



inn vation

made easy

Prepared by the



**Foundation for Education,
Science and Technology**

for the Department of Arts, Culture, Science and Technology.



**Foundation for Education,
Science and Technology**



**Department of Arts, Culture,
Science and Technology**



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"I try to **imagine** how the world is unfolding. Try to **SEE** what current trends are emerging – what's going to last and what's going to die early – and then try to **find opportunity** in the things that are interesting and worthwhile to me."

Mark Shuttleworth, 2002





You have had a bright idea for something that is new, unique, and useful. In your dreams you patent your idea, market the invention and make money selling the product. But how do you really go about it?

Invention is only a small component of innovation. Inventors are not necessarily innovators, and there is a big difference between a good idea and a good product. You have to be willing to learn, persevere, be determined to see your project through and make the right decisions. The way to successful patenting of a product may seem like a maze without an end.

But, basically, there are only a few activities you need to carry out. This brochure will take you through the steps.



Complete the investor's journal

The first step is to **write down your idea** in a journal. Number the pages so that nothing can be added later. When you have written down the details about your invention, you will have to have someone date, sign and witness your journal. This is the only way to prove the

conception date and designs of your invention. Just make sure you **don't disclose your idea**.

Note that in some Patent Offices, like in the US, the patent is awarded to the individual who can prove that his/her journal has the earliest date!

Screening ideas

The second important activity is to **validate and improve your idea**. This is called screening the idea. Ideas are cheap. Moving from the idea to the innovation requires the merging of science, economics and law into a cohesive whole.

Screening your idea will protect you from losing money. The idea has to have a functional result and be able to solve a problem in order to be translated into money. So, you have to make sure that your idea will sell and for that you have to ask the potential "buyers".

Meet with potential buyers, describe the benefits you perceive the product will provide and ask if they would buy your product. Ask at what price. The product will have to be manufactured at a fraction of the retail price. Ask which representatives, who call on them, carry this kind of product and

ask the representatives the same questions.

With the information you collect, you will have some notion of whether the product might sell and at what cost. Additional questions that you will need answers for are:

1. Will the product need to be certified by an agency?
2. Will it pass certification testing?
3. Are there environmental or safety regulations that would prevent you from selling the product?

For ideas that pass through the screening process you have to ask:

Do I have the business and sales skills to transform my idea into a viable business? This question applies to both the options of manufacturing and of licensing. It's probably harder to negotiate and sell a licence than start a business. If you decide that you

don't have, or you are not prepared then you have two options: either
to apply the business and sales skills, hire the skills or find a partner.

REMEMBER: More than 95% of all patents never make money for the inventor.

Determining the type of intellectual property

There are five main types of intellectual property – patents, copyrights, trademarks, industrial designs and integrated circuit topographies. Each provides a specific type of protection. It is not unusual to employ more than one form to protect an original creation. For example, if you have invented a board game, you may obtain industrial design protection along with copyright and trademark protection.

Patents protect inventions that are new, serve a useful purpose and demonstrate innovative thinking. An invention can be a product, process, composition, or apparatus, or an improvement on any of these.

Copyrights protect original literary, artistic, dramatic or musical works. Examples include books and other writings, music, sculptures, paintings, photographs, films, plays, television and radio programmes, and computer programs. Copyright does not cover themes, ideas, most titles, names, catchphrases and other short-word combinations of no real substance.

Trademarks protect words, symbols or designs, or a combination of these items used to distinguish the goods or services of one person or company from those of another.

Industrial designs protect the shape, configuration, pattern or ornament (or any combination thereof) applied to a finished article. It may be, for example, the shape of a table or the ornamentation on the handle of a spoon. The article can be made by hand, tool or machine.

Integrated circuit topographies cover the three-dimensional configuration of electronic circuits used in microchips and semiconductor chips. Protection can extend to the layout design as well as to the finished product. This form of protection also supplements any patent protection obtained for the circuit itself.

Plant breeders' rights permit plant breeders to legally protect new varieties of plants. All plant species except algae, bacteria and fungi are eligible for protection.

Patent prior-art search

Patenting costs money. So, with this step you start spending money. It is important to make sure that your idea has not already been invented and patented. You don't want to spend money and time only to find out that someone else abroad has made the same invention some time ago.

If a similar invention has ever existed, anywhere, at anytime, you can not patent it.

The **search and discovery of prior-art patents** help to determine the novelty or unobviousness of the present invention. **Prior-art** refers

to the total body of knowledge which is directly related to the invention. Prior-art references include documentary sources, such as patents and publications from anywhere in the world, and non-documentary sources, such as things known or used publicly.

During this stage you should be careful not to disclose your unprotected idea. If you do so, you may lose your patent rights.

A **patent search** by a legitimate registered patent attorney can be done for a few thousand rands.

Start-up funding

From the moment you decide to follow up an idea until the invention starts producing profits, you will be required to spend money. The early stages of the effort remain the most difficult to finance. There are different sources of funding that you may consider.

Self-finance

Financing your own invention is the most common approach. Inventors usually put all financial and non-financial contributions (i.e. time, contract, etc.) in the early stages of the effort to move from invention to innovation.

Friends and family

These are possible sources of support, although they are usually a "helping hand", rather than a serious source of investment.

Public sector support

Governments offer different kinds of financial support in order to promote innovation. In South Africa the Department of Trade and Industry (DTI) and the Industrial Development Corporation (IDC) are the relevant bodies. Their web-sites provide brief descriptions of the programmes they finance. You would have to search the

different categories and choose the programme that may consider your invention for support.

The South African science councils, within their programmes, offer a number of gateways to funding initiatives for innovations. A full list of their contact details is available from the Innovation Gateway of the NACI website (www.naci.org.za).

Business Angels

There are wealthy individuals who are investing their own financial

resources in inventions that they like. Typically, business angels invest in businesses that have some experience.

Venture Capital

Venture Capital companies manage the funds of their inventors and their motive is to make profit and support their management fees. It is a source of investment that usually appeals to investors who are looking for a substantial amount of funds and who are in an advanced stage of their innovation efforts.

Making money from your invention

Having gone through the hurdles of patenting and prototyping your invention, the moment that profits appear on the horizon is the moment that you will have to decide either to manufacture your invention or to license it. Manufacturing and selling your invention requires a chain of entrepreneurial skills.

Licensing your invention

Licensing your patent means that you allow another party to exploit your invention. You can rent your invention to only one user (sole licence), to a limited number of users (limited exclusive), or to a large number of users (non-exclusive).

The costs to maintain the benefits from your invention are:

- the maintenance fees that need to be paid to the Patent Office,
- the fees of the attorney to write your licensing contract, and
- the premium of the intellectual property infringement insurance.

The following are some guidelines that you should adhere to in order to have a successful licensing agreement.

Rule 1:

A licensing fee and a royalty are always arrived at by working out the figures. Never assume that the royalty will be ANY % of sales, regardless of what royalty payments you may have heard of as being typical in the past.

Rule 2:

The inability of an inventor to attract a substantial royalty agreement is based on the inventor's inadequate market assessment, incomplete competitive market analysis, and not discovering how the potential buyer might profit before the inventor starts idea and patent development.

Rule 3:

Companies do NOT license ideas – or even patents. Licences are about MONEY. You, the inventor, must complete your business plan so that you can REALISTICALLY estimate the possible sales, costs and profits a licensing company can achieve if they license your patent.

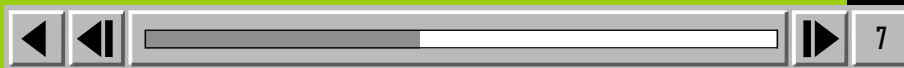
Rule 4:

The “competitors” you identified during your Step 2 market research could be your best licensing candidates. Learn and understand how they do business as well as their top managers do.

Rule 5:

You only have one chance to make a first impression – and there is only one “best” company to license to. Before you contact that company to license your invention, have your best prototype, best market research, and best written patent ready to display in all their glory. If you have not prepared, you blow your chances. It's too late for another chance, and you will start DOWN the ladder to possibly less interested companies.

Finally – remember this: “Hogs get sold, pigs get slaughtered”. Too many inventors get greedy, and lose touch with reality when it comes to negotiating a royalty. Could this be why almost 95% of all patents are never successfully commercialised?





Q&A



Q: When should I build a prototype?

Q: Can employees patent their inventions?

Q: How do I protect my intellectual property?

Q: How much will it cost me to protect my intellectual property?





When should I build a prototype?

When do you **need a prototype**? There is no simple answer to this question, but there are some basic guidelines to follow. The conception stage of your invention is perhaps the most important time not to build or contract the production of a prototype. This is, of course, unless the device can be produced at minimum expense in your garage or at your kitchen table. If a prototype is going to require extensive time and money, you should hold off until you have a patent search conducted. You could be developing what someone else already holds a patent on!

Assuming the item you have conceived passes the patent search phase, you will probably want to protect it with a patent of its own. It is not required by the Patent Offices to have a working model to obtain a patent.

With a patent application on file, you have reached patent pending status and may begin your marketing and licensing endeavours. Perhaps the most important time to have a prototype developed is when you begin contacting parties in industry. It is very important to have a high-quality presentation package to present to potential licensees.

Ultimately, every inventor would love to have the completed product as if it were actually in production. However, this is almost never feasible. Unless you can have a prototype produced that will appear and function the way the actual product will, do not bother sending a crude one to licensees.

As an alternative, you should take advantage of computer modelling to present your invention as it would appear and function in reality. Computer modelling is relatively inexpensive and is the best way by far to present a concept.

The complexity of the invention is the greatest factor to consider before working on a prototype. Inventions range from the simple (capable of being prototyped by using common household items and hardware) to the moderate (requiring specialised materials but no special production equipment), to the highly complex (requiring such processes as laser mould casting and specialised tools of production).

For items of extreme mechanical or electrical complexity, engineering drawings are your best route. Engineering drawings give the exact dimensions and tolerances of the parts that make up your

invention. They show the interrelation of parts and how they work and are connected. Additionally, true engineering-level drawings and specs provide manufacturers with all they need to actually produce the product. If you are going the route of a physical

prototype and are planning to spend several thousand rands, be sure to hire the best outfit your money can buy. A high-quality prototype will spell the difference between success and failure in the marketing and licensing stages.

REMEMBER: First impressions are everything.

Q Can employees patent their inventions?

The first step to take if you work for a company or institution is to study the Intellectual Property Rights (IPR) policies of your employer. Patents may represent extremely valuable property rights, and therefore most companies or education institutions have specific patent policies governing the ownership of inventions made by employees or students.

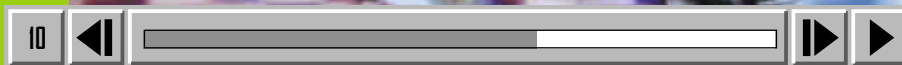
Specific procedures are often provided about how inventions are to be handled and about rights of inventors.

In certain circumstances, for instance if an employee invents something that has nothing to do with his or her employment duties, the employee may patent his or her inventions. But, where the employee is employed to use his/her inventive capabilities for

solving certain problems and then invents something, all rights may belong to the employer. The rights may even belong to both the employer and the employee, in equal shares, or in unequal shares depending on the type and circumstances of the invention. If all rights in the invention belong to the employer, it is in his own discretion to do with such rights as he pleases.

If no contract exists between an employer and employee, the general view is that the rights in an invention made by an employee belong to the employer if:

- The invention was made in the course of the employment of the employee, and
- The invention is applicable in the line of business of the employer, and
- It could be expected from the employee to make the invention.



The Patents Act of 1978 provides that if in an employment contract there is a condition which “(a) requires an employee to assign to his employer an invention made by him otherwise than within the course and scope of his employment; or (b) restricts the right of an employee in an invention made by him more than one year after the termination of the contract of employment”, such a condition in the contract is null and void. [Section 59(2)].

It is a known fact that in some companies it is difficult to obtain a management decision whether or not a patent application is to be filed. This decision may also be delayed due to personal interest of certain persons. An employee

inventor may be frustrated in such a situation since, if a patent application is not filed, the novelty of the invention may be destroyed. Furthermore, the more people who get to know about the invention, the greater the risk of destroying its novelty. In such instances, the inventor may be courageous and file a patent application (provisional) in his/her own name and at his/her own expense.

Thereafter he/she would inform the company and suggest that the application be assigned to them on the understanding that the company reimburses his/her expenses. In this manner the inventor may prevent destruction of the novelty of the invention.



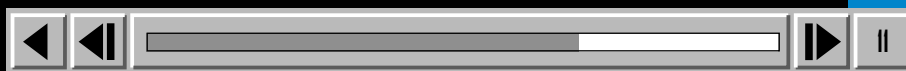
How do I protect my intellectual property?

Patent law in South Africa is regulated by the Patents Act, 1978 and its amending Act.

South Africa is a member of the Paris Convention. Therefore, the applicant of a patent in another member country may file a South African patent application corresponding to a home-country application

within one year of the original filing date, and to obtain the same effective filing date in South Africa.

As South Africa has acceded to the Patent Co-Operation Treaty (PCT), it can now be designated in a PCT application. A PCT is an “international” patent application to the extent that it covers a large number of countries which have



acceded to the Treaty. In terms of the recently amended Patents Act, a PCT application designating South Africa is deemed to be an application for a patent lodged in South Africa.

Patent applications are not examined on the novelty and non-obviousness of their subject matter or in any other substantive respects in South Africa. If disputes rise about the registrability or scope of a South African patent, it is left to the respective parties to attempt to reach a resolution by negotiation. If negotiation fails, the dispute can be taken to the Patents Court for adjudication by a judge, who may order the revocation of the registration of the patent.

In the international Patent Offices, however, an invention can only be patentable if it is:

- **Novel**
New, never having existed on Earth.
- **Useful**
It must work or accomplish something.
- **Non-obvious**
It is not profound.
- **Reducable to practice**
The idea can't be patented, but the drawings, the prototype functions or the product can be.

The filing of a provisional patent application affords the applicant a right in the nature of an option. The applicant acquires a preferential right over other applicants, to obtain a patent for the invention in the Republic, provided that a complete application is filed within 12 months of the filing date of the provisional application. The option also applies to convention countries abroad. In the convention countries, one's rights are kept open for a period of 12 months from the filing date of the South African provisional application.

Patents have a 20-year term, and renewal fees are payable annually after the first three years following filing.

In order to patent your invention you need to hire an attorney or patent agent. A number of tips are useful for this task.

- Be prepared before you contact them. Have your investor's journal, your prototype, your own patent search results and notes with you. If you call an attorney before you have done your "homework", expect their price to DOUBLE, if they will even agree to work for you.
- Make sure that they are registered to practise.
- Next, ask them for their technical and legal background. Thus, if your invention is electronic, find a patent professional who is also an electrical engineer. They will be

- glad to tell you their qualifications.
- Discuss fees. Legal services are expensive so keep your focus on smaller patent firms. Large patent law firms primarily deal with large corporations and are used to

charging high rates. The smaller firms will work more closely with you – and usually at a lower cost. Agree on the estimated TOTAL costs before hiring your patent professional.



How much will it cost me to protect my intellectual property?

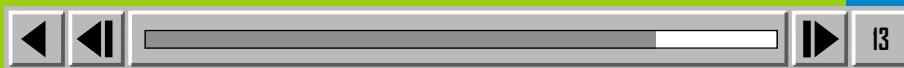
The preparation and filing of a design application in Part A or Part F of the Register will cost around R3 500 to R5 000. Where further applications are filed for the same design, for example in further classes, the costs of the additional design applications are reduced.

The estimated costs for preparing and filing a provisional patent application, in respect of an invention of average complexity, are of the order of R5 000 to R7 000 depending upon the amount of work involved.

The estimated costs for preparing and filing a complete patent application in South Africa are between R6 000 and R10 000.

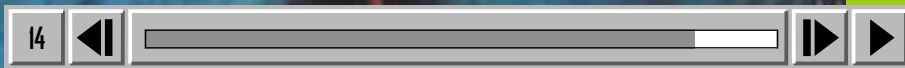
The estimated costs for filing separate national applications at the European Patent Office (EPO) (i.e. for purposes of obtaining patent protection in the European Union, the USA and Australia), are as follows:

EPO	R40 000 – R50 000
USA	R20 000 – R25 000
Australia	R12 000 – R15 000



GLOSSARY

& important
contacts



Glossary

Angel investor

Individuals or groups who invest in entrepreneurial companies.

Confidentiality Agreement

An agreement between the inventor and the person to whom the invention is disclosed (prior to filing the patent application). Such an agreement provides evidence of the receiving parties' understanding of the confidential nature of the information and expresses, in written form, their obligation to keep the information in confidence.

Innovation

The process whereby ideas for new or improved products, processes or services are developed and commercialised in the market place.

Intellectual property

Represents the property of someone's mind or intellect. Types include patents, trademarks, designs, copyrights, plant breeder's rights, etc.

Invention

The creation of a new technical idea and of the physical means to accomplish or embody it.

Licence

A permission to use an intellectual property right within a defined time, context, market line or territory.

Plant breeders' rights

Plant breeders' rights permit plant breeders to legally protect new varieties of plants. All plant species except algae, bacteria and fungi are eligible for protection.

Patent

The grant of a property right to the inventor of a useful idea.

Prior-art

Technology that is relevant to an invention and is publicly available.

Reduction to practice

The physical part of the inventive process that completes and ends the process of invention.

Royalty

Income derived from the sale or use of a licensed product or process.

See into the future ...



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