order to maintain secrecy.

(c) Step 2(b): National phase applications (direct)

A complete patent application can be filed within 12 months of filing a provisional patent application. This can be done in parallel with filing a PCT application but is typically only done if the PCT application route is not followed. If a patent application is only going to be filed in South Africa or in one or two other countries, the applicant may choose to skip the PCT step and file directly in those countries from the provisional patent application.

If a country is not a PCT Contracting State, this route would also need to be followed in that country.

(d) Step 3: National phase applications (after PCT)

A PCT application secures the applicant the right to seek patent protection in PCT Contracting States. 18 months from the PCT application date, an applicant must file a complete patent application in each country where they wish to obtain patent protection.

Certain countries have slightly different timelines; for example, it is possible to file a patent application in South Africa 22 months after filing a PCT application.

Worldwide patent?

There is no such thing as a worldwide patent: a PCT application is only an application – the responsibility to grant a patent remains with individual countries.

The national phase can be extremely costly since national phase fees must be paid in each country, the patent application may need to be translated into the language of each country involved and the application will be examined for compliance with local patent law. The applicant must therefore be certain of the potential financial returns from the invention before entering this costly phase.

Each national patent office with the capacity to conduct substantive examination will conduct a full examination of the patent application to determine novelty, inventiveness and utility. The applicant may be required to make amendments to the patent application to address any objections raised by the examiner, and may need to argue with the examiner to overcome objections. The patent application will either be approved by the examiner for grant or it can be abandoned by the applicant.

Even if a patent is granted, a third party may still challenge its validity. Once a patent is granted, it will be subject to annual renewal (also known as maintenance) fees in each of the countries in which it is filed.

2.3. Patenting vs. publishing

Publishing a scientific article discloses information to the scientific community and the general public. However, it does not prevent others from using the disclosed information for commercial purposes. Patenting an invention increases the chances of inventions being commercialised as patent protection is often required by a commercial partner before they invest in the development of an invention.

Patent protection does not prevent publishing. It only requires that the publication does not appear in a journal or on the web or is released to the public until potentially commercial aspects have been protected.

If a thesis is made available on a library shelf or on the web it is also public disclosure. Patent applications should be filed before the thesis is made publicly available and it may be necessary to request the examiners of the thesis to sign a confidentiality agreement and to keep the thesis confidential until potentially commercial aspects have been protected.

2.4. Patent searches

Patents and patent applications are not only a way of checking the novelty of an idea; they are also a good source of information for one's own research. About two-thirds of the technical information

revealed in patents and patent applications is never published elsewhere and over 80 million patents and patent applications have been published to date (nearly 2 million new patent applications are published each year). Patent documents also provide various types of information in a highly standardised format that is easy to get information from.

Literature and patent searches should be conducted before any research project is initiated in order to avoid duplication of research and IP. Patent searches are particularly important when an invention has been made and needs to be protected. The analysis of "prior art" will enable the preparation of a patent specification that can better anticipate objection and is therefore more likely to proceed to grant. The other advantage of a patent search is to determine the activities of competitors.

There are numerous free patent search websites such as the Patentscope, the US PTO search tool, the EU patent search tool and Google Patents. Some free patent sites are:

- http://www.wipo.int/patentscope/en/dbsearch/
- http://patft.uspto.gov/
- www.google.com/patents/
- http://www.epo.org/searching/free/espacenet.html
- http://www.ipaustralia.gov.au/auspat/index.htm

3. Copyright

3.1. What is copyright?

Copyright is the right given to creators / authors / owners of literary and artistic works enabling them to control the use, expression and distribution of their creations. If you own a copyright then you can prevent others:

- Making copies or reproductions of the work;
- Making it available for the first time to the public;
- Performing it in public; and
- Letting it or offering it for sale, without your consent.

The copyright protects the form of expression and not the subject matter of the work – it does not protect the idea or creative element contained in the work. In contrast, patent protection covers the concepts underlying an invention as well as their specific application.

The following works are eligible for copyright protection:

- Artistic work;
- Broadcasts;
- Cinematograph films;
- Computer programs;
- Dramatic works;
- Literary works, computer programs;
- Musical works;
- Programme-carrying signals;
- Published editions; and

- Sound recordings.

Copyright protection usually lasts for the life of the author plus 50 years from the end of the year in which the author of literary, musical and artistic works dies, and 50 years after first public release for works such as cinematograph films, sound recordings, broadcasts, programme-carrying signals, published editions and computer programs.

3.2. How do I protect my copyrights?

Copyright arises automatically, without any registration, as soon as an original work has been reduced to a material form. For most works, with the exception of cinematograph films, it is not necessary to register copyrights legally.

Protecting your copyright

In order to facilitate copyright protection, the following statement should accompany works:

Copyright © [year], [owner]. All Rights Reserved.

Where: [year] is the year in which the work was first published
[owner] is the individual or institution that owns the copyright

4. Designs

4.1. What is a registered design?

A registered design protects the features of the appearance of a product – the form, shape, pattern and configuration. It does not protect how it was made or its function – that would be protected by a patent if appropriate. In order to get design protection, an object must have a specific appearance that can be visually recognised and must be new and original or not commonplace. A designed article must be intended to be multiplied in an industrial process.

A registered design gives the owner of the design the right to prevent others from making, importing, using or disposing of articles for a specific period of time.

There are two types of designs:

- Aesthetic designs protect those features of an article that appeal to and are judged solely by the eye – the visual features (e.g. jewellery, shape of a perfume bottle). The design must be new and original. An aesthetic design provides protection for 15 years from the date of registration.
- Functional designs protect those features that are necessitated by the function the article is to perform (e.g. new pattern for non-slip rubber mat, a flat-top screw). The design must be new and not commonplace in the state of the art at the time of registration. A function design provides protection for 10 years from the date of registration.

A single article may be registered as both a functional design and an aesthetic design if it has appropriate qualities.

4.2. Protecting a design

A registered design is based on drawings, photographs, or other pictures that clearly illustrate the shape or appearance of the relevant article. In South Africa a design is registered at the Companies and Intellectual Property Commission.

Designs do not have to be protected before public disclosure: they can still be protected within six months of first public release in South Africa. In other regions this time may be different: for example, in Europe it is possible to file a Community Design within 12 months from the release date. Annual renewal fees must be paid to ensure continued protection for the design.

5. Trade marks

5.1. What is a trade mark?

A trade mark is a word, name, symbol, or device that is used in trade with goods or services to indicate the source of the goods or services and to distinguish these goods or services from the same kind of goods or services connected in the course of trade with any other person.

A trade mark can be a letter, word, name, signature, numeral, device, brand, heading, label, ticket, aspect of packaging, shape, colour, sound or scent, or any combination of these. For example, the film production company MGM has a trade mark on the sound of the lion's roar that accompanies its logo in movies.

Trade mark rights may be used to prevent others from using what is referred to as a "confusingly similar" mark/sign. However, these rights do not allow trade mark owners to prevent others from making the same goods or from selling the same goods or services under a clearly different mark/sign.

Trade marks are designated by the following symbols:

- ™ - for an unregistered trademark. A business can use the ™ symbol when it wishes to claim a trademark without filing any paperwork or receiving permission to use it. Some protection is given in common law, but it is best to register a trade mark for full protection.
- ^{SM} - for an unregistered service mark, a mark used to promote or brand services. This is not used frequently and is mostly replaced with the ™ symbol.
- ® - for a registered trademark.

5.2. Protecting a trade mark

Trade marks are filed at the Companies and Intellectual Property Commission by filing a registration on a word, letter, numeral, drawing, symbol, 3-D shape, audible sign or oral distinguishing feature. Trade marks are filed in different classes and protection is only given for a specific class. For example, a word can be used as a trade mark for a restaurant by one company and for a brand of toy by another company provided they are only protected in the specific class for restaurants and for toys.

An exception is made for well-known international marks such as “McDonald’s” that may not have filed for protection in every class in every country –another company cannot use McDonald’s trade mark even in if they are not a restaurant.

Protection is for a period of 10 years, which is renewable in perpetuity (every 10 years), subject to the payment of renewal fees.

6. Plant Breeders’ Rights

New plant varieties are protected in South Africa in terms of the Plant Breeders’ Rights Act. Plant breeders’ rights are statutory rights that require registration. A plant breeder’s right is granted for either 25 years in the case of vines and trees, and for 20 years in all other cases, from the date of issue of the certificate of registration, subject to the payment of annual prescribed renewal fees.

Plant breeders’ rights may be obtained for any variety of a prescribed kind of plant as long as it is new, distinct, uniform and stable. New plant varieties produced through biological processes are therefore protected exclusively in terms of the Plant Breeders’ Rights Act. However, genetically modified plants could be subject to the Patents Act, as they are not strictly new varieties of plants that are produced through biological processes.

The holder of a plant breeders’ right is granted exclusivity (i.e. the right to prevent others) in the production, sale, import into and export from South Africa of propagating material or harvested material of the protected variety. An application for the registration of plant breeders’ rights must be made to the Department of Agriculture (Registrar of Plant Breeders’ Rights). The authorities examine the application and test samples of the plant.

The variety may not be sold or commercially exploited in South Africa, without permission from the authorities, until it is registered. Application can be made to the Registrar for provisional protection, while a protective direction is in force, the variety in respect of which it was issued will be protected as if a plant breeders’ right had been granted. This provisional protection expires on the grant or final refusal of the plant breeders’ right application.

7. Trade secrets and know-how

Trade secrets and know-how are generally used interchangeably to refer to valuable information that is of commercial value to an entity. Trade secrets and know-how can be protected through legal means, for example, confidentiality agreements, i.e. through secrecy. Trade secrets and know-how are an important protection option for intellectual property that cannot be protected through other legal means or where it is difficult to detect infringement, for example, manufacturing processes. However, this type of protection is weaker than that afforded by either patents or copyrights because it is only useful when kept secret, and protection cannot be enforced if someone copies a publicly available work (for example, by reverse engineering).

As most institutions want to publish knowledge generated, trade secrets and know-how are not generally used as a protection mechanism.

B. IP ownership and benefit-sharing under the IPR Act

The Intellectual Property Rights from Publicly Financed Research and Development Act, Act 51 of 2008 (IPR Act), has significantly changed the intellectual property (IP) ownership and obligations of publicly financed institutions. This section briefly describes the key ownership issues as well as researchers' obligations and benefits under the IPR Act and the role of the National Intellectual Property Management Office (NIPMO).

1. IPR Act and IP ownership

The IPR Act came into effect on 2 August 2010. The object of the IPR Act is "*to make provision that intellectual property emanating from publicly financed research and development is identified, protected, utilised and commercialised for the benefit of the people of the Republic, whether it be for a social, economic, military or any other benefit*".

The IPR Act applies to any research and development undertaken using funds allocated by a funding agency (the state, an organ of state or a state agency), excluding funds for scholarships and bursaries. The IPR Act states that recipients of public funds own the IP developed with those funds. Basically this means that a publicly financed institution such as a university or science council owns the IP developed by its staff and students if the IP is developed using public funds and emanates from a research and development project. The public funds could be specifically allocated to the research – for example, through a project funded by the National Research Foundation – or may just be developed at the institution using institutional resources and done by staff members paid by the institution.

If the institution does not wish to protect and/or commercialise the IP it must first offer such rights to NIPMO. If NIPMO does not wish to take on ownership of the IP then this can be offered to any sponsors that may have been involved and then to the inventors.

Obligation to have an IP policy

Publicly financed institutions are obliged by the IPR Act to have an IP policy. While the IPR Act obliges the institution to include certain provisions in their IP policy, such as benefit-sharing, the policies of the institution can be very different to suit their particular situation.

Most institutions will claim ownership of IP developed by staff and students in the course and scope of their employment or studies. Some institutions may exclude work produced by undergraduate students, but all will include research undertaken by postgraduate students. It is important for all researchers in publicly funded institutions to be familiar with their institution's IP policy.

2. IP ownership when research is funded by a private entity at full cost

If a project is funded by a private entity on a full cost basis, any IP developed shall not be deemed to be publicly financed research and development and the provisions of the IPR Act shall not apply. Full cost differs from institution to institution but includes all direct and indirect costs of

undertaking a project. All institutions have determined their method for calculating indirect costs and this information is available at their Office of Technology Transfer.

Direct and indirect costs

Direct costs are costs such as labour costs (including institutional-funded staff), student costs, travel, running costs, etc. Indirect costs vary from institution to institution but are commonly known as overhead costs – costs that are difficult to determine accurately but would include a portion of overhead staff costs, rates and taxes, infrastructure and maintenance costs, etc. Indirect costs are generally determined as a percentage of direct costs or of labour costs.

Note that even if a private entity or organisation funds the research at full cost, **it does not mean that the private entity or organisation owns the IP** – it only means that any IP developed during the course of the research project falls outside the scope of the IPR Act and that the institution and private entity or organisation may therefore freely negotiate the ownership and commercial aspects pertaining to the IP.

A private entity or organisation can co-own IP that falls under the IPR Act if:

- there has been a contribution of resources by the private entity or organisation, which may include background IP;
- there is joint intellectual property creatorship;
- appropriate arrangements are made for benefit-sharing with IP creators at the institution; AND
- an agreement for commercialisation of the IP is concluded.

Note that all four of these requirements must be met – in other words, if a private entity or organisation has funded research (not at full cost) but has not actually contributed intellectually to the creation to the IP, then they cannot co-own the IP.

3. Obligations of institutions

Publicly funded institutions have certain statutory obligations under the IPR Act. These include establishing an office of technology transfer or function (OTT), and developing and implementing policies for the disclosure, identification, protection, development, management and commercialisation of IP, including benefit-sharing arrangements. There are also various reporting requirements to the NIPMO on publicly funded IP.

The IPR Act obliges the institution to seek approval from NIPMO when concluding certain IP transactions (assignment of IP and offshore exclusive licenses). When licensing IP, institutions are obliged to give preference to non-exclusive licensing and to local Broad-based Black Economic Empowerment and small and medium companies. The institution also has to ensure that the State has an irrevocable, non-exclusive, royalty-free, worldwide license to use the IP for the health, security and emergency needs of South Africa. In addition, before granting an exclusive license to someone to use IP created with public funds, the institution must ensure that the licensee is capable of developing the IP further, where required, and undertake commercialisation.

4. Obligations of researchers under the IPR Act

Researchers at publicly financed institutions are obliged to disclose all inventions to their OTT within 90 days of identification of the IP and prior to "public disclosure" of their research. Public disclosure means anything made available to the public through publications, written or oral description, by use or any other way that would destroy the opportunity to apply for patent protection of an invention. Conventional academic publications constitute public disclosure as well as abstracts, master's theses, doctoral dissertations, presentations and posters.

Therefore, if a researcher is planning to present their research at a conference, publish a paper, or otherwise publicly disclose something which may meet the criteria for patentability (novelty, non-obvious inventive step and useful), they should contact their OTT prior to the public disclosure to allow for a patent application to be filed first.

5. Benefits for researchers under the IPR Act

IP creators and their heirs at publicly financed institutions are entitled to share in the benefits from successful commercialisation of their inventions. The exact benefit is subject to the specific institution's policy but the IPR Act prescribes a minimum benefit for the IP creators as 20% of the first R1 million of (gross) revenue accruing to the institution, and 30% of the net income thereafter.

Example:

There is one IP creator on a patent that is successfully commercialised. The institution receives R2.5 million in royalty fees and spends R450 000 on patent costs. Under the IPR Act, the IP creator is entitled to a minimum of:

20% of the first R1 million	=	R200 000
30% of R1.5 million less R450 000	=	R315 000
Total received by IP creator	**=**	**R515 000**

When determining benefit sharing, the institution must take into account all benefits that accrue to the institution from commercialisation of the invention, including non-monetary benefits such as shares in a company. Generally the default position is that the benefits are shared equally between the inventors, unless they agree otherwise or the institutional IP policy says differently.

6. The National Intellectual Property Management Office (NIPMO)

NIPMO was established as a specialised service delivery unit in the Department of Science and Technology to oversee the implementation of the IPR Act. It plays both a supporting role (facilitating, coordinating and capacity building; developing guidelines; and management of an Intellectual Property Fund) and a regulatory and compliance role (receiving reports on IP status and commercialisation; approving offshore IP transactions; administering the Government's walk-in and other rights; and approving the full-cost models).

C. IP issues in research

No research is without IP issues as research should, by its very nature, be about finding something new and novel. However, there are many instances where it is not appropriate to keep the results of research confidential or to protect the results through patenting or other forms of IP protection.

However, regardless of how the IP will be used or whether it will be publicly disclosed, IP issues should always be considered. For example, ownership of copyright in the final report, and ownership or use of methods and data developed during the research will need to be determined and negotiated. There may also be confidentiality requirements as well as material transfer and the requirement to keep laboratory records. This section briefly describes some of the issues that researchers need to consider.

1. Obligations to external funders

There are very few instances where research is funded with no strings attached – most research is done under a contract where there are IP ownership and other issues. This is true whether a university is being funded by a science council, a science council is being sub-contracted by a university, or there is a contract with an international aid organisation. Someone with knowledge of IP and contracting (usually a person in the legal office of the institution and/or personnel within the OTT) should look at the legal agreements concluded with third parties.

The following aspects of the contract will be analysed:

- The obligations placed on researchers, for example, the requirements for the third party to review and approve all publications relating to the work before they are submitted to journals or other media, or restrictions on the dissemination of information relating to the work or the materials involved.
- Ownership of reports and underlying methods. Even for research that will result in a public report, the underlying methods and data should be able to be used by the institution for research and teaching purposes.
- Whether the research is being funded at full cost and thus IP ownership issues and obligations of the institution. For example, if the research falls under the IPR Act as it is not funded at full cost, the institution is obliged to identify, protect and commercialise IP arising from the research.

2. Protecting confidentiality

As any disclosure of an invention to the public prior to the filing of a patent application will result in the invention no longer being patentable it is important to guard against public disclosure. Public disclosure includes dissemination of information on the invention through informal discussions outside of the institution, postings on the web, talks at meetings, abstracts, posters, unprotected e-mails, etc.

Sometimes confidential information needs to be disclosed to another party. In this case, it is important to protect the information by agreement with the other party. Although an oral agreement is enough to provide an obligation of confidence, the existence of an oral agreement is difficult to

prove in court. Confidentiality Agreements (CAs), also called secrecy agreements or Non-Disclosure Agreements (NDAs), provide documented evidence of the agreement between the parties, thus protecting the transfer of confidential information and controlling the subsequent use of that information. A research agreement may include confidentiality provisions so a separate NDA may not always be required if a research agreement has been signed.

It is also always good practice to mark relevant emails, documents etc. as confidential and to notify recipients of confidential subject matter in conversations and discussions.

2.1. What should be in a Confidentiality Agreement / NDA?

An NDA should describe the subject field of the confidential information and in what form it may be transferred (in writing, verbally, etc.), as well as the purpose of the transfer. The agreement should also define the circumstances under which the receiving party can use the information and for how long the obligations apply. If only one party is disclosing information the agreement can be unilateral, however if two parties will be disclosing confidential information to each other the agreement should be bilateral.

The main purpose of an NDA is to govern the transfer of confidential information, therefore other issues such as intellectual property or transfer of materials for the performance of work should be covered by additional, separate agreements if necessary.

2.2. Other confidentiality issues

One cannot enforce the confidentiality of information that is already in the public domain or that was developed independently by another party. These types of exclusions are generally included in Confidentiality Agreements. Confidentiality restrictions work both ways: researchers should always respect the confidentiality of the other parties' information and not disclose this without permission.

3. Laboratory records

Protection and filing of patents can rely on the maintenance of detailed laboratory records. This ensures that it is easy to determine what was done, how and with what result and ensures that the experiments can be repeated. There are a number of guidelines available on keeping good laboratory notebooks and these should be implemented as a matter of routine. The institution should always retain research notebooks and laboratory records when the researcher leaves.

4. Material transfer

4.1. What is a Material Transfer Agreement?

A material transfer agreement (MTA) is a contract that governs the transfer of one or more materials from the owner (or authorised licensee) to a third party, usually for internal research purposes. Materials may include cultures, cell lines, plasmids, nucleotides, proteins, bacteria, transgenic animals, pharmaceuticals and other chemicals. MTAs can also be applicable for the transfer of materials in engineering / physical science applications.

4.2. Why are MTAs used?

The sharing of reagents and materials is widespread throughout the scientific community and is vital for the progress of research. However, most commercial organisations, and an increasing number of academic institutions, will only release materials if there is an MTA in place between the provider of the material and the recipient of the material. MTAs usually restrict the use of the material to non-commercial research and reduce legal liability for the recipient's use of the material. In addition, the terms of the MTA can help the provider to gain access to the results of the recipient's research for further development, often in collaboration with the recipient.

4.3. Important considerations in MTAs

Many MTAs from commercial organisations will seek to put restrictions on publication of research results. While it is reasonable for material providers to have access to copies of proposed publications or oral presentations in advance in order to remove confidential information, publications should not be subject to unreasonable delays or to the outright veto of the provider.

As with confidential information, it is important for researchers to respect the terms of MTAs for materials they received from third parties. This relates in particular to the type of research and use made of the materials and who they may be transferred to both inside and outside the institution.

5. Research on indigenous biological resources

The enormous economic benefits that may be obtained from exploitation of biological resources has led to international conventions and agreements being formulated, such as the Convention on Biological Diversity to which South Africa has acceded and is bound. The protection of indigenous biological resources and the compensation of indigenous communities who may hold knowledge relating to uses of these resources are fundamental to the Convention and are given effect in the South African National Environmental Management: Biodiversity Act (NEMBA) and Regulations and in the South African Patents Amendment Act.

NEMBA was promulgated on 1 September 2004. The main objectives of the NEMBA are to manage and conserve the biological diversity in South Africa and to ensure that indigenous biological resources are used in a sustainable manner. It also seeks to combat biopiracy and to ensure that indigenous communities share equally and equitably in the benefits flowing from bioprospecting and indigenous knowledge in South Africa.

5.1. Important definitions in NEMBA

Bioprospecting is defined as research on, or development or application of, indigenous biological resources for commercial or industrial exploitation including:

- Systematic search, collection and gathering extractions from resources for research, development or application;
- Utilisation for research or development of any information with regards any traditional uses of the indigenous biological resources by indigenous communities; or

- Research on, application, development or modification of traditional uses for commercial or industrial exploitation.

Indigenous biological resources are defined as any:

- living or dead animal, plant or other organism of an indigenous species, gathered from the wild, accessed from any other source, cultivated, bred or kept in captivity, or altered in any way by biotechnology;
- derivative of the above;
- genetic material of the above;
- cultivar, variety, strain, derivative, hybrid or fertile version of the above; or
- exotic animals, plants or other organisms that have been altered with genetic material or chemical compound found in any of the above.

Specifically excluded is genetic material of human origin, other exotic plants, and indigenous biological resources listed in the International Treaty on Plant Genetic Resources for Food and Agriculture.

Discovery phase of bioprospecting is defined as any research on, or development or application of, indigenous biological resources where the nature and extent of any actual or potential commercial or industrial exploitation in relation to the project is not sufficiently clear or known to begin the process of commercialisation.

Commercialisation phase of bioprospecting is defined as any research on, or development or application of, indigenous biological resources where the nature and extent of any actual or potential commercial or industrial exploitation in relation to the project is sufficiently clear or known to begin the process of commercialisation. This includes:

- Filing of a full patent application (i.e. PCT, or national phase filing) in SA or elsewhere;
- Obtaining or transfer of intellectual property rights;
- Commencement of clinical trials and product development, including market research; or
- Multiplication of indigenous biological resources through cultivation, propagation, or cloning to develop and produce medicines, enzymes, food flavours, fragrances, cosmetics, essential oils, colours and extracts.

5.2. Exemptions from NEMBA

Certain exemptions from the Bioprospecting, Access and Benefit-Sharing Chapter of NEMBA have been published. These include:

- Research other than bioprospecting, provided that it is conducted within the borders of South Africa. Such research may not be conducted for the purposes of commercial or industrial exploitation (for example, filing of a complete patent application relating to the research will constitute commercial exploitation);
- The export of *ex situ* indigenous biological resources (defined as indigenous biological resources that occur in collections outside their natural habitat) for the purposes of research other than bioprospecting, provided that the exporter has entered into an export agreement and notified the issuing authority thereof;

- The trade of commercial products purchased from a bioprospector, provided that the bioprospector has complied with the Regulations on Bioprospecting, Access and Benefit-sharing;
- The keeping, breeding, cultivation, moving, trading and use of wildlife (defined to include mammals, birds, reptiles, amphibians, arthropods, fish and plants) not directed at the development and production of products such as drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours and extracts; or new plant varieties and products;
- The collection, use, propagation, cultivation or trade of indigenous biological resources for domestic use or subsistence purposes;
- The artificial propagation, multiplication or cultivation of flora species for the local and international cut flower and existing ornamental plant markets; and
- Aquaculture or mari-culture activities involving fresh water and marine species producing specimens for consumption purposes.

5.3. What does NEMBA mean for researchers?

(a) Research phase

Any researcher doing research on indigenous biological resources that qualifies as the "discovery phase of bioprospecting" needs to notify the Minister of Environmental Affairs on a prescribed form. Once the "commercialisation phase of bioprospecting" is has been reached, a permit is required from the Department of Environmental Affairs to continue research and development. In addition, anyone who carries on the commercialisation phase of a bioprospecting project based on the traditional knowledge of a specific individual or community must enter into a benefit sharing agreement with that individual or community.

(b) Patenting

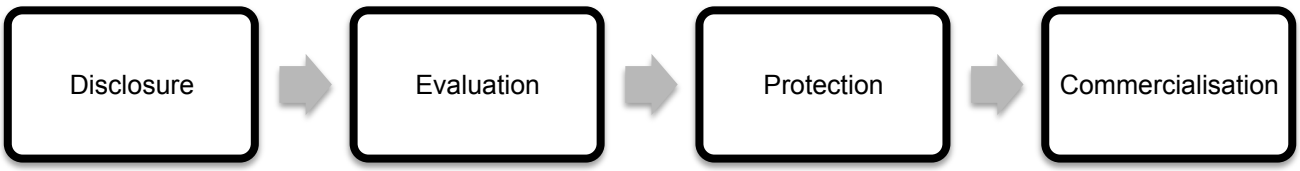
The Patents Amendment Act No. 20 of 2005 is linked to the Biodiversity Act as it requires that every applicant who lodges an application for a patent must state whether or not the claimed invention is:

- based on or derived from an indigenous biological resource or an indigenous genetic resource; or
- based on or derived from an indigenous biological resource or an indigenous genetic resource and also based on or derived from traditional knowledge or use.

If the invention is based on one of these, then the Registrar of patents may ask the applicant to provide a copy of the Biodiversity permit or provide proof that prior consent had been obtained in terms of the Act; or provide a copy of a material transfer agreement of the material had been received from another source; and provide a copy of a benefit-sharing agreement if applicable.

D. From disclosure to protection and commercialisation of IP

While each OTT will have its own specific process, the general steps that are followed are fairly similar:



It should be noted that the linear process shown is misleading – commercialisation is seldom a linear process. For example, there will be evaluation even after protection, and the researcher may be required to do more research even during commercialisation, etc.

This section briefly describes the processes involved in taking a disclosure to commercialisation.

1. Disclosure

The first step in any process is disclosure of the invention to the staff of the OTT. All OTTs should have a disclosure form, although many will not ask researchers to complete a form and will sit with the researcher and discuss the potential invention. Note, too, that some institutions have a broad view of invention and are willing to assist with commercialisation of creations in the art and design fields, or of systems developed by administrative staff that may be useful for other institutions.

The disclosure form will include items such as:

- Inventors and their relative contribution to the IP;
- Funding sources;
- What the invention is;
- Why the inventors think it is needed;
- What the existing problems are that the invention seeks to solve; and
- What the potential applications of the invention are.

2. Evaluation

Due to the high costs of patenting and commercialising research, the OTT will carry out a thorough assessment of the invention to determine the scientific merit and commercial potential before embarking on patenting and commercialisation processes. New disclosures will be assessed before making a decision on whether to take the invention further. The assessment will typically be done according to the following criteria:

- The current intellectual property ownership status;
- The options for protection of the intellectual property;
- The commitment and capability of the inventors/team;
- The feasibility and stage of development of the invention;

- The size and characteristics of the market;
- The economic and social benefits; and
- The commercialisation feasibility and potential returns.

Information for the assessment will be obtained from the disclosure form, interviews with the inventors, advice from specialists in the relevant technology areas, and market and IP investigations (the "due diligence" process).

2.1. Quick screening

Initially, the OTT will generally do a quick screening that will look at whether the invention is patentable (or protectable by other means), whether there is likely to be a market for the invention and what the potential value could be. At this point the OTT will require more information from the researcher as the researcher should understand the industry, major industry players, potential applications in other industries, etc.

The extent of initial assessment will also depend on whether the invention is about to be publicly disclosed. If the researcher is about to go to a conference and disclose it, many OTTs will file a quick provisional patent application without too much detailed assessment. If the OTT has more time, they will do a more thorough assessment before protecting the invention.

2.2. Due diligence

Before any significant effort is spent on trying to commercialise the technology and before patenting, or further patent prosecution, the OTT will undertake a thorough assessment – this may be called a "due diligence" assessment, and may be repeated during the development phase and before every patenting milestone.

Questions that the OTT will need to answer during the due diligence assessment are listed below. The researcher is the best source of information, particularly concerning the invention and technology, and their participation and cooperation with the OTT are essential. The important areas of investigation in a due diligence include the following:

- **Technology / invention**
  - What is the level of innovation of the invention?
  - Is the invention scientifically sound and feasible? What are the technical risks?
  - Can the technology be demonstrated to a potential licensee or investor?
  - What is the stage of development?
  - How much time and money is required to develop the invention into a commercial product?
  - Can development be done by the institution or are development partners needed?
  - Are there any regulatory hurdles?
  - What problem does the technology solve / what need does it address?
  - How does the market currently address this need?
  - How would this technology change how the market presently addresses the need?
  - What are the major benefits (and competitive advantage) it offers?

- Do you have freedom to operate (i.e. does your technology infringe the intellectual property rights of others)?

- **IP ownership**
  - Who contributed to the invention? (IP creators and enablers, internal and external researchers, collaborators, funders, those who contributed materials, equipment, facilities, information, expertise, industry partners, etc.)
  - What agreements are in place and what are the IP clauses?
  - Does the IP fall under the IPR Act? (If so, further questions need to be answered regarding approvals required by NIPMO for further commercialisation.)
  - Who has a potential ownership claim to the IP?
  - Was background or third party IP used and under what terms? Who owns this IP?

- **Inventors / team**
  - Are the inventors cooperative and supportive, familiar with the market need for the invention, well connected in industry, widely recognized in their field?
  - Do the inventors have realistic expectations, prior licensing success, a desire to set up a company to drive commercialisation?

- **Market**
  - Does the invention fulfil a major, well-recognised need or a minor one?
  - What is the size of the potential market or markets - huge, large, small, or miniscule?
  - Is the market already established, or will it need developing?
  - Is this a growing market / field or a dying one?
  - What companies are in those markets? Who is investing in those markets? Why would investors be interested in the technology?
  - Where are the major markets located?

- **Competition**
  - Are there similar products and technologies available? What are their benefits? How widely are they used?
  - Are there gaps in the market that are not being addressed?
  - Who are the main competitors? How big are they? Do they represent potential partners or licensees?
  - Is the market dominated by few players?
  - Does the technology offer a competitive advantage?

- **Commercialisation feasibility and route**
  - What are the technology development and commercialisation costs?
  - What are the commercialisation risks?
  - Do the potential returns justify the development and commercialisation costs?
  - Is it a high margin (e.g. medical) or a low margin (e.g. consumer electronics) product?
  - Is there development and commercialisation funding available?

- **Economic and social benefits**
  - Could the invention lead to increased employment, new capital investment, export opportunities, upliftment of previously disadvantaged individuals, rural development, sustainable poverty alleviation, SMME development, etc.?
  - How can these best be achieved?

3. Protection

Protection is generally considered to be patenting, but all forms of IP protection should be considered, including keeping the invention a trade secret.

If patenting is a possibility, the questions that will be asked include:

- Is there sufficient novelty to patent? Or is there prior art that destroys novelty?
- Are strong, broad claims possible?
- Will the claims adequately cover the product or process?
- Could the claims be "invented around?"
- Would it be possible to detect infringement?
- Is the patent investment worth the potential returns?
- Is patenting the right route to maximise public access to the invention?
- Is the invention so early stage that the patent would expire before products reach the market?
- What are the territories in which patents should be filed?
- Is the field moving so quickly that patents are irrelevant?

All these questions are important to consider. **Deciding not to patent is not a reflection on the merits of the technology**, it may be because the field is moving too quickly, or infringement cannot be detected.

Other methods of protection should be considered, including a trade mark, for example, which may bolster the commercialisation feasibility of a technology that cannot be patented. Design registration could also add value to the "package" of IP that is to be commercialised.

Freedom-to-operate

It is also important to check that your technology does not infringe the intellectual property rights of others. For example, if an aspect of your technology is patented in a territory you want to get protection in, you will have novelty issues and will not be able to patent that aspect of your invention. However, if you want to commercialise your invention and need to use that aspect you may infringe the other person's patent and would need to get a license from them for that aspect.

This may not be the case in all territories – if the other party does not have protection in a particular territory, you can use that aspect of your technology without infringing anybody else's IP rights. You still cannot patent that aspect in that territory as it is not novel.

4. Commercialisation

4.1. Routes to market

There are various options available for commercialising research. The specific commercialisation route to be used will be dictated by:

- The financial investment required for each route;
- The potential return on investment for each route;
- The nature of the technology/product/process;
- The target market and how it can best be reached;
- The stage of market development;
- The market concentration;
- The availability of management;
- The aspirations of the inventor; and
- Legislative requirements.

Each of these factors must be examined before deciding on how to commercialise an invention. The most typical routes are:

- Direct sale of products and services;
- Use of technology transfer broker;
- Research collaboration;
- Open source route; and
- Licensing / assignment to an existing or spin-out company.

The last route is the most common and is discussed separately. The other routes are discussed briefly below.

(a) Direct sale of products and services

In some cases, it may be possible to produce a product or offer a service directly from the laboratory or department, without incurring high capital costs. In these cases, the researcher may be able to sell the product or service directly depending on the policies of the institution and the constraints of the researcher's workload and resource availability. The one thing to be careful of in this scenario is unfair competition with the private sector. This will depend on the market but, in most cases, it is best not to duplicate a product or service offered on commercial terms by a private entity. The other thing to be careful of is product liability and the potential risks for the institution.

(b) Use of technology transfer broker

There are a number of technology transfer brokers in South Africa and abroad that assist with the commercialisation of IP. When utilising the services of such brokers it is sometimes required that the IP is assigned to the broker, although the agreement will usually provide for the sharing of royalties between the IP owner and the broker. The advantage of using a technology transfer broker is that the costs involved in the commercialisation of IP are borne

by the broker, which usually has a good network of potential licensees and extensive experience in the field of technology licensing. Any decision to assign IP to a technology transfer broker will need to be approved by NIPMO.

(c) Research collaboration

IP could be "swopped" for a research grant – basically a royalty-free license is provided to the private entity in exchange for research funding. It is important for inventors to be able to provide input on their needs and whether they agree with this approach. In terms of the IPR Act, inventors are still entitled to benefit-sharing of non-monetary benefits such as these, and this will need to be considered by the institution when entering into this type of arrangement. In addition, a royalty-free license will need to be approved by NIPMO.

(d) Open source route

Software is the most typical example of IP provided through an open source model. The source code is provided and open to all to use and adapt. Licenses for use can still be applied but are usually royalty-free, although clauses to share income if sold commercially can be included. A royalty-free license will need to be approved by NIPMO.

The open source route can also be considered for dissemination of information on new technologies or improvements to existing technologies through manuals and practical training programmes. The manuals can be sold and training provided to realise income from the research.

4.2. Licensing / assignment – introduction and key issues

Licensing vs. assignment

A license agreement is a contract between an IP rights owner (licensor) and another who is authorised to use such rights (licensee) in exchange for an agreed payment. The licensor retains ownership of the IP rights. This is different to an assignment of IP rights, which is the transfer of ownership of IP rights from one entity to another. In other words, assignment is equivalent to the sale of IP.

Generally OTTs will prefer to license IP rather than assign it, particularly for a spin-out company, because one may not be able to get the IP back if the technology is not commercialised or if the spin-out company fails. Under the IPR Act, licensing is preferred and assignment requires NIPMO approval.

(a) Licensing terms and types

A license agreement has terms defining the length of time the license is valid, the markets (territory and field of use) in which the licensee can use or sell the product, whether or not sub-licenses are permitted, the nature and amount of upfront fees and royalties, whether or not the licensor has rights to any improvements developed by the licensee, etc.

A license can be non-exclusive, sole or exclusive:

- A **non-exclusive** license means that the licensor may give out more than one license. Non-exclusive licenses may be given when the technology does not require significant investment in development or when the licensees do not compete with one another on the basis of the licensed technology (for example, software is often licensed non-exclusively).
- An **exclusive** license means that the licensee is the only party who has right to use the IP and even the licensor cannot use the IP for commercial use. This provides the licensee with a significant competitive advantage and the potential for a large financial return so the licensee has an incentive to develop and commercialise the technology.
- Where the licensor grants a **sole** license, the licensor retains the right to commercialise the technology in addition to giving a license to the licensee. In other words, only the licensor and the licensee have rights to use the IP.

(c) Key license issues

Some of the key issues that must be addressed when negotiating a license agreement are:

- Obligation for the licensee to share plans for commercial development;
- Time limits on the development and release of the product onto the market by the licensee, including performance clauses on sales and royalties;
- Clear definitions of the intellectual property related to the license agreement;
- Clear definitions of the types of products the licensee is permitted to develop using the intellectual property;
- The term of the license agreement (In the case of patents this is often the lifetime of the patents);
- The payment amounts, structure, and terms;
- The exclusivity and geographical scope of the license;
- Guarantees or warranties on the technology – generally a licensor would not guarantee the technology at all;
- Rights of the licensor to any improvements developed by the licensee; and
- Rights retained by the licensor, for example, to use the IP for research and teaching.

(d) Option agreements

Before granting a license to a licensee, a commercial evaluation license (also known as an option agreement) may be used. This grants a potential licensee the option (sometimes for a fee) to negotiate a license within a specific time, while the licensee assesses the commercial potential or appropriateness of the technology. The licensee can explore the value of a new technology for a limited time before making a financial and resource commitment to a full license. If the licensee finds the technology meets their needs, then the parties can negotiate a new agreement for an exclusive or non-exclusive commercialisation license.

(e) Financial considerations

A license is a transfer of value, and license fees are the agreed price of that value. Since licenses are not traded in open markets, where the price can be set through supply and

demand, each negotiation is unique and has to reflect the evaluations of each party. A licensor will want, at a minimum, to recover the costs, or some reasonable portion of the costs, already invested in the product, and to generate a steady flow of income. License fees can take the form of up-front payments, royalties, minimum annual payments, milestone payments, patent cost reimbursements, equity and combinations of these.

Up-front payments should be high enough, if possible, to meet the licensor's need for short-term income and to ensure that the licensee will accord an appropriate level of seriousness to the product, but should not be so high as to limit the ability of the licensee to invest in the product and make it a success. Other factors to consider are the life of the product and the life time of the intellectual property rights being granted. The shorter the life of a product (because other better products are expected to emerge quickly), the less the licensor can ask for up-front fees and, to a lesser extent, royalty.

Royalty rates differ considerably and depend on the following main factors:

- The stage of development of the product when licensed out;
- The type of product;
- The industry in which it is applied;
- The price at which the product can be sold;
- The maturity of the market;
- The geographical scope of the license; and
- The term and exclusivity of the license.

If the license is based on a patent, the level of royalties may decrease, or the license may even expire at the end of the patent life. The issue of license term is more complicated when the license is for know-how. A reasonable approach toward a know-how license is for the royalty to diminish with time and eventually reach zero when both parties agree the know-how would be no longer of value. However, if know-how is essential for the successful manufacture and sale of the product throughout its life time, there is no reason for the royalty to change. Also, a licensor may make continual changes in the know-how and pass those to the licensee. Again in this situation, royalties may be collected for a very long time.

Minimum annual payments are usually set to encourage certain sales targets to be met by licensees and are generally off-set against royalties. Milestone payments may be requested on achievement of certain milestones, for example, on attainment of regulatory approval for a new drug.

4.3. Spin-out and start-up companies

A "spin-out" company is a company that is created using the resources of the institution or company from which the technology originated. The institution or company usually incubates the spin-out company at least until the first round of venture capital investment. Staff members from the institution or company are often transferred to the new company either permanently or on a secondment basis.

Research institutions may spin out companies in order to separate their commercial activities from their core purpose, i.e. teaching and research, while an existing company may spin out a new company when the technology in question falls outside of its core business. In either case, the IP in question generally still needs to be licensed or assigned to the company.

A "start-up" company is a company created by people outside an institution or company. It is usually built on a license to one or more technologies that may originate from an institution or company. However, its other resources, such as management, are drawn from elsewhere.

4.4. Licensing to a spin-out vs. established company

The commercialisation of research through the creation of a new company is considered where the technology is sufficiently broad based (e.g. a platform technology that enables a range of different products to be produced, possibly for a range of different markets) and where the capital investment required for product development and commercialisation is justified by the potential returns. The costs and risks must be weighed against the potential returns when deciding on whether to form a new company or to license the technology to an existing company that has the necessary infrastructure such as channels to market, sector knowledge, facilities, commercial management, and an existing contacts network in place.

The new company route may be the only option where no licensee can be recruited to commercialise a product (i.e. if the technology does not fit into the product offerings and markets of existing companies) and where a market does not already exist for the product. On the other hand, a license may be the only option if funding for product development and marketing is not available. Forming a new company as a means of commercialising technology presents a higher risk than the traditional licensing route; however, it has the potential to contribute to economic development via the creation of jobs.

There are many challenges facing new companies, particularly technology-based spin-outs. A wide variety of skills, expertise and resources are required for them to develop and market their own products. They usually require a huge investment over a relatively long period of time before sales and revenues are realised. Spin-outs from existing companies usually have a strong infrastructure and support base, while spin-outs from research institutions may be at higher risk, since the institutions are normally limited in the staff and financial resources and capabilities that they can devote to the commercialisation of technology. In either case, a sound and well researched business and operational plan and access to the necessary financial resources are essential.

E. The Office of Technology Transfer

1. Role of the Office of Technology Transfer

The Office of Technology Transfer (OTT) is that part of an institution that is responsible for identifying, protecting and commercialising intellectual property developed and owned by the institution. Some of the functions of an OTT include:

- Identifying research output with potential commercial value;
- Implementing systems and procedures for the disclosure of IP;
- Evaluating the commercial potential of IP;
- Protecting IP with the appropriate legal rights;
- Marketing IP and identifying development and commercialisation partners;
- Managing industry relations;
- Deal-making through licensing or spin out companies;
- Contract drafting and negotiation;
- Establishing and incubating new ventures;
- Managing benefit sharing;
- Awareness raising activities to educate staff and students;
- Referring disclosures to NIPMO on behalf of an institution;
- Assisting researchers in protecting the disclosures;
- Assisting in commercialising the disclosures;
- Making the researcher aware of the IPR-Act especially if the disclosure / invention has been funded by government.

The OTT is also responsible for implementing the obligations of the institution in terms of the IPR Act and for reporting to NIPMO.

2. Interaction of the OTT with the researcher

Researchers play a major role in the technology transfer process. They are the experts in the technology field being disclosed, protected and commercialised and they play an essential role to the success of these activities. However, it is recognised that the core role and interest of the researcher is in conducting research (and usually also teaching), that they are often faced with significant time constraints, and that they are measured by publications and teaching and not by commercial activities. The OTT is thus there to take on the tasks listed above and to free researchers up to focus on their core strengths and interests. Researchers generally have the choice of becoming as involved in the technology transfer process as they desire, leaving the rest to the OTT.

Definitions

Academic works means copyrighted works such as theses, dissertations, articles, publications, posters or any other literary works, which in the ordinary course and scope of employment are associated with conventional academic work.

Author means, according to the Copyright Act, in relation to:

- a literary, musical or artistic work, the person who first makes or creates the work;
- a photograph, the person who is responsible for the composition of the photograph;
- a sound recording, the person by whom the arrangements for the making of the sound recording were made;
- a cinematograph film, the person by whom the arrangements for the making of the film were made;
- a broadcast, the first broadcaster;
- a programme-carrying signal, the first person who sent the signal to a satellite;
- a published edition, the publisher of the edition;
- a literary, dramatic, musical or artistic work or computer program which is computer-generated, the person by whom the arrangements necessary for the creation of the work were undertaken;
- a computer program, the person who exercised control over the making of the computer program.

BBBEE means broad-based black economic empowerment and the economic empowerment of all black people including women, workers, youth, people with disabilities and people living in rural areas through diverse but integrated socio-economic strategies (as defined in section 1 of the Broad-Based Black Economic Empowerment Act, No 53 of 2003).

Business idea means a business plan or similar document that sets out the establishment of a new business enterprise. Such an enterprise may rely on intellectual property disclosed.

Commercialise / Commercialisation means the process by which any IP may be adapted or used for any purpose that may provide any benefit to society or commercial use on reasonable terms. It thus means to make, sell, copy, adapt, apply, publish, develop, use, assign, license, sub-license, franchise or otherwise utilise the intellectual property for the purpose of generating financial or other commercial gains.

Commercialisation revenues are revenues from commercial activity and may include royalties on sales from a licensee, proceeds from the sale of intellectual property, milestone payments or dividend payments.

Contract research means research commissioned by organisation outside of the institution. Usually the institution's infrastructure is used and staff and/or students are actively involved.

Copyright means all rights conferred by the Copyright Act in relation to literary works, dramatic works, musical works, artistic works, films, sound recordings, broadcasts, published editions and certain types of performances.

Course and education materials mean materials used in or in conjunction with an education course offered by an institution for the provision of lectures, tutorials, seminars, workshops, field or laboratory classes, assessments, teaching material, lesson plans, tutorials, test and examination questions, assignments, learning modules, practicals, etc. The use of course and educational materials by an institution for the purposes of teaching does not constitute commercialisation of the intellectual property.

Course and scope of employment means all acts reasonably necessary for the performance of work for which a person is employed.

Creation means an innovation, design, or other form of protectable or un-protectable intellectual property, or a business idea.

Creator / Inventor means the person involved in the conception of intellectual property and identifiable as such for the purposes of enforcement of intellectual property rights, where applicable.

Design means, according to the Design Act, a functional or aesthetical design.

Employee means a person who is permanently or temporarily, part time or full time employed or who is in terms of common law or labour law regarded as employed.

Full cost means the full cost of undertaking research and development as determined in accordance with international financial reporting standards, and includes all applicable direct and indirect costs.

Funding agency means the State or an organ of state or a state agency that funds research and development.

Intellectual property (IP) means any creation of the mind that is capable of being protected by law from use by any other person, whether in terms of South African law or foreign law, and includes any rights in such creation. In terms of the IPR Act, IP excludes copyright in a thesis, dissertation, article, handbook or any other publication which, in the ordinary course of business, is associated with conventional academic work.

Intellectual property transaction means any agreement in respect of intellectual property, including licensing, assignment and any arrangement in which the intellectual property rights are transferred to a third party.

IPR Act means the Intellectual Property Rights from Publicly Financed Research and Development Act, No 51 of 2008.

Invention means, in order to qualify for patent protection, an invention of a technical character that is novel and inventive and is able to find application in trade, industry or agriculture. A registered innovation or invention can be any product, process, method, appliance or composition. The term

also includes all inventions that have not been patented or registered, but rather acquire protection as confidential knowledge. A discovery is not an invention.

Know-how means expertise which has been built up in respect of a field of technology. It is typically embodied in drawings, notes, calculations, reports and various other types of written and drawn documentation.

Literary work means, as defined in the Copyright Act, irrespective of literary quality and in whatever mode or form expressed:

- novels, stories and poetical works;
- dramatic works, stage directions, cinematograph film scenarios and broadcasting scripts;
- textbooks, treatises, histories, biographies, essays and articles;
- encyclopaedias and dictionaries;
- letters, reports and memoranda;
- lectures, speeches and sermons;
- tables and compilations, including tables and compilations of data stored or embodied in a computer or a medium used in conjunction with a computer, but not including a computer program.

Material transfer agreement (MTA) means an agreement that governs the transfer of tangible research materials between two parties. Usually the recipient intends to use it for his or her own research purposes, but the material may also be transferred for commercial purposes. MTAs define the rights of the provider and the recipient with respect to the materials and any derivatives thereof.

Net revenues means the commercialisation revenues less the expenses incurred for intellectual property protection and commercialisation of the intellectual property.

NIPMO means the National Intellectual Property Management Office as established in terms of the IPR Act.

OTT means an Office of Technology Transfer.

Patent means a certificate in the prescribed form to the effect that a patent for an invention, as defined, has been granted.

Publicly financed research and development means research and development undertaken using funds provided by the State or an organ of state or a state agency or component established for the purposes of funding research and development.

Recipient means an institution that receives public funds to undertake research and development.

Trade mark means, according to the Trade Mark Act a mark used or proposed to be used by a person in relation to goods or services for the purpose of distinguishing those goods or services from the same kind of goods or services connected in the course of trade with any other person.