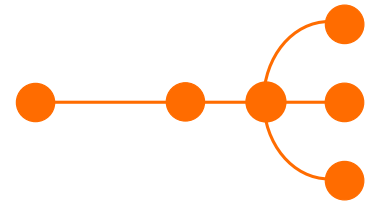
KNOWLEDGE TRANSFER AND ITS PROCESS

CHECKLIST FOR THE RESEARCHER

LIAISON ENTREPRISES-UNIVERSITÉS

→ USER GUIDE

→ KNOWLEDGE TRANSFER



→ CONTACT

Request support from the Knowledge Transfer Office

An initiative of partners of the LiEU Network (UCLouvain, ULB, ULiège, UMONS, UNamur) with the essential contribution of Céline Lefèbvre for the illustrations and graphic design.

With the support of

USER GUIDE

In response to a request from researchers, the LiEU Network has developed an interactive guide enabling any researcher, new or experienced, to have an overall view of the process leading to knowledge transfer and to have concise summarised information at each step.

By making the process of research promotion more transparent and accessible, the LIEU Network hopes to see more initiatives among universities and Higher Education Institutions (HEI) leading to knowledge transfer within civil society.

[1] *via the Knowledge Transfer Offices (KTOs) of the universities of the Fédération Wallonie-Bruxelles (UCLouvain, ULB, ULiège, UMONS, UNamur, USL-B) and in collaboration with SynHERA.*

TABLE OF CONTENTS → list of explanatory sheets available (accessible at the top right of each page)

THE MAIN PAGE → a diagram showing the main steps of the transfer and pointing to explanatory sheets (accessible at the top right of each page)

- Click and access a potentially useful focus area throughout your search
- Click and access an explanatory sheet
- Some forms are not yet clickable - information is being created

Get HELP

CONTACT an advisor from your KTO

The information in this guide is necessarily summarized and not exhaustive. Also, do not hesitate to **contact us** to find out more. Finally, this guide only makes sense if it is really useful to you: all your suggestions for improvements are therefore welcome!

Have fun surfing and reading!

Important note: many links allow you to move around inside this guide.
If you use Foxit Reader, don't forget to activate the hand tool function. This is not necessary with Adobe Reader.

→ Material Transfer Agreement p.4
→ Freedom To Operate p.6
→ IP Transfer of rights p.8
→ Computer software: *Distribution strategy* p.10
→ Patent as a source of information p.12
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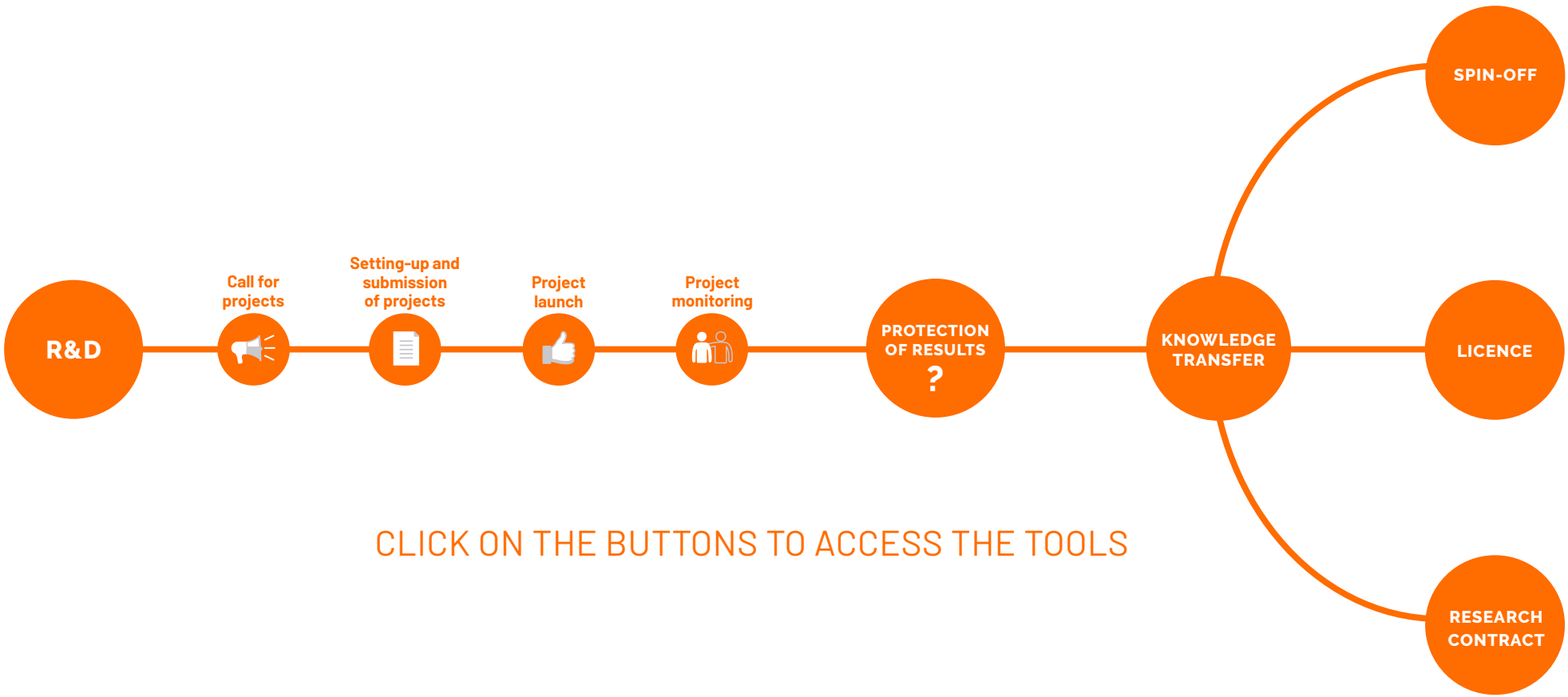
TOOLS AVAILABLE TO RESEARCHERS DURING KEY STEPS OF THE KNOWLEDGE TRANSFER

If knowledge transfer is envisaged, scientific publication should be done in agreement with the KTO.

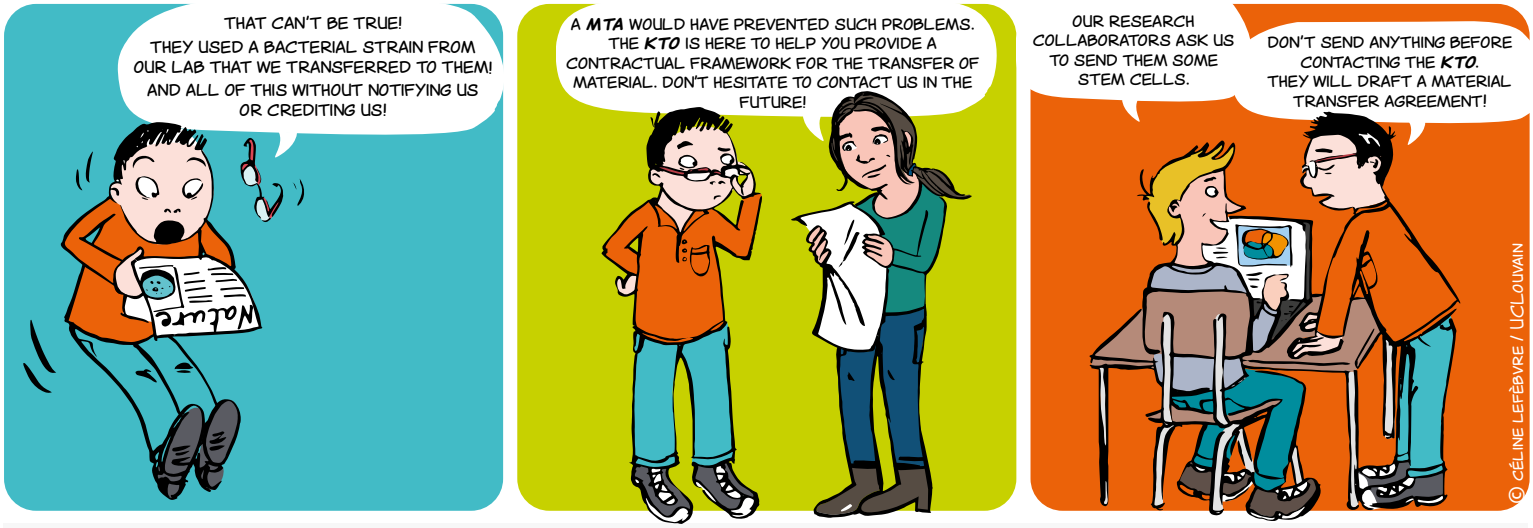


CLICK ON THE BUTTONS TO ACCESS THE TOOLS

STEPS TOOLS FOCUS AREA

MATERIAL TRANSFER AGREEMENT

MTA – Material Transfer Agreement 1/2



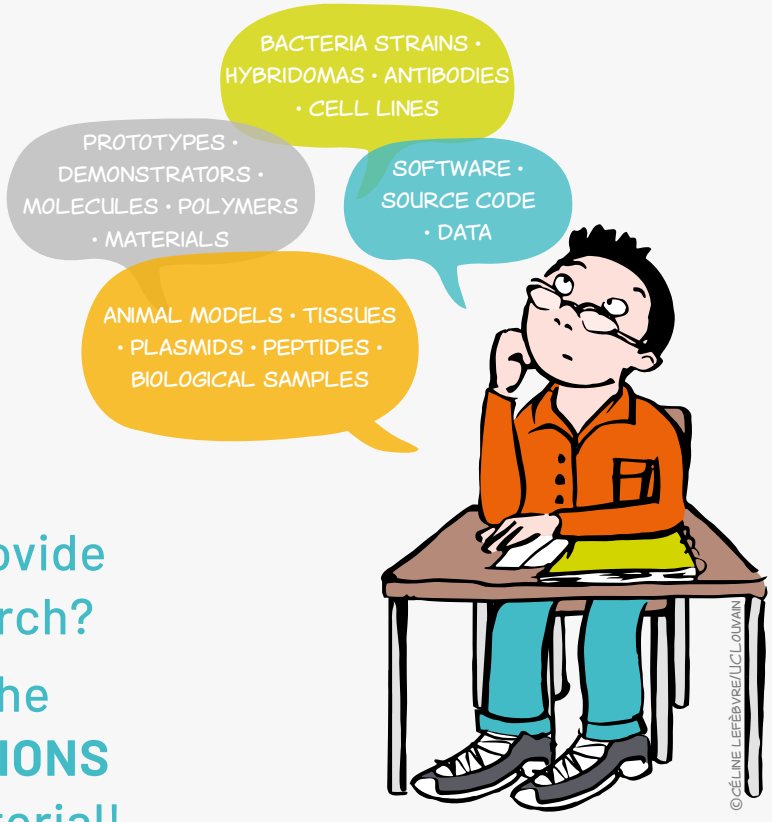
WHAT IS AN MTA?

The MTA (Material Transfert Agreement) is a contract governing the transfer of material between two parties, whether public or private usually for research purposes only.

It defines the terms and conditions of the transfer of material, including those regarding ownership of the material and its modifications. Such a contract also defines the terms of use, of publication, and those related to confidentiality, etc.

IN RESPECT OF WHAT?

- For any shipment or receipt of material used generally for research purposes
- For all types of material



Do you receive or provide material from research?

The MTA defines the **TERMS AND CONDITIONS** of the transfer of material!

MATERIAL TRANSFER AGREEMENT

MTA – Material Transfer Agreement 2/2

TO DEFINE WHAT?

➡ The research project relying on the use of the material and the objectives pursued to limit the permitted use of the material within this framework, i.e.:

- ownership of the transferred material
- ownership of modifications, discoveries and inventions made by the receiving party
- the conditions of use that the receiving party is entitled to do (manipulations, improvements, etc.)
- the persons authorised to use the material
- confidentiality related to the material, for example in the case where a patent application is being considered
- the conditions related to scientific publications that may be written about the material
- Liability for damages which may arise from use of the material

BUT ALSO PRACTICAL ARRANGEMENTS

- **identification of the material in question (nature, quantity level of hazard, etc.)**
- **bearing of transport costs**
- **duration of the agreement and terms related to the return of the material (or its destruction) upon termination of the agreement**

WHEN?

- As soon as there is a possibility of exchanging the material.
- You should then contact your KTO as soon as possible because the agreement must be concluded before the transfer of any material between the providing and the receiving organisations.

HOW?

- The MTA is negotiated by your KTO.
- It may be drafted by your KTO or proposed by the external providing party in which case your KTO will anyway carefully review such a contract.

WHO SIGNS IT?

The MTA is concluded between legal entities.
Within the Academic institution, it is signed by the legal representative authorised to engage the academic institution (Rector) and by the recipient researcher.

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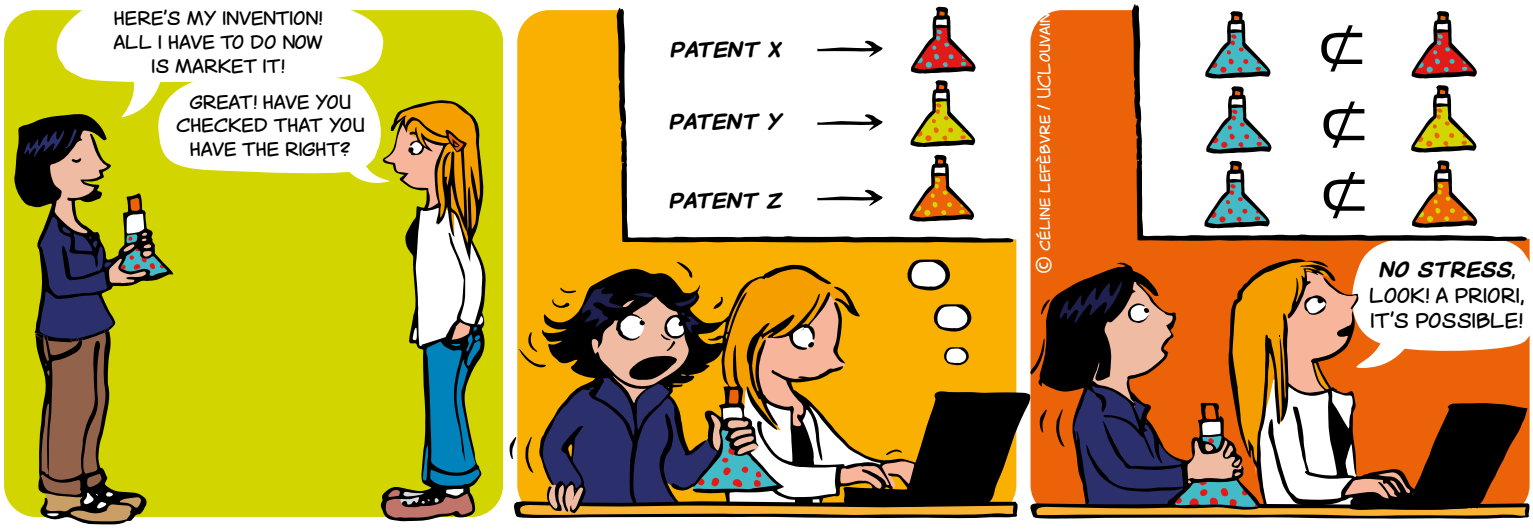
FREEDOM TO OPERATE

(FTO)



WHAT IS FREEDOM TO OPERATE? (FTO)

An FTO analysis is a study carried out to check that you don't risk infringing an intellectual property title that belongs to a third party, such as a brand, a design, a plant variety, a printed circuit or a patent.
This document details the case of the patent FTO.

FTO OR PATENTABILITY?

A patentability analysis involves analysing the prior art to check that an invention is new and inventive. It can be used to draw up a patent application that covers the product or process concerned, while limiting the possibilities for competitors to market a product or process that is too similar.

The FTO analysis itself consists of checking that a product or process that is to be marketed does not fall partially or wholly within the field of protection (which may be definitive or provisional) of patents held by third parties in the intended territory(ies).

WHEN?

Ideally, the FTO analysis should be carried out when the research begins. There is always time to think about this during the research, but once marketing has begun, it is too late.
The FTO analysis should be regularly updated during the development of the product or process until the final product or process is marketed.

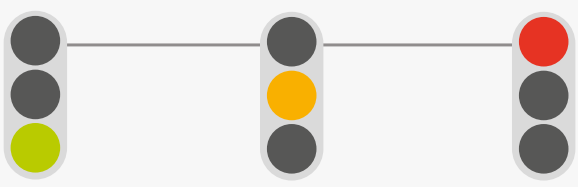
FOR WHOM?

Anyone who ultimately wishes to market a product or a process.
At universities and higher education institutions, FTO primarily concerns collaborative or applied research projects and spin-offs.

FOR WHAT?

- To make sure that you are free to operate a product or process.
- To check that the product or process you wish to develop/ market is not protected by a third-party patent and is therefore not a counterfeit.
- To avoid investing in research for which no product can be potentially marketed.
- To reassure investors.
- To avoid lawsuits or, if required, negotiate a licence on the third party's patent to allow the exploitation of our product.

R&D beginning	During the R&D	First commercialization



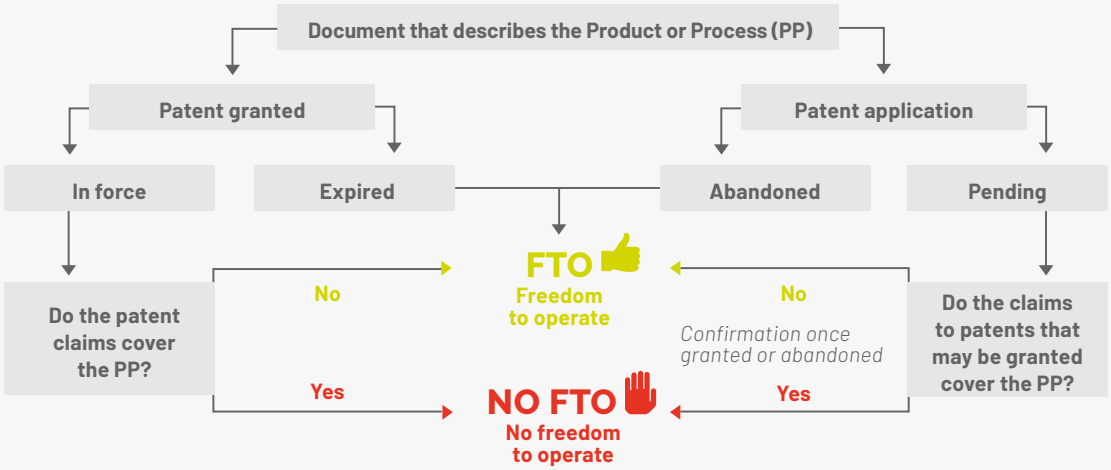
My freedom to operate stops where that of others starts!

FREEDOM TO OPERATE

(FTO)

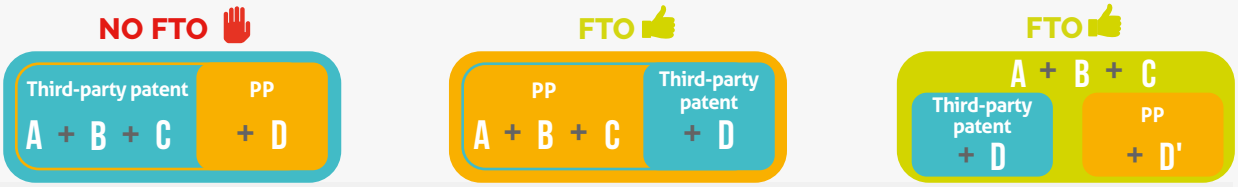
HOW?

Stage 1 : Prior art searching
Stage 2 : results analysis



EXAMPLES

Click on one of the three examples below for more information



Click on one of the three examples above for more information

CALL UPON AN EXPERT

Conducting an exhaustive FTO analysis is a complex and costly procedure that requires the intervention of an outside expert:

- to conduct the prior rights search in order to find all the relevant documents that could impede operation.
- to check the status of patent applications and patents (abandoned, pending, in force, stage of the issue procedure).
- to conduct a country-by-country analysis, because the scope of the protection may differ from one country to another.

LINKS

- Patent
- Patent with unitary effect
- Prior art searching
- Patent as a source of information

LIEU NETWORK

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The document is interactive and can't be printed on its entirety. Only the selected example will appear on the printed page.

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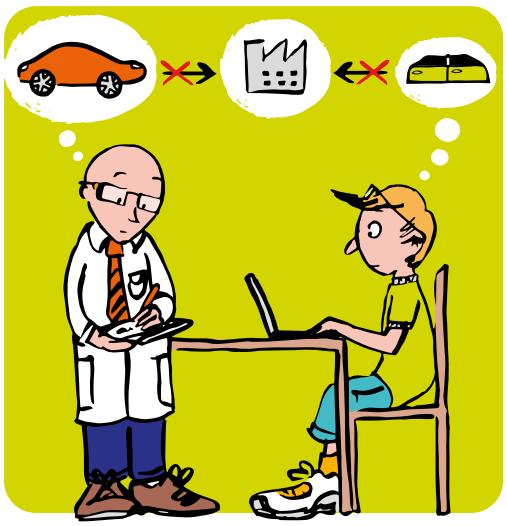
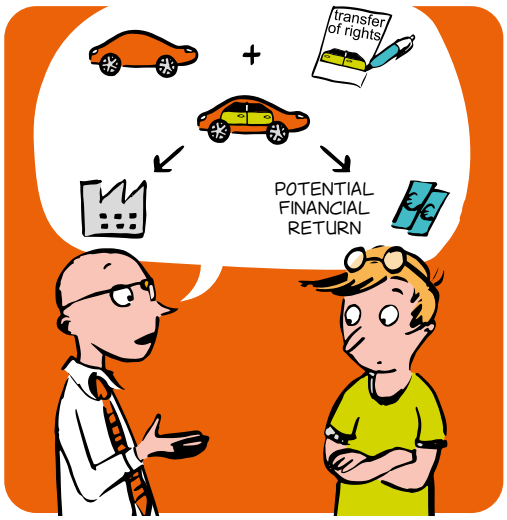
TRANSFER OF RIGHTS

Student dissertation and project 1/2





WHAT IS IT?

In principle and unless otherwise agreed, a student is the holder of the results he generates as well as the related Intellectual Property (IP) rights.

A transfer of rights agreement is a contract under the terms of which the transferor (the student) undertakes to transfer to the transferee (the institution) ownership of the results developed in the context of a dissertation or a project. In general, this contract also includes confidentiality clauses whereby the transferor undertakes to keep the information secret.

HOW?

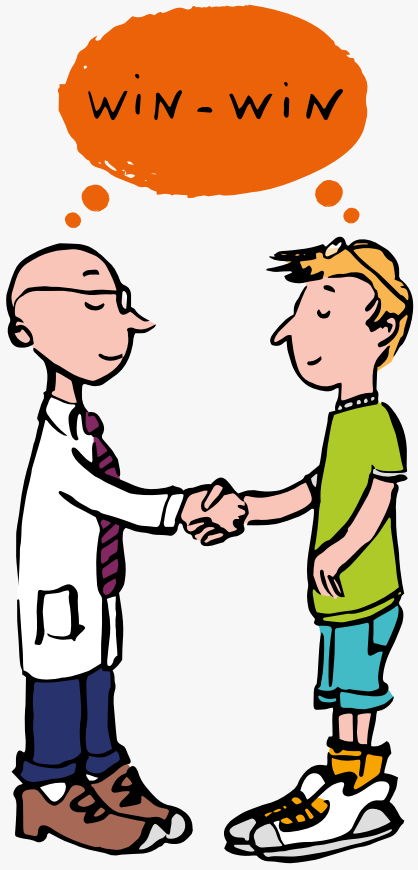
By signing an ad hoc contract provided by the KTO that specifies the object and terms of the transfer, the transferor abides by the IP regulations of the institution.

The IP regulations stipulate that the results of research conducted by members of staff of the institution (including student workers) belong to the institution.

The transfer must be signed in duplicate, one copy for the transferor (the student) and the other for the transferee.

WHO IS THE TRANSFEROR?

All individuals who are not subject to the IP regulations of the transferee, such as students (except the students from UMONS), scientific collaborators and guest researchers.



Pooling resources to enhance value!

TRANSFER OF RIGHTS

Student dissertation and project 2/2

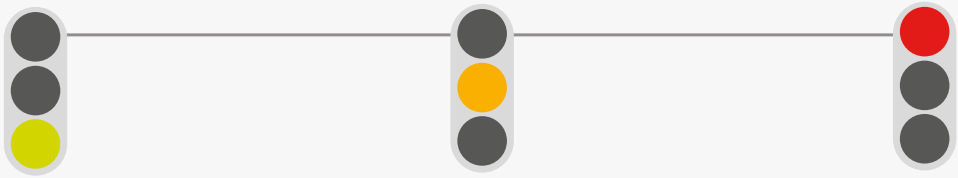
WHEN?

The transfer should be effected as soon as possible and ideally when work on the dissertation / project begins.

Dissertation / project beginning

During the dissertation / project

Dissertation defence / project presentation



ADVANTAGES FOR THE TRANSFEREE

- Harmonises ownership of the results of research from a laboratory to enable valorisation.
- Enables all those who contribute to the research to benefit from the same rights and obligations.
- Reduces the risk that a one-off contributor to a research project fails to bear his share of the costs of valorisation and/or IP protection (intellectual property: patent, brands, etc.).
- Avoids lawsuits.

ADVANTAGES FOR THE TRANSFEROR

- Support and expertise of the institution (administrative, financial, legal).
- Closer collaboration with researchers to gain access to advanced research.
- Potential participation in a spin-off or a valorisation project.
- Greater visibility of the dissertation or project.
- Label of the institution on the project.
- Potential financial return.

LINKS

- **IP regulations (contact your KTO to obtain this)**
- **Contract (contact your KTO to obtain this)**

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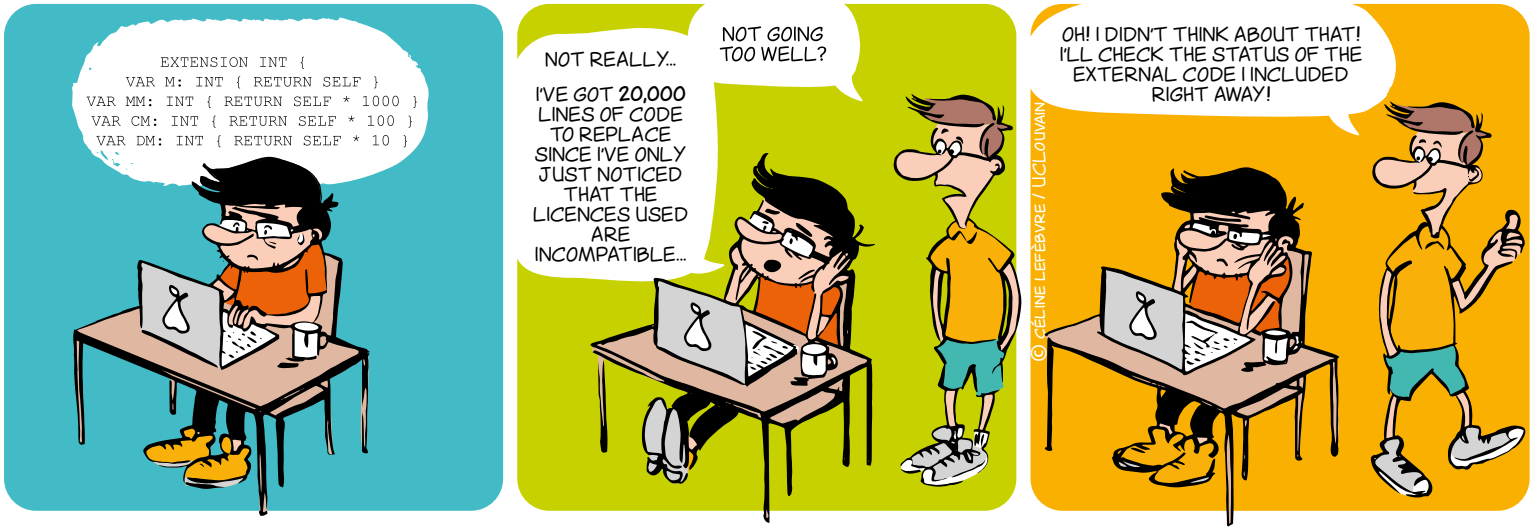
VALUATION OF COMPUTER SOFTWARE

Distribution strategy



WHAT SHOULD I CARE ABOUT?

What could block my research?

It is important as soon as possible to identify in which context your software will be distributed: commercially? open source? This choice has a strong impact on your research as it could open or close doors. It will also help you identify what you should or shouldn't do in terms of collaboration, code reuse, and distribution. Here are some examples of problematic situations you must be aware of:

In case of joint development, part of the code belongs to a **PARTNER**. This partner has the right to veto any project that includes the software, be in a research programme or a commercialisation.

In every research project, try to keep the software property undivided.

Once all or part of the software has been licenced with **EXCLUSIVE RIGHTS**, or is developed under **CONFIDENTIALITY**, the licencee can block future collaboration research.

Try to keep confidentiality on data, not on code (nor algorithm or methods) and limit exclusivity by sector and geographic zone.

If you include **OPEN SOURCE** code, check the licence beforehand: some licences may prevent you from distributing a proprietary software.

If you want to keep your know-how private (proprietary code), integrate only open source code with a permissive licence : MIT, BSD, Apache, (LGPL), etc.

If you include code with **DIFFERENT OPEN SOURCE LICENCES**, beware of legal incompatibility between those licences (e.g. : GPLv2 and Apache are incompatible). This could prevent you from distributing your software (even free, even with source code, etc.).

Choose a licence as soon as you begin developping the software, and choose to integrate only open source code with a compatible licence (see chart).

VALUATION OF COMPUTER SOFTWARE

Distribution strategy 2/2

GOOD CODING PRACTICES

Version control system (Git, SVN, Mercurial, etc.)

As soon as you start, store all your code in a Version control system (Git, etc.). This will allow to:

- Easily collaborate and keep track of every contribution
- Make reproducible science (identify the specific version linked to a publication)

Source code header

Start all your code files with a Copyright and Licence header. These examples should be adapted to each case:

GPL | MIT | Proprietary (commercial)

PROTECTION

Rights holder is the only one authorized to manage the intellectual property rights. In Belgium, the law provides that software belongs by default to the employer (University).

- **Copyright:** protects the form (source code) and original graphic interface.
- **Patent:** protects functionality (~algorithm) of software.
- **Trademark and domain name:** protects reputation.
- **Confidentiality agreement:** necessary for collaborating on proprietary software.
- **Sui generis law on databases:** protects the investment necessary to obtain a quality database.

GPL

```
Copyright (C) 20xx-20xx "University (official) name"  // this is the owner(s) (mandatory)
<NEW SOFTWARE is a software for doing new things>
James Cook (laboratory of Soft Dev) - Contact: james.cook@research.be  // facultative

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You should have received a copy of the GNU General Public Licence along with this program.
If not, see <http://www.gnu.org/licences/>.  // these are the licence specific terms (mandatory)
```

TOOLS

FOSSOLOGY
Software which detects open source in code files

SONARQUBE
Software which analyses code to provide quality metrics

SOFTWARE QUALITY METRICS EXPLAINED
Report on how to understand those metrics

SOFTWARE DISCLOSURE FORM
A preparation to a first meeting about your software with your KTO

THE RESEARCHER'S GUIDE FOR CREATING SOFTWARE Guidelines mainly about software protection, and the use of open source

MORE INFORMATION

Licence Families | Compatibility Chart

Free and Open source | Distribution

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The document is interactive, please refer to the electronic version for additional information.

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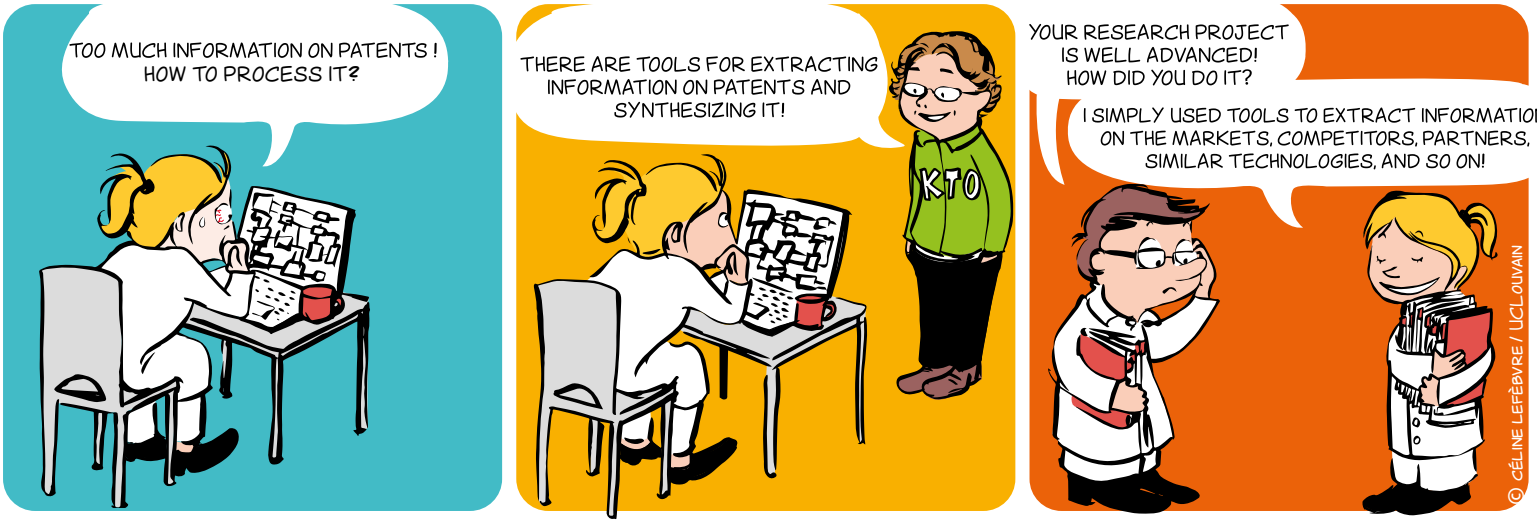
THE PATENT AS A SOURCE OF INFORMATION 1/2



PATENTS = AVAILABLE INFORMATION

When an IP office issues a patent, it grants a commercial monopoly to the proprietor. In return, the applicant must disclose the invention in a sufficiently clear and complete manner for a "skilled person" to be able to execute it. This information is publicly available, but there is an 18-month delay between the filing of the application and its publication.

WHY?

To analyse a specific example of the implementation of an invention (one single patent) or to obtain a macroscopic view of a coherent set of patents (landscaping) in order to extract technical, economic and legal information.

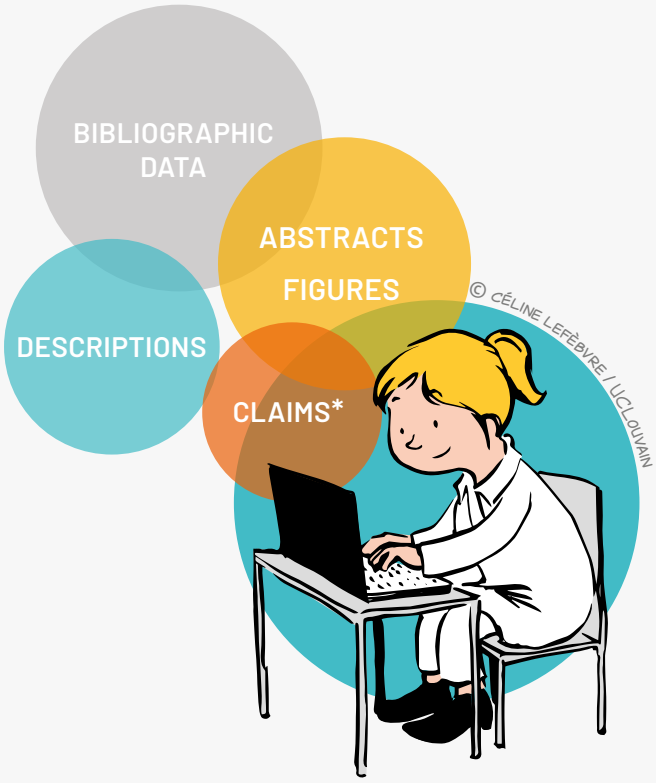
HOW IS A PATENT STRUCTURED?

1) Front page containing administrative, technological and bibliographical data, the summary of the invention which includes the claims and (sometimes) the technical advantages.

2) A description of the state of the art and the technological background, the legend of the figures and a detailed description of the invention including details on preferred embodiment of the invention.

3) The claims: legal part of the patent that defines the extent of the protection.

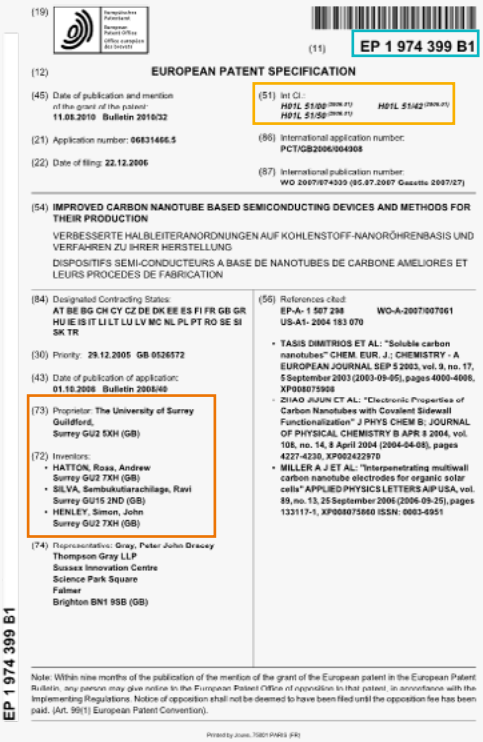
4) Drawings/figures.



* The claims define the scope of the legal protection

Patent applications contain technical, economic and legal information.

THE PATENT AS A SOURCE OF INFORMATION 2/2



(19) EP 1 974 399 B1

(12) EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent: 11.08.2010 Bulletin 2010/32

(21) Application number: 06831466.5

(22) Date of filing: 22.12.2006

(51) Int Cl.: H01L 51/00 (2006.01) H01L 51/42 (2006.01) H01L 51/50 (2006.01)

(86) International application number: PCT/GB2006/004808

(87) International publication number: WO 2007/074309 (05.07.2007 Gazette 2007/27)

(54) IMPROVED CARBON NANOTUBE BASED SEMICONDUCTING DEVICES AND METHODS FOR THEIR PRODUCTION

VERBESSERTE HALBLEITERANORDNUNGEN AUF KOHLENSTOFF-NANORÖHRENBASIS UND VERFAHREN ZU IHRER HERSTELLUNG

DISPOSITIFS SEMI-CONDUCTEURS A BASE DE NANOTUBES DE CARBONE AMELIORES ET LEURS PROCEDES DE FABRICATION

(84) Designated Contracting States: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

(30) Priority: 29.12.2005 GB 0526572

(43) Date of publication of application: 01.10.2008 Bulletin 2008/40

(73) Proprietor: The University of Surrey Guildford, Surrey GU2 5XH (GB)

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- HENLEY, Simon, John Surrey GU2 7XH (GB)

(74) Representative: Gray, Peter John Dracey Thompson Gray LLP Sussex Innovation Centre Science Park Square Falmer Brighton BN1 9SB (GB)

(56) References cited:
EP-A- 1 507 298 WO-A-2007/007061
US-A1- 2004 183 070

- TASIS DIMITRIOS ET AL: "Soluble carbon nanotubes" CHEM. EUR. J.; CHEMISTRY - A EUROPEAN JOURNAL SEP 5 2003, vol. 9, no. 17, 5 September 2003 (2003-09-05), pages 4000-4008, XP008075908
- ZHAO JIJUN ET AL: "Electronic Properties of Carbon Nanotubes with Covalent Sidewall Functionalization" J PHYS CHEM B; JOURNAL OF PHYSICAL CHEMISTRY B APR 8 2004, vol. 108, no. 14, 8 April 2004 (2004-04-08), pages 4227-4230, XP002422970
- MILLER A J ET AL: "Interpenetrating multiwall carbon nanotube electrodes for organic solar cells" APPLIED PHYSICS LETTERS AIP USA, vol. 89, no. 13, 25 September 2006 (2006-09-25), pages 133117-1, XP008075860 ISSN: 0003-6951

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 974 399 B1

Reference number and status
A = application
B/C = grant

Technological field

Owner and inventors

Description

[0001] The present invention relates to improved photo-voltaic or light emitting devices and methods for their production. In particular, the present invention relates to a method wherein carbon nanotubes are combined with a selected semiconductor organic material to form a composite material.

[0002] It should be noted that in this application carbon nanotube (CNT) is intended to mean single walled conducting, or semi-conducting carbon nanotubes (SWCNT), multi-walled carbon nanotubes (MWCNT) or a mixture of both. It should also be noted that this invention is not restricted to any particular length or diameter CNT. Furthermore, since carbon nanotubes may be synthesised by several different methods (e.g. chemical vapour deposition (CVD), arc discharge and laser ablation methods) it should be noted that this application is not limited to any particular method of carbon nanotube production.

Claims

1. A method of producing a photo-voltaic device comprising the steps of:

synthesising carbon nanotubes; and
combining the carbon nanotubes and an organic semiconductor material to form a composite material,
adapting the synthesised carbon nanotubes to provide a surface defect such as to create an effective band gap defined by ground and excited electronic states;

HOW TO ANALYSE THE INFORMATION?

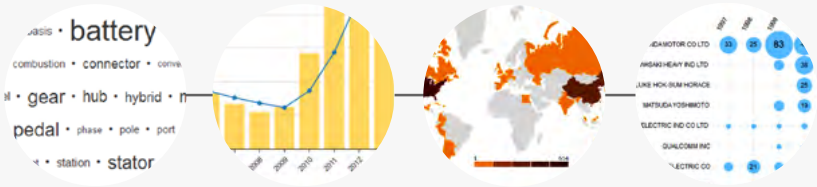
A. A single patent

The study of the content of a patent (or a **patent family**) is particularly useful in a patentability study or a FTO that requires detailed analysis. A patent is also a specific example of an achievement that can be used as a basis for a research project.

B. Patent landscaping

A statistical study and graphical representations of a set of patents in the same subject, or of the same applicant or inventor, allows to obtain a macroscopic view for:

- **Directing** your R&D strategies
- **Getting to know** the research teams in a field
- **Determining** emerging, promising technologies
- **Searching** for precise technical information
- **Discovering** potential partners, monitor your competitors
- **Identifying** new players entering the market
- **Defining** market trends and opportunities



Patent family

A patent application can result in a cluster of patents (applications) in different countries, that is known as a patent family.

TOOLS

Patent databases

➡ **Esp@cenet** *
http://worldwide.espacenet.com

➡ **Google Patents**
https://patents.google.com

➡ **Lens**
https://www.lens.org

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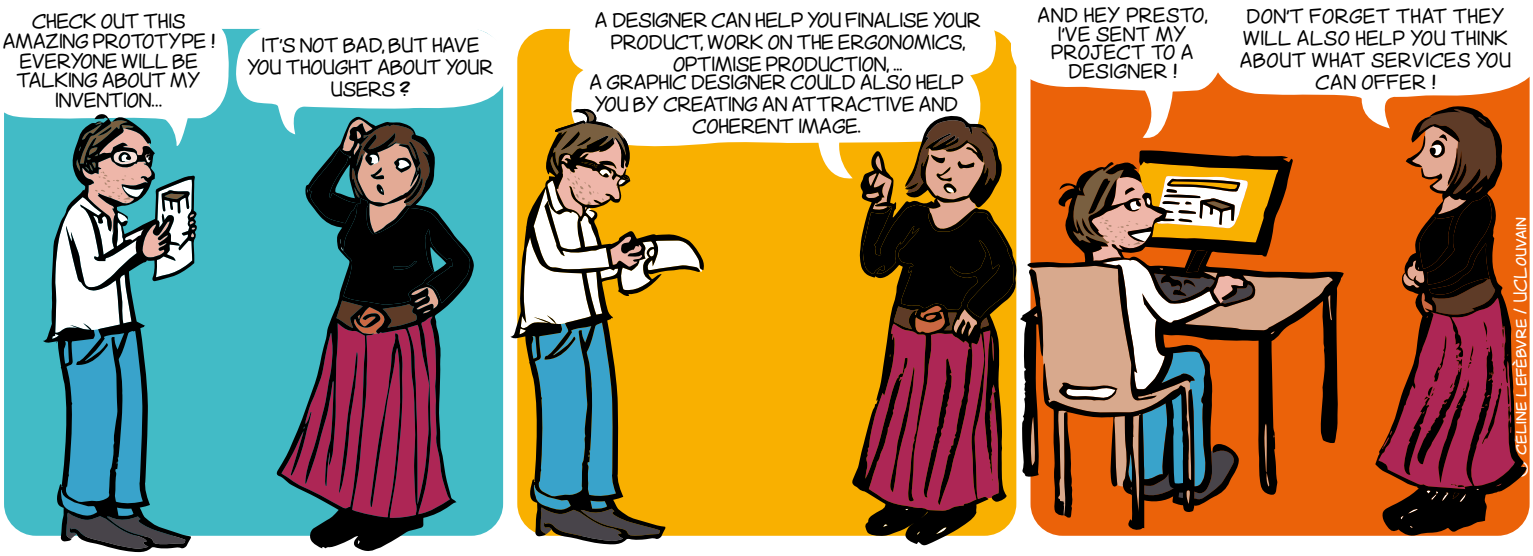


WHAT IS "DESIGN"?

"Design" is a discipline that is characterised by a set of methods, questions and techniques which provide a complementary perspective to technical and marketing approaches.

Design is different from designs, which are means of protecting the intellectual property of your product. These protections are complementary aspects that must also be taken into account when designing the object!

The aim of design is to develop **products or services that best meet users' needs**. Improved design could also address problems not identified in the initial stages of development.

WHEN TO CALL IN A DESIGNER

A design makes products and/or services attractive and easy to use by giving them a consistent identity. This results in an optimal user experience and better business performance.

Far from being confined to the final aesthetic touch at the end of a project, **collaboration with a designer can take place at every step of a project's development**.

The designer can help to:

- Explore the avenues to be investigated,
- Shape a concept under consideration,
- Ensure the feasibility of a concept,
- Challenge a functional prototype to make it more complete,
- Consider the completed prototype and think about producing it on a larger scale,
- Prepare the market launch, and even learn from customer feedback to re-explore new areas for improvement.

An appropriate and professional design contributes to the creation of an ideal product for the user thanks to:

- Its ease of use,
- Its intuitiveness,
- Its attractiveness.

This is reflected in overall business performance:

- Both production and use are improved, and sales are boosted.

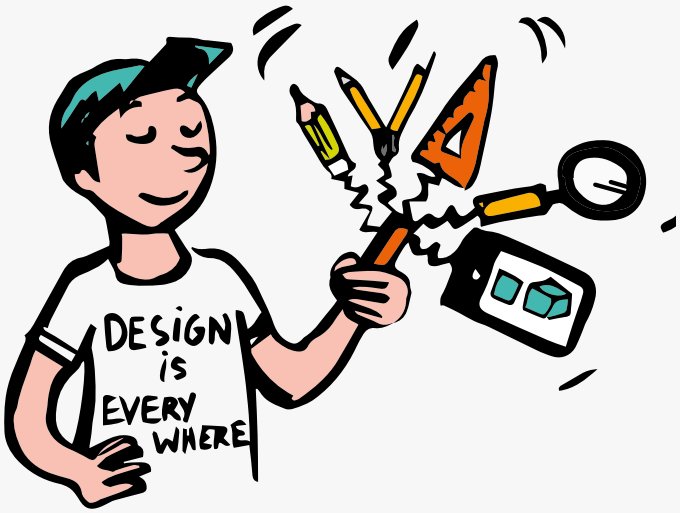
HOW TO FIND A DESIGNER

In Wallonia, Wallonie Design is the organisation that acts as a link between project leaders and designers.

For each stage, *Wallonie Design* concretely identifies:

- → What a designer can do to help you develop your project,
- → What outcomes you can expect.

Wallonie Design will help you to specify your needs and will give you advice, useful contacts and a selection of design agencies tailored to your expectations.



A complete design for complete success!

COST

Funding support is available.
Contact your KTO!

USEFUL LINKS

www.walloniedesign.be
www.disc-design.be

LINKS

- Patent

CONTACT

LiEU Network
contact@reseaulieu.be
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IP* CHARTER OF THE LIEU NETWORK AND THE UWE 1/2

WHAT IS IT?

* Document prepared jointly by the LIEU Network (Llaison Entreprises-Universités - Wallonia KTOs network) and the UWE (Union Wallonne des Entreprises - Walloon Union of Companies)

The guiding principles governing ownership and application of the findings of research conducted in partnership between universities, hautes écoles (schools of higher education), research centres and businesses, as part of any collaborative project financed by regional public funds.

WHO IS IT FOR?

Partners, such as universities, schools of higher education, research centres and/or businesses

WHAT DOES IT APPLY TO?

Collaborative research between universities, schools of higher education, research centres and/or businesses

WHY?

- To launch a collaborative project funded by Wallonia on a sound basis
- To maximise the potential applications of research findings in Wallonia, for the benefit of partners
- To take into account regulations on State Aid

WHEN SHOULD IT BE REFERRED TO?

From the early stages of a call for proposals, during discussions between partners regarding the intellectual property principles governing the project.

KEY DEFINITIONS

Collaboration agreement | Consortium agreement | Rights of access | Partners

Project | Findings | Pre-existing Know-how | Application

COLLABORATION AGREEMENT

Agreement to be concluded between a project's **academic partners** before submitting a grant application. This stipulates the intellectual property rights over the findings, in line with the partners' respective interests, their degree of participation in the work and their contribution to the project.

When setting up any research project, using the charter **BEFOREHAND** helps to avoid problems **AFTERWARDS**

KEY POINTS TO REMEMBER

OVERARCHING PHILOSOPHY

Subject to other specific provisions, **each partner owns the findings that they generate**, but grants the other industrial partners exclusive or non-exclusive rights of use over their findings in their respective fields.

All partners will focus on creating added value in Wallonia.

OWNERSHIP

Each partner remains the owner of their pre-existing know-how.

Unless other distribution criteria have been previously agreed between the partners, **ownership of the findings will revert to the partners who generated them**.

PROTECTION – CONFIDENTIALITY – PUBLICATION

Partners will ensure they:

- **strike a balance** between legal protection of findings likely to have an economic value (for example, the filing of patents or designs and models), and the dissemination of findings of scientific interest
- **prioritise the protection of the findings**, before allowing their publication
- honour the **confidentiality** of pre-existing know-how disclosed as part of the project and the findings
- **specify the arrangements for registration and maintenance of intellectual property rights** in the consortium agreement
- **submit for the prior approval of the other partners** any proposal for publication or dissemination of the findings

RIGHT OF ACCESS TO PRE-EXISTING KNOW-HOW

Each partner must make the following available to the other partners, free of charge:

- pre-existing know-how via a free, non-exclusive licence (provided they may freely grant usage thereof),
- the tools or materials required to implement the project.

USAGE RIGHTS OVER THE FINDINGS

- Each partner may freely use the findings of which they are owner, subject to the rights they have granted to the other partners.
- If industrial partners involved in the project:

  → **are not the owners of the findings**

  They may benefit from an exclusive licence to use the findings resulting from the project in their field of activity, in preference to any other company,

  → **are owners of the findings**

  They may grant the universities a non-exclusive licence to use the findings for education and research purposes.

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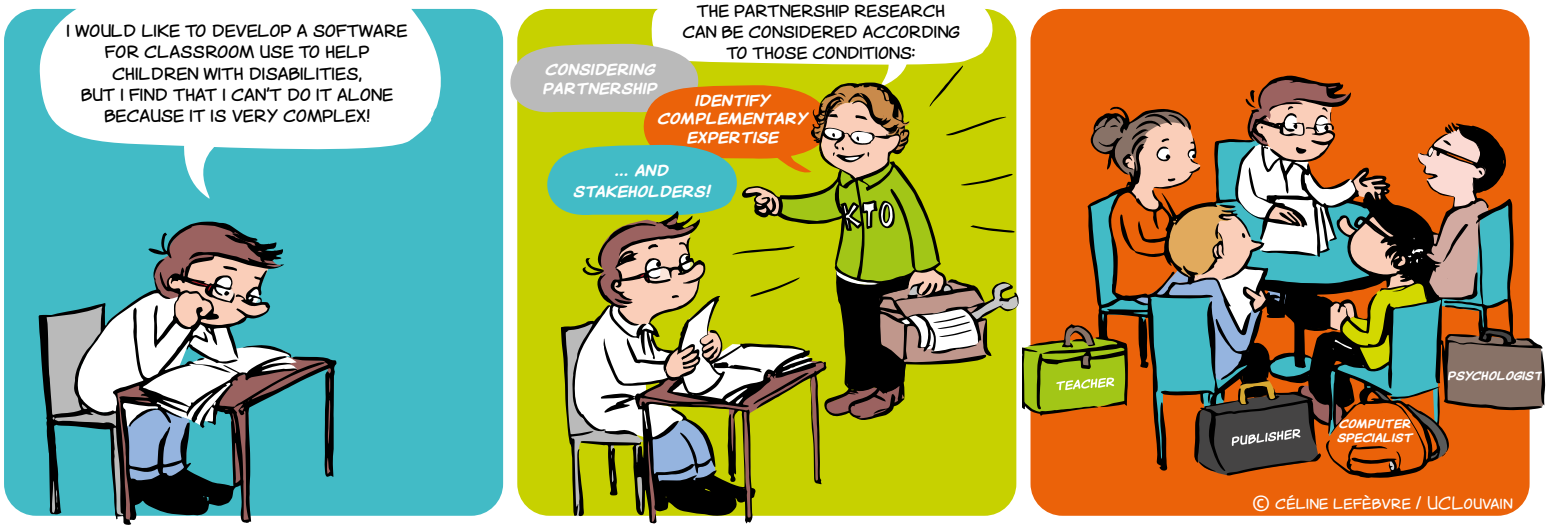
This document is interactive, please refer to the electronic version for more information.

COLLABORATIVE RESEARCH

Working together in the best possible conditions! 1/2



WHY CONDUCT COLLABORATIVE RESEARCH?

- → **To encourage** cross-sector and interdisciplinary research
- → **To ensure** that the research project is rooted in the realities of society and the economy
- → **To reach out** to users and meet their needs
- → **To pool** resources (data, equipment, samples)
- → **To combine** the know-how and expertise of each partner
- → **To stimulate** co-creation and collective intelligence
- → **To maximise** the impact and transferability of research

KEY POINTS TO CONSIDER:

→ Complementarity:

It is vital there is a complementarity of expertise within a research team. Your KTO can help you think about how your expertise can help you fit into a team and help you to choose and identify your potential partners.

→ Collaboration agreements and intellectual property:

Collaboration agreements must formalise the partnership and define the roles and actions of each partner, the resources available and the timetable for achieving the desired objectives. The ownership of findings and their confidentiality must also be defined in a contractual agreement. Your KTO will help you to negotiate these agreements before the start of the project to ensure it runs smoothly and that the partners are in agreement.

→ Common language and timeframes:

Before and during the project, it is important to develop a common language and to communicate each other's expectations, particularly with regard to timeframes, which may differ between the field and the research team. This helps to develop a relationship of trust that is essential to the smooth running of the project.

→ When to involve the partner:

The partner(s) can be involved at any stage, subject to their relevance to the project. However, it is often preferable to bring in certain skills early in the project.

COLLABORATIVE RESEARCH

Working together in the best possible conditions! 2/2

WITH WHOM?

ACADEMIC

→ Researchers at the institution or from an external laboratory or research centre

→ To develop multidisciplinary research

COMPANIES

→ Both Economic and social

→ To capitalise on research and develop innovation and apply it to the socio-economic world

CITIZENS AND USER GROUPS

→ Citizen groups and collectives

→ To co-construct and test innovation in order to optimise its efficiency

EXTERNAL PARTNERS

→ Government authorities and public services

→ To raise awareness among public funding bodies and to indirectly shape upstream policies

USEFUL LINKS

Transfer or Collaboration Opportunities

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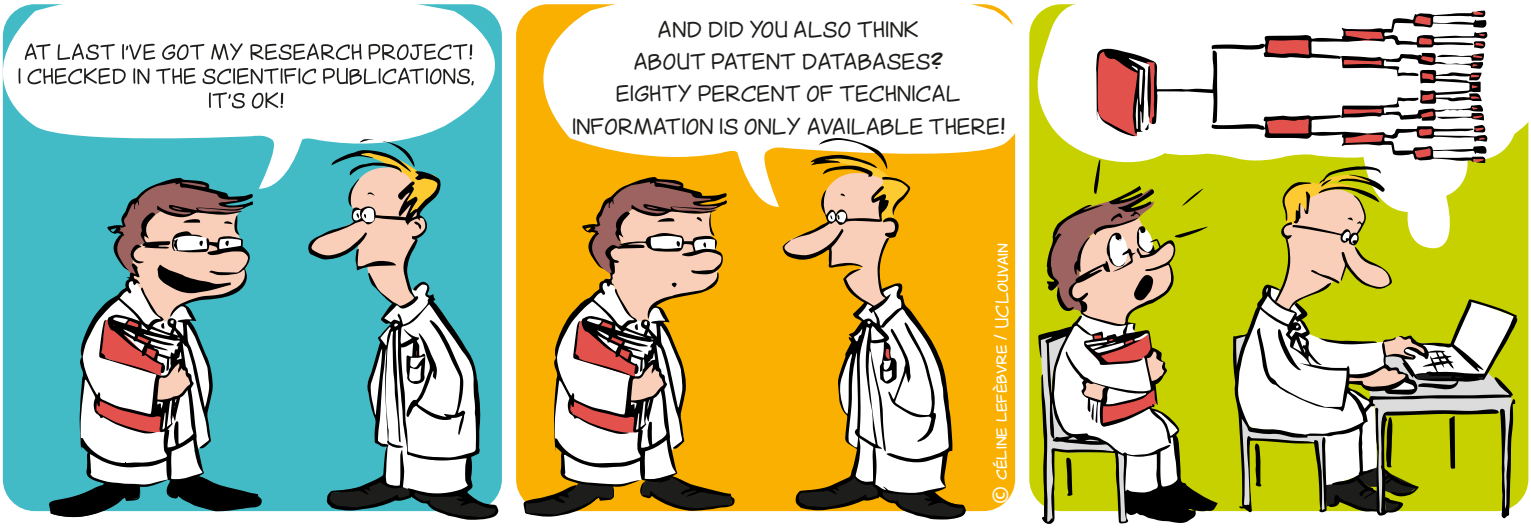
PRIOR ART SEARCHING

in patent databases



WHAT IS PRIOR ART SEARCHING?

Prior art searching involves determining **the state of the art**, in other words all the information, within patents or other sources (scientific papers, internet site, social media, ...), that are publicly available at a given date.
This document will further describe prior art searching in patent databases. Indeed, given that patents (currently several tens of millions of applications) contain a large amount of technical information that cannot be found anywhere else, patent databases are essential tools for effective state of the art analysis.

WHY ?

To check for the originality of a research project, to check for the patentability of an invention, to identify partners or competitors, or to assess freedom to operate.

Prior art searches have to be performed **BEFORE** a research project filing, a patent application or a commercialization.

Up to 80% of the technical information present in patents is not available elsewhere*

HOW?

1. Define the aim of the prior art search

Aim	Scope of the search	Type of analysis
Orienting research	Searching focused on inventions in the same technological field	Individual reading of relevant documents
Patentability	Searching focused on similar inventions	Individual reading of entire relevant documents
FTO	Searching limited to patents in force in the intended markets	Individual reading of the claims of granted and alive patent
Cartographie	Broad searching in the technology field	Statistical analyses and graphical representations of the document corpus

* Based on studies in the 1970s. Although this figure is certainly lower at present, it is still true that a significant part of the information found in patents is not disclosed elsewhere.

PRIOR ART SEARCHING

in patent databases 2/2

2. Preparation of the searching strategy

The searching strategy is prepared by identifying search parameters such as:

➡ **Keywords:** terms describing the innovative technical features. It is also essential to provide synonyms for the different concepts (i.e.: car, vehicle, automobile,...). To broaden keyword searches and anticipate spelling problems, a wildcard system is usually present in search engines (https://link.epo.org/web/technical/espacenet/espacenet-pocket-guide-en.pdf).

➡ **Classification codes:** hierarchical classification system of patents according to their technological fields. These codes are given by the IP offices when examining patent applications. Two systems coexist, the IPC system used by all offices and the more precise CPC system implemented by the European and American patent offices.

➡ **Names of applicants (partners, competitors) or inventors:** names of companies active in the field or names of authors who regularly appear in the literature of the field.

➡ **Citations:** references found in the patent and used primarily to assess the patentability of an invention. The use of citations from a patent previously identified as relevant allows for a wider search.

3. Identification and analysis of relevant documents

This is the actual search in the database. Searches are usually done in English. This research is an iterative process that evolves based on the identified documents. It is therefore important to document it so as not to lose the thread. It is often easier to search by selecting the relevant documents and analyse them in more detail in a second step.

WHERE TO SEARCH?

• **Use open-accessible patent databases** as a first step:

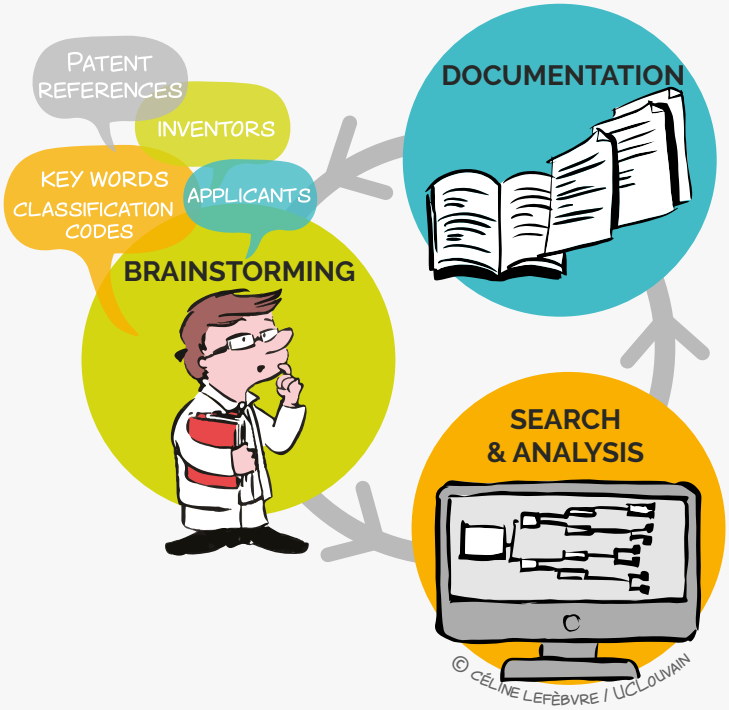
➡ Esp@cenet : http://worldwide.espacenet.com

➡ Google Patent : https://patents.google.com

➡ PatentScope : http://www.wipo.int/patentscope/search/en/search.jsf

➡ Lens : www.lens.org

• **Complete the information** with the help of a PI advisor from your KTO to search in fee-based databases. In this regard, the LiEU network is recognised as a PATLIB centre, an European network of patent information centres made up of qualified and experienced experts.



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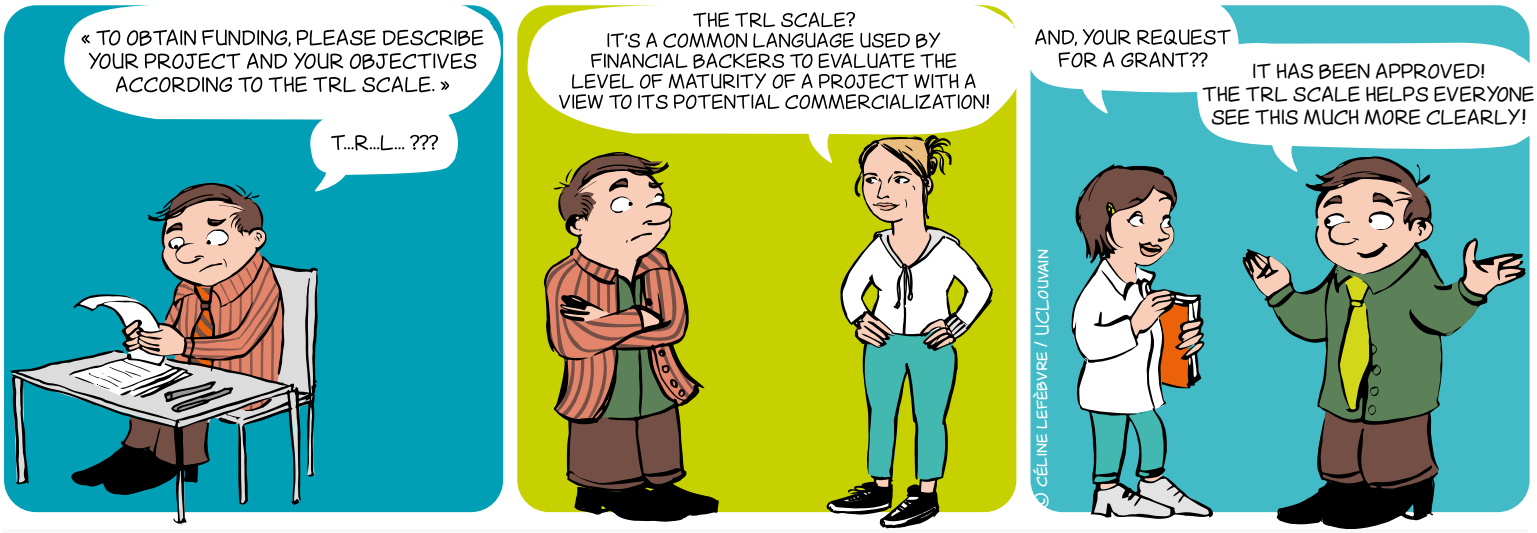
TECHNOLOGY READINESS LEVEL

A scale of maturity and a tool to help innovate and collaborate



WHAT?

Originating in the aerospace sector, the concept of TRL is a means to manage the development of a technology toward a practical application. Transposed to research, this tool will help you launch successful collaborative projects.

Comprising 9 levels corresponding to validation phases, it is generally divided into 3 time periods based on the predominant character of the work at a given time in the innovation process.

TECHNOLOGY READINESS LEVELS

Share the same language to assess the levels of maturity of a project

TECHNOLOGY READINESS LEVEL

A scale of maturity and a tool to help innovate and collaborate

WHY?

The TRL concept is very useful since it provides **a common reference framework for defining and evaluating objectives, risks and investments** by the parties involved in a collaborative project.

The partners agree on a starting point at the outset of a project and together define the level of maturity to be reached within the scope of their collaboration, and the tasks to be undertaken.

It is therefore primarily **a communication tool used for more effective collaboration** by the partners in an innovation process, including enterprises, researchers but also financial backers. Indeed, identification of adequate funding can be more easily defined based on the le vels of maturity to be passed through in the course of a project.

The generic scale presented here can of course be adapted using vocabulary specific to the area of collaboration and the partners' circumstances.

SUCCESSFUL PRODUCT	9	Product suitable for different applications and subject to competitive production
MARKETED PRODUCT	8	Complete, clearly qualified commercial product is available
MANUFACTURED PRODUCT	7	Product demo approved in an operational environment
PRODUCT DEMO	6	Product demo approved in a meaningful environment performing in a similar way to expectations
PROTOYPE PRODUCT	5	Prototype approved for all of its critical functions in a meaningful environment
INTEGRATIVE PROTOTYPE	4	Prototype incorporating the solution approved in the laboratory
FEASIBILITY	3	Proof of concept for the solution/application and feasibility study
INVENTION	2	Concept of the solution and/or the application formulated
IDEA	1	Basic principles observed and described

Based on a work carried out by the LIEU (Llaison Entreprises-Universités) Network and AEI (Agence pour l'Entreprise et l'Innovation)

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RESEARCH AND THE RISKS OF MISUSE

Think about the potential risks of your research being hijacked by a third party!

WHAT IS A DUAL-USE ITEM?

A dual-use item means equipment, software or technology that can be used for both civilian **and** military purposes. Such items are listed in Regulation (EU) 2021/821 of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (Official journal L 206/1 of 11 June 2021, and the related updates - Annexes reviewed annually)[1].

WHAT DOES THE TERM 'MISUSE' COVER?

Misuse refers to the **risk**:

→ of the use of equipment, software or technologies with a view to the proliferation of Weapons of Mass Destruction (WMD), acts of terrorism or any activities contrary to respect for human rights;

→ of use for a military end-use - e.g. cyber-surveillance, emerging technologies, artificial intelligence - suspected in a country that is subject to an arms embargo.

WHAT IS MEANT BY 'EXPORT'?

'**EXPORT**' in this case means any **TRANSFER** considered in a very broad sense:

→ any oral, written, electronic or visual disclosure;

→ any shipment, transfer or transmission of products, technologies, information, technical data, software codes and assistance;

→ any publication and cloud computing.

WHAT IS THE CONTROL OF 'EXPORTS/TRANSFERS'?

This control refers to several laws and regulations that have a common goal: to prevent the transfer of certain tangible items (for example, a prototype) or intangible items (for example, know-how) for reasons of national or international security, without specific authorisation (**'export' licence**) granted by the regional authorities.

WHEN DO WE NEED AUTHORISATION ('EXPORT' LICENCE)?

An 'export' licence is required for the transfer of a product and/or technology (linked to the product) **outside the European Union**, if this product:

- **is** included in the control list of dual-use items (Annex I of Regulation (EU) 2021/821[1])
- **is NOT** included in the control list of dual-use items (Annex I of Regulation (EU) 2021/821[1]). A catch-all control therefore applies for the risk of misuse.

N.B.: For the products and technologies included in Annex IV, an export licence is required even within the European Union.

You have to prove your credentials to circulate research results abroad!

[1] *EN version: https://eur-lex.europa.eu/eli/reg/2021/821/oj*

RESEARCH AND THE RISKS OF MISUSE

Think about the potential risks of your research being hijacked by a third party!

WHO SHOULD YOU CONTACT?

To contact the competent authorities, you should go through your university's Knowledge Transfer Office (KTO).

'Export' licences are issued by the regional authorities.

→ **Wallonia:** *Service Public de Wallonie - Direction des Licences d'armes* (Walloon Public Service - Weapons Licences Directorate)

→ **Brussels-Capital Region:** *Service public régional de Bruxelles - Cellule licences armes et biens à double usage* (Regional Public Service of Brussels - Weapons Licences and Dual-use Items Unit)

N.B.: In addition, a re-export licence from the US Bureau of Industry and Security may be necessary in the event of American content.

WHAT ARE THE CONSEQUENCES IF WE EXPORT WITHOUT A LICENCE?

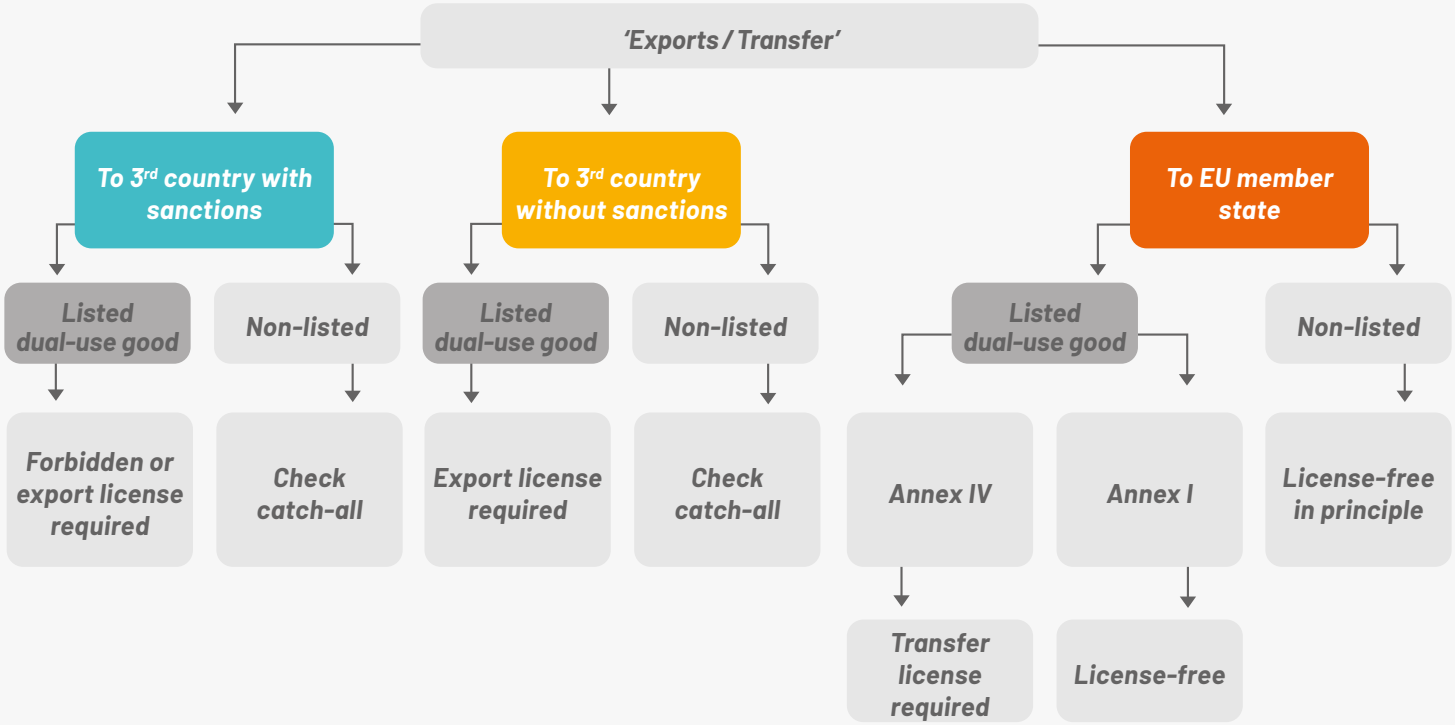
The 'export' controls are **mandatory**.

This means:

→ that it is not possible to diverge from these decisions through contractual clauses;

→ that an infringement of these laws is an infringement of public policy decisions.

Consequently, the penalties for the infringement of the laws and regulations on the control of exports are severe and may be civil and/or criminal. Moreover, your reputation and the reputation of your institution could be seriously impacted if these regulations are not observed.



LINKS

Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items

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USE THE LABORATORY NOTEBOOK WITHOUT MODERATION

Your research down in black and white!

WHY?

- **Traceability tool:** the researcher's and the laboratory's memory
- **Legal tool:** evidences
- **Scientific tool:** log book to standardize processes, protocols within a research team

WHO DOES IT AND FOR WHOM?

- Each researcher (including students) should have their own lab notebook to **RECORD AND DATE** their research experiments and findings
- The lab notebook must be signed by the researcher **AND** countersigned by the promoter
- The book remains within the laboratory and serves as its memory

HOW TO COMPLETE IT

- **Chronologically** and **daily**
- **Clearly** and **exhaustively** (dates, procedures, references of the products and reagents used, results and observations, interpretations and comments, new ideas and hypotheses, etc.) so that a third party can reproduce the experiments
- With **non-erasable** ink
- Regularly **signed** and **countersigned**

The information contained in the lab notebook is confidential and the property of the University or the Higher Education Institution

THE LIEU NETWORK LABORATORY NOTEBOOK

NR. 36962

- **This lab notebook has been designed by the LiEU Network and is common to all the Higher Education Institutions and Universities in the Fédération Wallonie-Bruxelles**
- **Notebook with unique identification**
- **Notebook with numbered pages and no loose sheets of paper**

HOW TO GET IT

- **ULB:** delphine.stordeur@ulb.ac.be
- **UNamur:** secretariat.adre@unamur.be
- **ULIEGE:** ip@uliege.be
- **UCLouvain:** colette.douchamps@uclouvain.be
  pascal.colson@uclouvain.be
- **UMONS:** economat@umons.ac.be
- **Hautes Ecoles:** lazzaro.n@synhera.be

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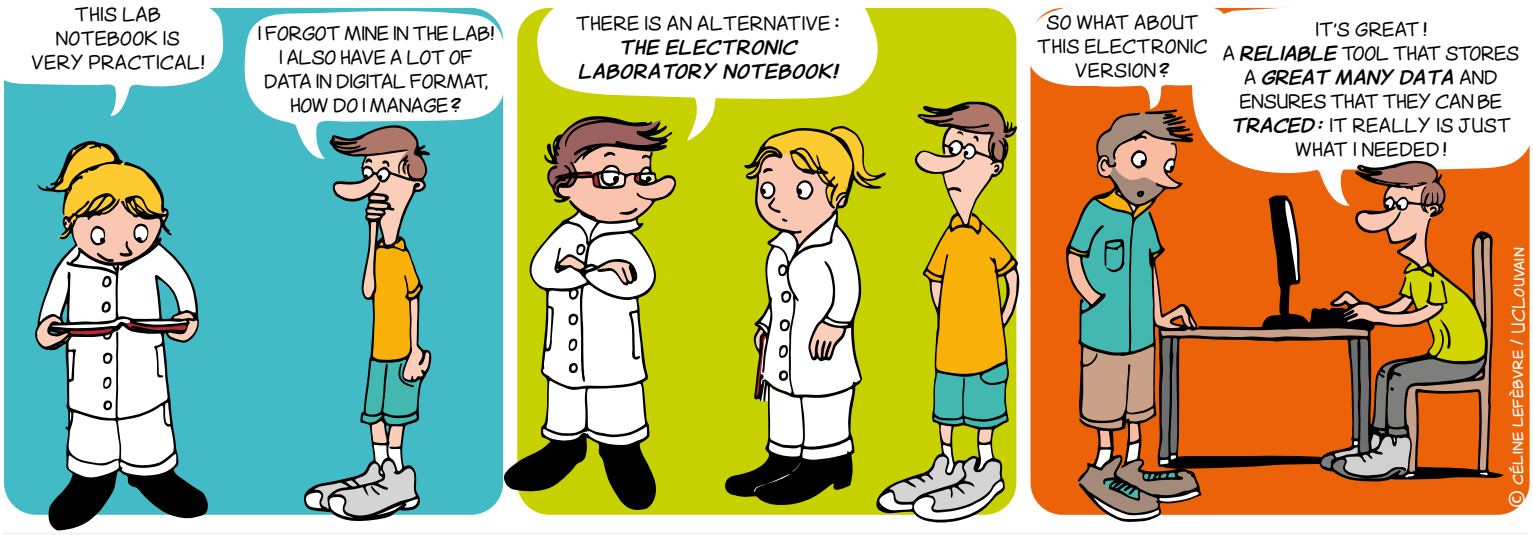
THE LABORATORY NOTEBOOK

What if you opted for the electronic version? 1/2



The laboratory notebook is essential for the working of any research entity:

- ➡ notes details of ongoing research and experiments on a daily basis;
- ➡ ensures that knowledge is passed on and data can be traced;
- ➡ is central to thze management of intellectually property.

(cf. memo Use the laboratory notebook without moderation: your research down in black and white!)

The electronic laboratory notebook is the digital equivalent of the paper laboratory notebook. With the growth in the volume of data and the multiplicity of people involved in the same research project, it is becoming increasingly indispensable in many research fields.

THE ADVANTAGES OF THE ELECTRONIC VERSION*

Data management

Data sharing

- Data accessible to the Principal Investigator and to other researchers in the team, including those working at a distance in geographic terms (subject to predefined authorisations)

Data backup

- Regular and automatic backups
- Possibility of recording the data of several researchers working on the same experiment

Data security

- Access control and management of rights to safeguard the intellectual property of each individual

Document management

- Integration of other electronic documents (various formats: images, chemical structures, texts, etc.)

Data traceability

Protection of intellectual property

- Meticulous audit path, version follow-up, e-signatures

Information searches

- Easy and intuitive to use (synopsis; classification by project; search by key word, date, researcher, etc.)
- Possibility of retrieving information easily, even several years later

Operating procedures / protocols

- Possibility of recording models that are easy to duplicate and adapt when repeating similar experiments

Equipment management

- Centralisation and planning the use of equipment within a research entity

Reduced risk of transcription errors

- Audio recording / data collected directly from a device

Credibility among businesses

- Stakeholder in a quality process that is particularly appreciated in the business world

THE LABORATORY NOTEBOOK

What if you opted for the electronic version? 2/2

CONDITIONS OF USE*

Installation of a specific software program

- Compatibility with other environments
- Involvement of other IT services in the institution, particularly if the software is open source
- Updating necessary for long-term maintenance

Development of the tool and adoption by users

- Involvement of researchers
- Training for users
- Definition of good practices

Data hosting

On an external or a local server, as preferred

With local servers, pay attention in the long term to:

- the data storage capacity
- data preservation (backup procedures)

Financial cost

- To be taken into account. It may be high for proprietary software programs
- Existence of open source solutions

Working environment

- Electronic device needed for data input

OPEN DATA, DATA MANAGEMENT PLAN AND ELECTRONIC LABORATORY NOTEBOOK

Given current policy guidelines all recommending Open Data, the electronic laboratory notebook is inevitably tending to become a permanent feature.

The electronic laboratory notebook contributes towards sound management of a research entity via:

- ➡ identification, storage and explanation of the use of data (central issue of the DMP)
- ➡ identification of the background of the research entity
- ➡ clear identification of the contribution made by inventors in the event of a patent or another type of protection (copyright, etc.)

Some examples of use in French-speaking universities

Discussions have been launched within all Universities and some initiatives have already been launched.

Thus the Institute for Medical Immunology at the ULB has been using the OpenLAB ELN solution from Agilent since 2010.

UNamur has chosen the eLabFTW open source solution installed on a local server since 2017 and available to all researchers at the institution.

After an in-depth study to select software that combines the tools of an ELN and those of a LIMS, ULiège makes the RSpace tool available to all its researchers.

LIEU NETWORK

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All the advantages of the laboratory notebook with the ease of use of an electronic solution

** The advantages and conditions of use are generic and depend on the selected solution*

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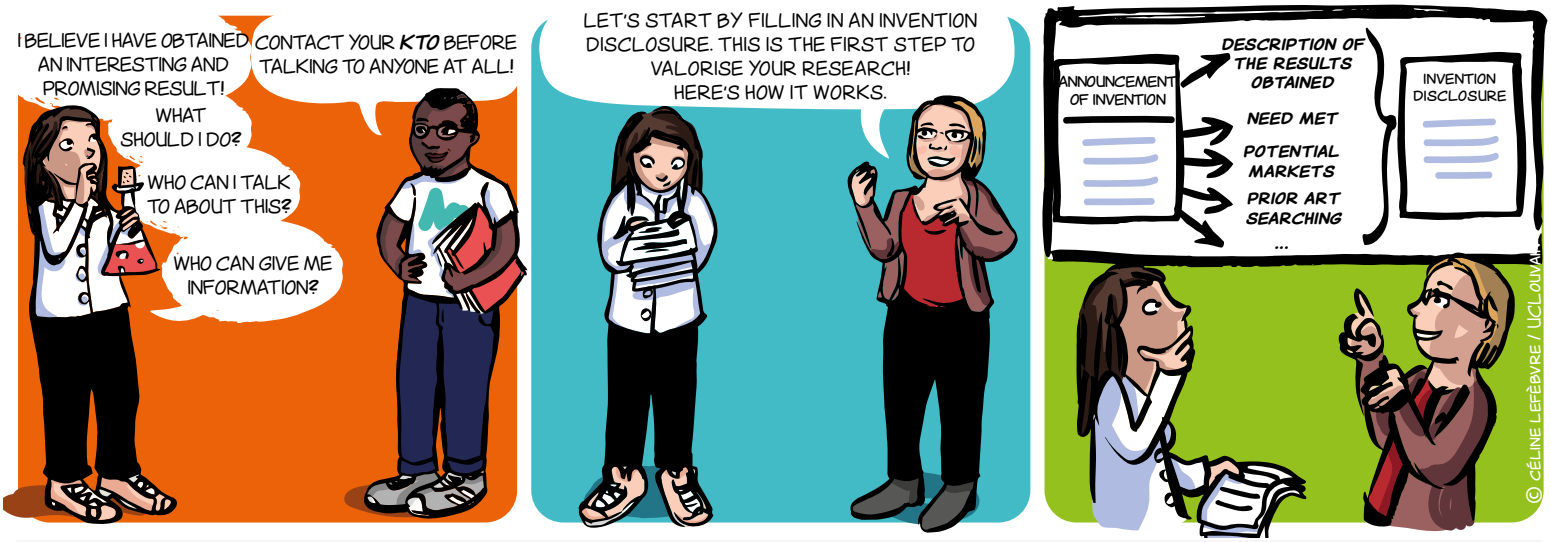
INVENTION DISCLOSURE (ID)



WHAT IS IT?

The Invention Disclosure is a single form provided by your KTO to start the process of valorising the results of your research.
In the first instance, you will provide a brief description of your invention here: this is the **Announcement of Invention**.
After this, together with your KTO, you will give precise details of this invention, the need it meets, the potential market it covers, a patentability analysis, etc. This is referred to as an **Invention Disclosure**.
So this is a tool for communication and the structured exchange of information with your KTO. It is also an essential working document of your KTO that will make it possible to determine the most appropriate means of disseminating and valorising your research results.

WHEN DO YOU FILL IN A ID?

The ID should ideally be filled in when:

- → you think you have a research result that stands out owing to its innovative or surprising character
- → you think that a company or society could be interested in your result
- → you wonder about the need to protect the results (**copyright protection**, **patent**, **trade secret**, **trademarks**, **designs**, **plant variety rights**).

Contact your KTO without delay!

WHY FILL IN A ID?

The purpose of the ID is to gather as much useful information as possible to start a process for the management and, if need be, protection of your invention/innovation and to facilitate the follow-up of the maturing process.*

- → It is a working tool and a means of joint communication.
- → It facilitates the exchanges and understanding of the results to be valorised.
- → It enables an informed choice regarding the valorisation approaches to be preferred.
- → It makes it possible:

• to keep a record of the contributions made by the researchers involved in the development of the results to be valorised;

• to determine who owns the rights to your invention/ innovation.

** In the interests of simplicity, the term 'invention' will imply more broadly any technical or social innovation*

WHAT DOES THE ID CONTAIN?

Information about the invention:

- Type of invention (compound, molecule, product, service, social innovation, etc.);
- A summary of the invention (problem, description, target group, innovative character, etc.);
- Disclosures made or planned (important when you are considering filing a patent application);
- Information of use for a bibliographical search (key words, scientific publications, patents in the field, etc.);
- The agreements reached concerning intellectual property (collaboration agreements, sponsorship agreements, MTAs);
- The level of development of the invention (***Technology Readiness Level, TRL***) ;
- The resources necessary for the invention to mature and for its future developments;
- The scientific fields concerned;
- etc.

Administrative information such as:

- The contact details of the researchers who worked on the development of the results to be valorised;
- The inventive contribution of each one to the invention;
- The project funding sources.

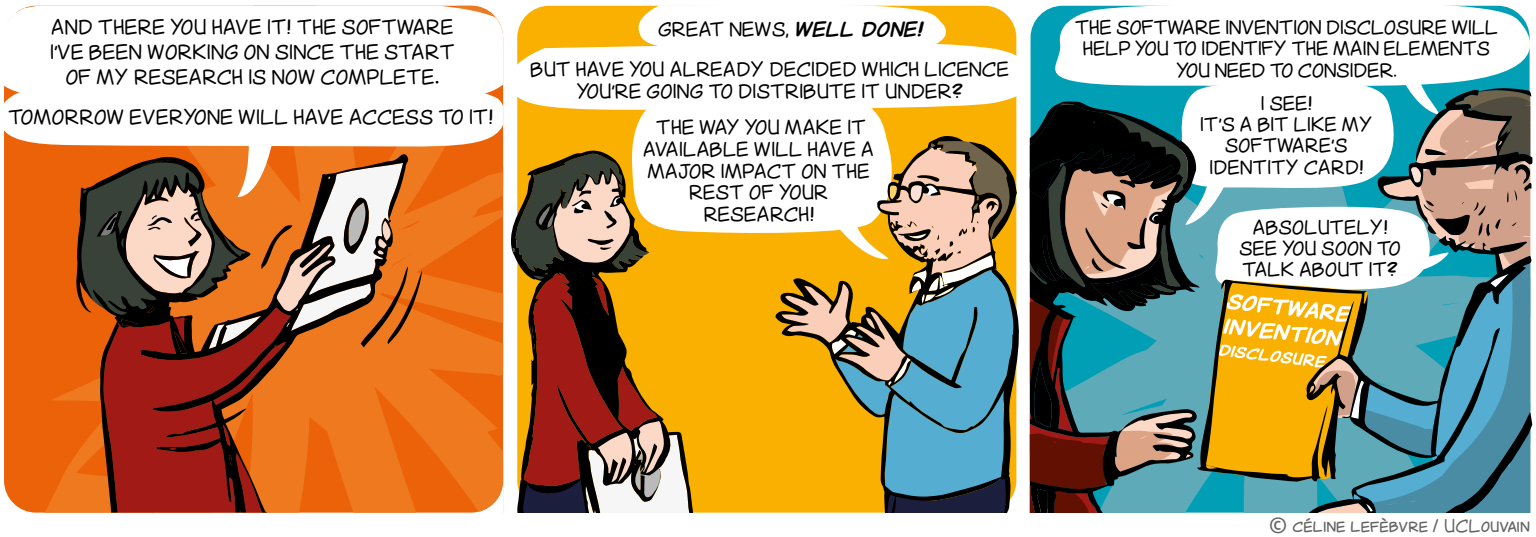
To serve society better, your inventions you will declare!

LINKS

- **Patentability**
- **Patent as a source of information**
- **Prior art searching**

HOW TO GET IT?

contact@reseaulieu.be
+32(0)81/62.25.94



WHAT IS IT?

The **Software Invention Disclosure** is a form provided by your KTO to initiate the process of distributing software developed as part of your research. By «software» we mean any type of programme, procedure or computer module (standalone software, plug-in, application, library, etc.) that you wish to make available to partners and users outside your university.

The Software Invention Disclosure is used to record a brief description of your software, the people involved, external dependencies, your expectations regarding the distribution strategy, etc. Later, in consultation with your KTO and only if you are planning to develop your software economically/market it, you will go into more detail about the need that the software meets, the potential market that it covers, an analysis of patentability, etc.: this is known as the **Invention Disclosure**.

The Software Invention Disclosure is a communication tool and an exchange of information with your KTO.
It is also an essential working document to determine with you the most appropriate **distribution strategy** and type of software licence.

WHEN TO COMPLETE IT?

Ideally, the Software Invention Disclosure should be completed when:

- You plan to make your software available outside your research group.
- You want to define the most appropriate software distribution licence in relation to your expectations and your research context.
- You use external software libraries and would like to gain a better understanding of the impact they could have on the distribution of your own software.
- You think that a company or the general public might be interested in your software and you want to get the ball rolling.
- You have questions about the copyright that applies to your software.

Contact your KTO now!

WHY FILL OUT IT?

The aim of the Software Invention Disclosure is to gather as much useful information as possible to start the process of managing and, where appropriate, distributing your software:

- It is a shared working and communication tool.
- It facilitates exchanges and understanding of the software to be distributed.
- It will enable you to make an informed choice about your distribution strategy and, where appropriate, the best ways to add value.
- It enables you to keep a record of the contributions made by the researchers involved in developing the software to be promoted and to determine who owns the rights to your software.

WHAT IS IN IT?

1. The information requested may vary from one university to another and mainly concerns:

- The type of software (standalone, module, app, etc.).
- A description of the software (functionality, target audience, innovative nature, etc.).
- The type of distribution required (open-source, commercial, dual licence, etc.).
- The external dependencies used or integrated by the software.
- **The Software Readiness Level**.
- Any documentation available.
- Etc.

2. It will also include administrative information, such as:

- The people involved in developing the software.
- Everyone's contribution to the software.
- Sources of funding for the project.

THINK ABOUT IT

It is common to develop code jointly with a partner from outside the university (another university, a student not subject to intellectual property regulations, a research centre, a company, etc.). In this case, the software to be distributed will be co-owned and the choice of distribution licence will require the agreement of all the co-owners.

LINKS

- **Valuation of computer software:** Distribution strategy
- **Valuation of computer software:** Marketing strategy
- **Copyright protecting your original work**

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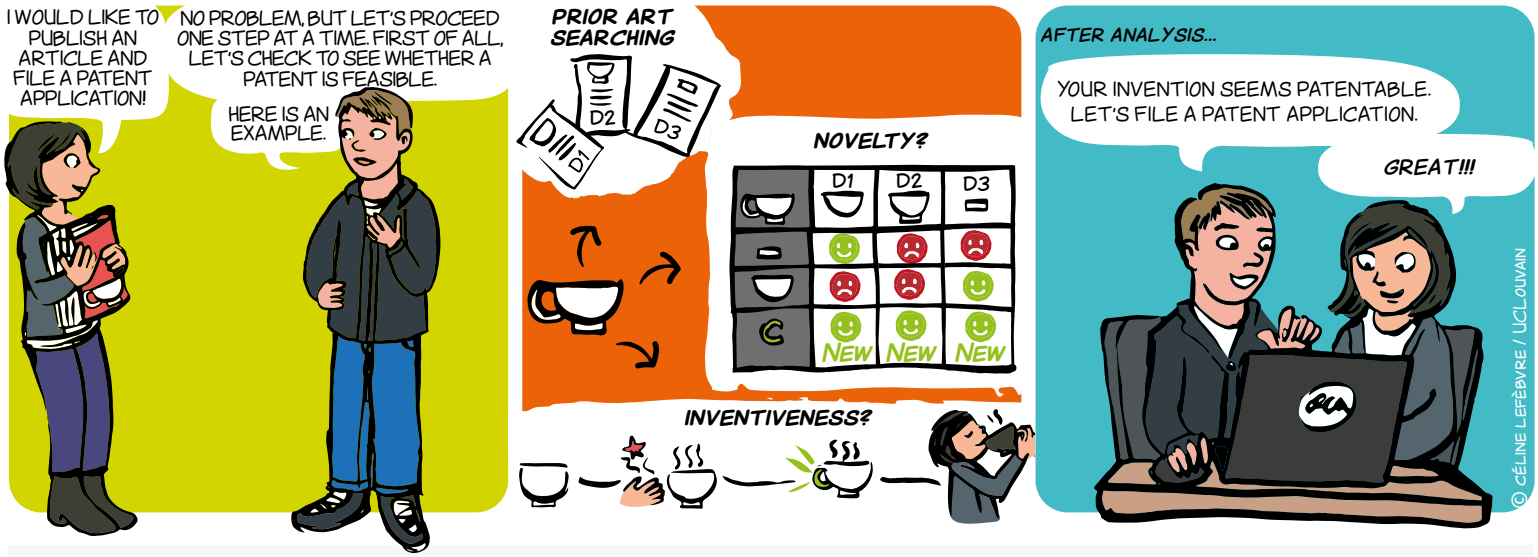
PATENTABILITY



WHAT IS A PATENTABILITY STUDY?

A patentability study consists of positioning an invention in relation to prior art with a view to checking whether it fulfils the following three criteria:

a. Industrial applicability: an invention is considered to be eligible for **industrial application** if its object can be made or used in any kind of industry, including agriculture[1].

b. Novelty: an invention is considered to be **new** if it does not form part of the state of the art, that is everything that has been made available to the public before the date on which the patent application was filed through a written or oral description, a use or any other means[2].

c. Inventiveness: an invention is considered to involve an **inventive activity** if, for a person skilled in the art (practitioner in the technical field of the invention), it does not result obviously from the state of the art[3].

'Patentability' does not mean 'right to operate'. Analysis of the FTO - freedom to operate - will make it possible to check that the product or process that you wish to sell is not protected by third-party patents.

There is no legal definition of what an invention is, but it is usually defined as a solution using technical means to solve a technical problem.

FOR WHAT?

- To improve the chances of obtaining a patent from an industrial property office.
- To define the maximum scope of protection covering the invention.
- To avoid incurring drafting and procedural costs for an invention that cannot be protected by patent.

FOR WHOM AND WHEN?

Any natural person or legal entity wishing to file a patent application should carry out this study before drafting their application.

LINKS

- Memo Patent as a source of information
- Memo Prior art searching
- Memo Patent
- Memo Freedom To Operate
- Guidelines on the examination conducted at the European Patent Office
- Guide for applicants - European Patent Office

LIEU NETWORK

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1, 2 et 3. www.epo.org/law-practice/legal-texts/html/guidelines/e/g.htm

Give your invention the patent it deserves!

HOW?

A. INDUSTRIAL APPLICABILITY

Barring fairly exceptional cases, the industrial applicability criterion is considered to be fulfilled.

B. NOVELTY

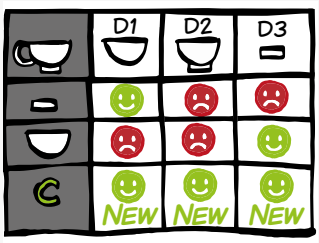
Stage 1: Carry out a **Prior art searching** (click to see the definition below + see memo Prior art searching).

Stage 2: Select the most relevant documents.

Stage 3: Draw up a detailed list of the technical features of the invention.

Stage 4: Prepare a double-entry table: list the features of the invention (one per row) and the relevant documents[1] (one per column). For each row, indicate whether or not the feature is present in the relevant documents.

Stage 5: If at least one document contains all the features, the invention is not new. Otherwise, the invention is new.



C. INVENTIVENESS

If the invention is new, it is necessary to determine whether it is inventive. In Europe, inventive activity is often determined by applying the 'problem-solution' approach. This approach consists of three stages:

i) determine the document that represents the closest prior art,

ii) establish in an objective way the technical problem to be solved based on the "distinguishing feature(s)" of the claimed invention compared to the closest prior art

iii) considering whether, starting from the closest prior art and the objective technical problem, it would have been obvious to the person skilled* in the art to arrive at something falling within the terms of the claim.

(* a practitioner in the relevant field of the technology who is possessed of average knowledge and ability)

EXAMPLES[2]

Click on one of the six inventions below and find out whether or not they are patentable.

Aluminium building frame

Cup with a handle

Use of a special new adhesive suitable for fixing a polymer to a metal

Product P for use in the treatment of illness B

Sausage making machine consisting of the juxtaposition of a mincer and a filler

Analgesic + sedative blend, the sedative strengthening the effect of the analgesic in an unintended way

1. Relevant scientific papers have also to be included at this step
2. https://www.epo.org/en/legal/guidelines-epc/2024/g_vii_15.html

EUROPEAN PATENT WITH A UNITARY EFFECT (UNITARY PATENT)

A new option upon the granting of a European Patent

WHAT IS A UNITARY PATENT?

Since the Agreement on a Unified Patent Court (UPCA) came into force on 1st June 2023, it is possible to request that a European Patent (EP), once granted, be applied in a unitary way. The resulting so-called Unitary Patent (UP) provides uniform patent protection in all the countries which have ratified the UPCA.

The Unified Patent Court (UPC) has exclusive jurisdiction with respect to the validity, enforcement and infringement of the unitary patent.

With a UP, it is still possible to acquire EP patents and/or national validations of EP patents.

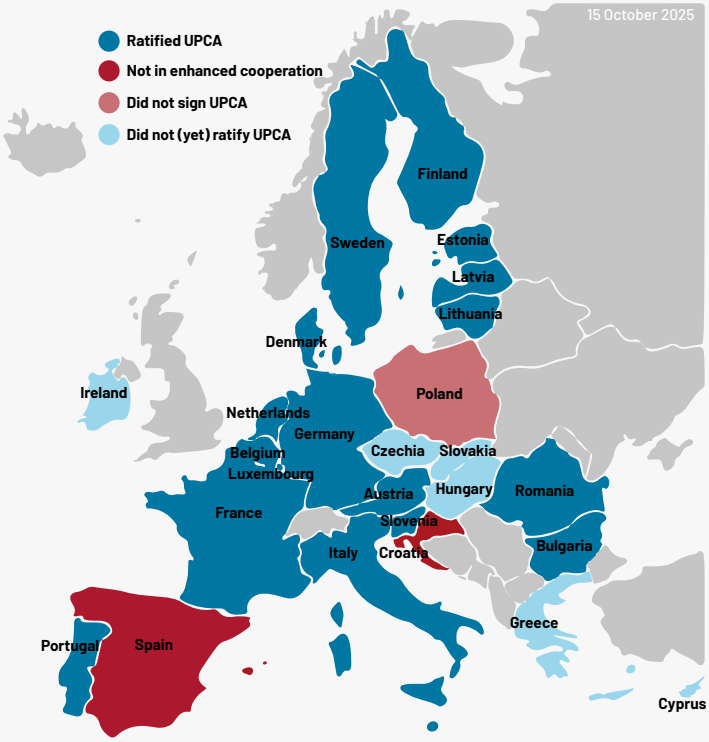
GEOGRAPHICAL COVERAGE

UPs have a unitary effect in all participating member states which have ratified the UPCA by the date of the EP being granted – 18 UPCA countries when this system becomes in force on June 2023 (**dark blue**).

National validation remains necessary in:

- UPCA member states having not yet ratified the UPCA by the date of the EP being granted (**light blue**)
- EU member states (3) that do not participate in the UPCA (**dark** and **light red**)
- Non-EU member states of the European Patent Convention (**grey**)

It is important to highlight that granted UPs shall not be extended to countries ratifying the UPCA after the UP has been granted. Therefore, several generations of UPs differing in their geographical scope will exist. A second generation has been in force since September 2024 with the ratification of the UPCA by Romania.



WHEN AND HOW TO REQUEST UNITARY EFFECT

The centralised examination procedure of EP applications (before they have been granted), and the post-grant opposition procedures at the European Patent Office (EPO), are not modified. A request for a UP has to be filed with the EPO, **within 1 month** from the date the patent's granting has been published. No official fees are due for such request.

If national validation remains the preferred protection route, an opt-out request may be filed. The corresponding bundle of national patents will thereby be withdrawn from the jurisdiction of the UPC for their entire lifetime and the national courts will retain exclusive jurisdiction.

WHY?

Key Advantages vs Risks and Drawbacks

Simplified Administration	But
One single request to be filed with the EPO.	National validation remains required in UPCA member states which have not yet ratified the UPCA and in non-UPCA countries.
One single patent register for a UP, including legal status, licensing, transfer, limitation, revocation. **One single registration of licenses** and transfers at the EPO under a single legal regime.	Licensing remains possible for selected UPCA countries, enabling licenses to be granted on one UP to different licensees in selected UPCA countries.
Cost Advantage	**But**
One single translation: translation of the claims into English, French and German only. Complete translation of the patent specification into the national languages of UPCA-countries is no longer required upon UP grant.	During a 6-year transition period, one single full translation of a UP patent into any official language of an EU member state is required. Translations are also required in some non-UPCA countries (e.g. Spain).
One single renewal fee: a single annual renewal fee payable in euros to the EPO (amounting to the cumulated annual fees of only 4 countries while covering all UPCA countries).	Withdrawal is only possible if all participating UPCA countries agree (all or nothing). There is no possibility of patent pruning. Additional renewal fees remain due in non-UPCA countries upon national validation (e.g. GB).
One single litigation in front of the UPC as compared to multiple parallel national litigation procedures for a traditional EP. For infringement actions, a fixed fee and value-based fees are due. For revocation actions including counterclaim for revocation, only a fixed fee is due[1].	In proceedings before the UPC, costs of legal dispute incurred by the prevailing party are to be reimbursed by the losing party and can be high depending on the value being disputed.
Legal Certainty	**But**
One Court. The UPC has exclusive jurisdiction for UP enforcement, infringement and validity with UPC decisions applying to UP in all UPCA countries. A single UPC decision for infringement enabling UP rights to be enforced in all UPCA countries at once. The UPC benefits from the competences of specialised judges and should provide rapid judicial decisions (with English as the language of the proceedings).	Forum-shopping among UPCA countries jurisdictions is not possible for a UP. There is the risk of a single central revocation of UP rights in all UPCA countries at once. The UPC is a new court; there could be some uncertainty about the quality of decisions in the early phases of UPC operations given the lack of related case law.

LINKS

Patent

Patentability

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[1] *More information on fees can be found here: https://www.unified-patent-court.org/en/registry/court-fees*

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TRADEMARKS

for getting noticed and standing out!

WHEN?

- **Spin-off** being created
- **Project, laboratory or platform** that could lead to commercialization
- **Product or service** to be marketed
- **Software**
- Etc.

WHY?

A trademark makes it possible for you to:

- Distinguish your products and services from those of your **competitors**
- Become **well-known**
- Establish and protect your **reputation**
- Convey your **values**
- Create an **asset** of commercial value

WHAT IS A TRADEMARK?

It's a sign that can be represented. There are different types of trademark:

- **Word trademark:** one or more words, name of a product or service, brand's company name
- **Figurative trademark:** a logo
- **Semi-figurative trademark:** a word and a logo
- **Shape trademark:** shape or packaging of a product (3D)
- **Slogan**
- **Colour(s)**
- **Olfactory trademark:** an odour
- **Sound trademark:** sound, musical notes

Plan for the future and think carefully about the name and the graphic style! A trademark is registered for 10 years and is renewable indefinitely.

FIRST TO FILE - FIRST SERVED !

The first to protect a trademark on a given territory and within a market may object to its competitors using the same sign or a similar sign

TRADEMARKS

for getting noticed and standing out! 2/2

WHAT REQUIREMENTS ARE THERE?

- **Distinctiveness**
  The sign must be neither descriptive nor generic
- **Legality**
  The sign must not contain deceptive elements that may mislead the consumer, or be contrary to morality or public order
- **Availability**
  The sign, must not already have been acquired as a trademark or have been earlier appropriated by a third party as its company name, trade name, domain name, etc.

HOW TO FILE A TRADEMARK

In order to make the most of your rights, consider:

- Contacting your **KTO**
- Checking the **availability** of the trademark in specific databases
- Choosing the **sign** or name to be registered
- Thinking about the marketing **strategy**
- Precisely choosing the products or services from a specific list: **classification**
- Choosing the route for **registering**:
  national, European, international

ALSO...

The trademark may be cancelled for lack of use:
it is subject to a duty of use within five years.

A sign can become generic:
a brand can be a victim of its own success and become a common name.
e.g.: Aspirin, Thermos, Escalator, Trampoline, Linoleum, etc.

HOW MUCH DOES IT COST?

- **In Benelux**
  Around €244 for 10 years for one class, €27 for the 2nd class and €81 per additional class.
- **For the European Union**
  Around €850 for 10 years in one class, €50 for the second class, plus €150 per additional class from the third class onward.
- **Internationally**
  www.wipo.int/madrid/fr/fees/calculator.jsp
  is a tool that can provide a quote.

Please note that these costs do not take account of trademark attorneys or lawyers' fees.

USEFUL LINKS

Trademarks databases

- https://www.tmdn.org/tmview/welcome
- https://register.boip.int/bmbonline/intro/show.do
- http://www.wipo.int/romarin (out)

Classification of products and services

- http://tmclass.tmdn.org/ec2
- https://www.wipo.int/classifications

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TRADE SECRET

When search results may not be protected by a patent or another intellectual property right 1/2

* Knowledge Transfer Office

WHAT IS TRADE SECRET?

A pretty broad concept that affects all researchers throughout their career because it can encompass all knowledge and information, of any type whatsoever, held by a natural or legal person.

Examples

- trade secret
- formulation
- recipe
- chemical compound

WHAT ARE THE CONDITIONS FOR PROTECTING TRADE SECRET?

The European legislator requires* :

- **"secret" character:** information is secretive when, in its entirety or in the exact configuration and assembly of its elements, it is not generally known to the persons forming part of the circles who normally deal with this kind of information or it is not easily accessible to them;
- **commercial value**, because of its secret nature;
- **measures taken by the person who has control of the information in order to keep the information secret.**

* Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the protection of undisclosed know-how and business information (trade secrets) against their unlawful acquisition, use and disclosure

The directive was transposed into Belgian law by the law of July 30, 2018 on the protection of trade secrets in force since August 14, 2018. Provisions introduced in the economic law code Book XI - i.e. Art. XI.332/3:

JULY 30, 2018. - Law on the protection of business secret (1)

Your know-how is valuable!

TRADE SECRET

When search results may not be protected by a patent or another intellectual property right 2/2

WHY RESORT TO TRADE SECRET?

To offer protection, without any specific registration or renewal formality with an administration and without time limit, to research results or expertise that have a potential for the institution but:

- cannot be protected by an intellectual property right
- must be kept secret for strategic reasons

➡ In all instances, contact your KTO to define the most suitable protection strategy.

TO REFLECT ON

The Coca-Cola Strategy

the Coca-Cola formula is the most famous example of a trade secret. Now written and stored in a safe, it is – according to legend – only known to two people in the world, who are not allowed to travel together.

The Michelin strategy:

An example of the difficulty in finding a balance between protection by trade secret or by patent is the one of Michelin.

Until recently, the group filed very few patents, for fear of disclosing its technologies to competitors.

Until it became a victim of espionage...

This demonstrates that the policy of an institution regarding commercial secret can evolve over time.

More info

A FEW THOUGHTS

- via the procedure specific to your institution, establish with your KTO a strategy to ensure that the secret character can be maintained in the medium and long term,
- do not reveal confidential information which is secret in your personal circle or in a professional framework (meeting, conference, poster, publication...),
- establish a system of information security,
- lock physical access to offices and labs,
- secure IT access,
- If necessary, register the trade secret in an i-DEPOT
- etc.

To find out more

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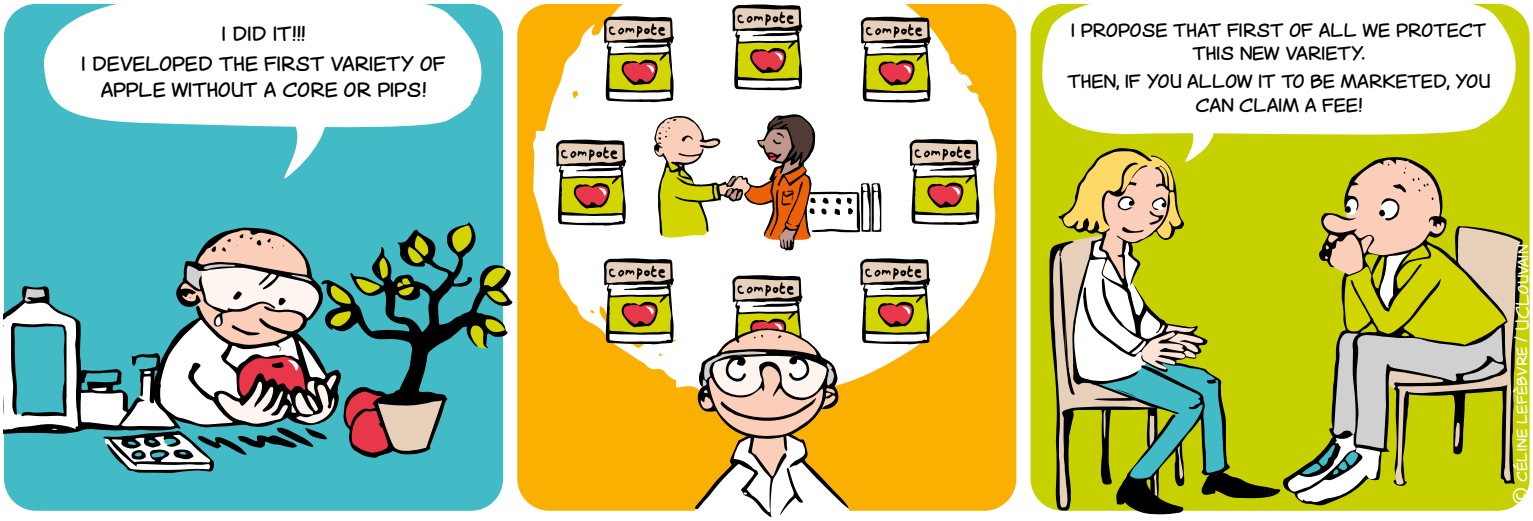
PLANT VARIETY RIGHTS

What about protecting your new vegetal varieties? 1/2



WHAT IS IT?

It's an intellectual property right that can be filed in order to protect the investments made (in time and money) for developing a new vegetal variety.

TO PROTECT WHAT?

The **varieties** of all types and the **botanical species**, including, in particular, their hybrids.

Examples

- Tulips of a new colour
- Potatoes that are resistant to frost
- Oranges that are richer in vitamin C
- Courgettes that last for longer

WHAT ARE THE REQUIREMENTS?

The breeder's right is only granted where the variety is:

- New
- Distinctness
- Uniform
- Stable
- Suitable denomination

TO WHOM DO THE RIGHTS BELONG?

Before taking any steps to protect a new plant variety or to grant any rights to this plant variety to third parties (which could otherwise be detrimental to its protection), check with your KTO by whom and in what context the variety has been developed:

- **by you in the exercise of your duties and/or your research at your institution and/or with the means made available by the latter:**
  - ➡ the rights probably belong to your institution.
- **by two or more persons:**
  - ➡ the right is jointly owned by these people or their beneficiaries or their respective sucessors, unless otherwise agreed.
- **by different people, independent from each other**
  - ➡ the rights are granted to the first person who applies for protection by making a filing in accordance with the legal requirements.
- **by a person who is not entitled**
  - ➡ the rights can be claimed through a legal proceeding.

PLANT VARIETY RIGHTS

What about protecting your new vegetal varieties? 2/2

WHY SHOULD YOU PROTECT THE VEGETAL VARIETY THAT YOU HAVE DEVELOPED?

- **To avoid others using your protected plant variety without permission.**

  ➡ for example, the holder of the certificate (called the "**breeder**") might **prohibit reproduction or multiplication, offer for sale, marketing, import and export** of the plant variety that he has developed, without his consent.

- **to write off the investment that you have made for the development of the new plant variety.**

  ➡ the user might grant licenses to third parties (mainly to companies) in order for them to be legally able to commercially exploit the plant variety aigainst a commercial fee to be negociated.

HOW LONG DOES LEGAL PROTECTION LAST?

- **Belgian protection:**

> 30 years for trees, vines and potatoes
> 25 years for other plant species

- **Community protection** (for all other member countries of the European Union either together or on a per country basis):

> 30 years for trees and vines
> 25 years for other plant species

These time limits start to run as soon as the breeder's right has been granted.

HOW CAN YOU PROTECT THIS NEW PLANT VARIETY?

If the new plant variety rights belong to your institution, the KTO will provide you with support (technical, commercial or legal) for the negotiation of such license agreement and will proceed with the necessary administrative procedures.

WHO BEARS THE COSTS?

Your institution will bear all (or most) costs associated with the filing and the administrative requirements prescribed by law:

- if the new plant variety rights belong to it
- if it takes a positive decision to protect it

➡ Contact your KTO who will ensure that appropriate steps are taken at the Office of Intellectual Property.

HOW MUCH DOES IT COST?

The filing and procedure fees varies depending on the class to which the variety belongs.

Fees grids

- In Belgium
- At Community level

USEFUL LINKS

- Verification of the novelty of the plant variety
- General information for the breeder

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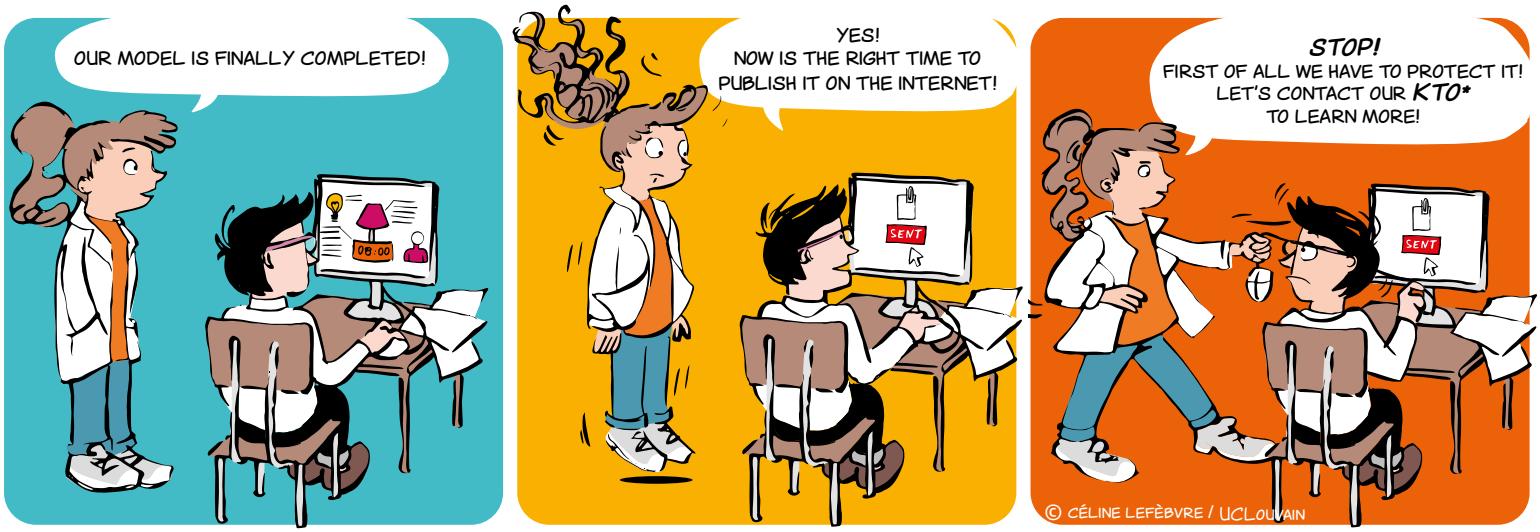

* Knowledge Transfer Office

WHAT IS A DESIGN?

The design (2D and 3D) is a piece of intellectual property that protects the new aspect of an object.

The appearance of a product or a part of a product can be considered as a design.

The appearance of a product is conferred on it, in particular, by the characteristics of the lines, outlines, colours, shape, texture or materials of the product itself or its decoration.

WHY FILE?

- To ensure creations are effectively protected
- To stand out from the competition
- To increase the economic value (registration results in value added)
- To have a future development tool
- To increase awareness

WHAT ARE THE CONDITIONS?

To be valid, a design must meet several conditions:

➡ Novelty

The requirement is not to publish the design in a catalogue, in a newspaper article or on the internet, and that this design is not exhibited at a fair or any other public place before the filing, otherwise the design falls into the public domain.

BE CAREFUL!

The publication of a design on the internet means that the design has been disclosed worldwide.

➡ Individual character

The informed user must not have the feeling of "déjà vu".

➡ It must not be contrary to public order or good morals

The appearance of a product or its aesthetic appearance can be protected! Think about it!

WHAT IS THE PROCEDURE?

➡ Above all, **check novelty** in the databases of the offices mentioned below with the help of your KTO

➡ Then **register/file** the design with:

- **The Benelux Office of Intellectual Property (BOIP)**

For protection in Benelux (Benelux designs)

- **EUIPO**

For protection in all Member States of the EU (Community design)

- **WIPO**

For international filing aimed at specific countries of interest to be designated among the list of countries having acceded to the system (so-called "The Hague System")

- **National Office**

For national filing, in countries that are not members of the international design system, for protection that is limited territorially to this specific territory (a search must be carried out based on the country of interest)

ONE NOTABLE EXCEPTION

Unregistered Community designs are protected anyway in the European Union **against any identical reproduction**, without any requirement of filing, for 3 years from the date upon which they were first available to the public within the territory of the European Union.

However, the difference with filed design is that the proof required to establish a copy is much more restrictive and difficult to provide...

MORE INFO

FOR HOW LONG?

In the majority of cases:

- 5 years from the date of the filing, renewable 4 times successively up to a maximum of 25 years.
- a design that is the subject of filing cannot be changed during the registration period nor on the occasion of its renewal.

WHEN TO FILE?

- At any time (if the designs have not yet been disclosed)
- Soon after the creation of the design or model

➡ Contact your KTO as soon as possible!

LIENS

https://euipo.europa.eu/ohimportal/fr/designs-in-the-european-union

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COPYRIGHT PROTECTING YOUR ORIGINAL WORK 1/2

WHAT ARE THE CONDITIONS FOR COPYRIGHT PROTECTION?

➞ **Originality**

The original work must reflect the author's personality and be the fruit of the author's intellectual effort.

➞ **Format**

The original work must be materialised, wathever the medium.

The following in particular are covered by copyright: books, scientific papers, correspondence, software, databases, graphs, drawings, plans, photographs, paintings, sculptures, etc.

Copyright protection is acquired automatically when the original work is generated and does not depend on the completion of any specific formalities.
It continues to apply for 70 years after the author's death, after which period it falls into the public domain.

WHO IS THE AUTHOR, THE OWNER OF THE COPYRIGHT?

The original owner of the copyright is the physical person who created the work.

He or she may assign his or her copyright (economic rights) or grant a licence to any third party (an editor for example) wishing to exploit the work.

The law provides for cases where transfer to a third party is presumed. So for software, the employer is presumed, unless there is evidence to the contrary, to be the owner of the copyright on software created by its employees in the course of their duties.

WHAT ARE THE RIGHTS OF THE AUTHOR?

➞ **Moral rights**

Right of disclosure, right to claim authorship, right of integrity.

They are intended to protect the integrity of the work and the author's reputation. Being closely linked to the author's personality, they are inalienable rights and cannot be assigned to a third party.

➞ **Economic rights**

Right of reproduction and communication to the public, right of adaptation and translation, etc.

They allow dissemination and economic exploitation of the work. These are exclusive rights of the copyright owner.

This means that the third parties are prohibited from using the work without the copyright owner's approval through a licence or assignment.

Copyright covers the FORM in which an idea is expressed (a text or a drawing for example), but not the IDEA itself!

EXCEPTIONS

The law does however provide for certain exceptions where use of a work without the author's agreement is permitted. Two of these apply more particularly to scientific publications.

- The exception regarding quotation allows copying of a short extract of a work for the purposes of review, teaching or scientific work provided that the source and author's name are acknowledged.
- The exception regarding use for the purposes of teaching and research allows copying of all or part of a work, for the purposes of illustration for teaching or research, provided that there is no commercial purpose, no conflict with normal exploitation of the work by the author and provided that the source and author's name are acknowledged.

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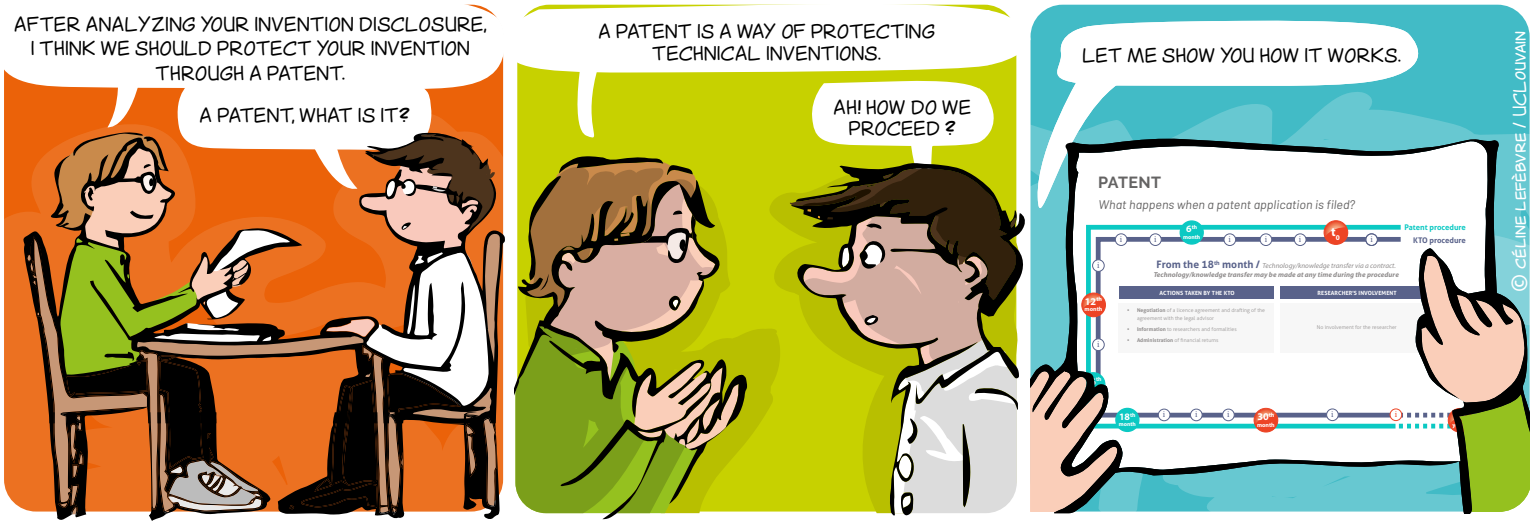
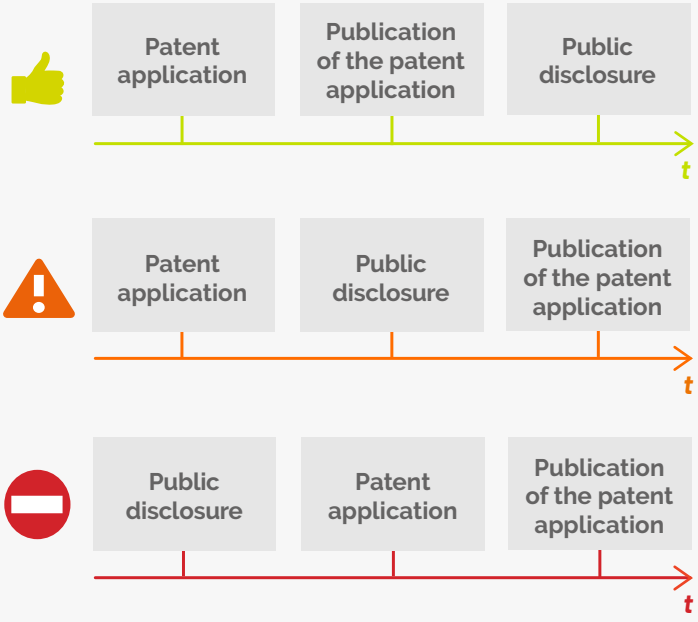


WHAT IS A PATENT?

A patent is an intellectual property right granted by a public authority for the protection of an invention within a specific geographic territory and for a limited duration (usually maximum 20 years). The patent holders, in exchange for a detailed description of the invention, have the right to prevent any third party from exploiting, manufacturing, using, marketing, and importing/exporting the invention without their permission, within the territory covered by the patent.

WHEN AND WHERE TO FILE A PATENT?

Patent application must be submitted to an intellectual property office before any public disclosure of the invention (such as an oral or poster communication at a conference, public defence of a PhD thesis, publication of a scientific article including preprints, etc.).



WHAT ARE THE REQUIREMENTS?

Patents are granted for any invention in all fields of technology, provided that the invention is new, involves an inventive step, and is susceptible of industrial application (Article 52(1) of the European Patent Convention / memo **patentability**).

Discoveries, scientific theories, mathematical methods, aesthetic creations, programs for computers, presentations of information, and schemes as well as rules or methods for performing mental acts, playing games, or doing business, are not considered as inventions and are therefore not patentable **as such**.

Furthermore, some inventions are excluded from patentability by legislation, namely inventions the commercial exploitation of which would be contrary to the "ordre public" or morality, methods for human cloning, **plant or animal varieties**, essentially biological processes for the production of plants or animals, methods for treatment of the human or animal body by surgery or therapy, or diagnostic methods practised on the human or animal body (Article 53 of the European Patent Convention).

The rules and exceptions mentioned apply to the European Patent Convention contracting states. Differences may exist between different jurisdictions.

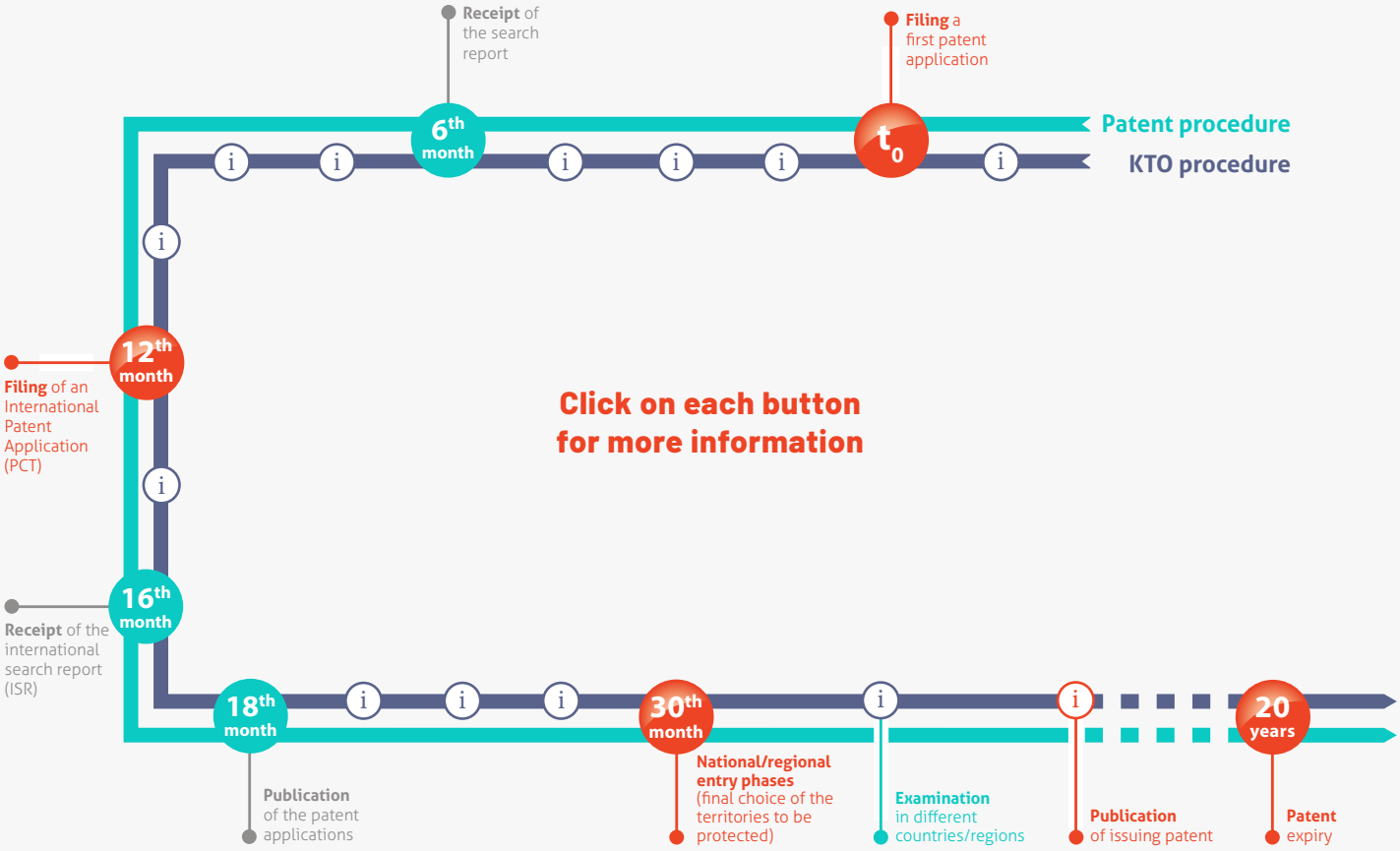
There is no legal definition of what an invention is, but it is commonly defined as a solution implementing technical means to solve a technical problem.

WHO OWNS THE PATENT?

The patent's applicant is typically the patent holder (owner). When the research results to be protected belong to the university, the patent application is filed in the name of the university (intellectual property regulations). If the invention was made by multiple applicants, they will be co-owners. The names of the **inventors** are also mentioned **in the patent**.

IS IT POSSIBLE TO PATENT A SOFTWARE IN EUROPE?

In Europe, software as such is not considered as an invention. However, if the software can be regarded as a technical process that the software is intended to carry out, it may be considered as an invention and thereby becomes patentable. Such products or processes are referred to as "computer-implemented inventions."



USEFUL LINKS

- Freedom to Operate (FTO)
- Patentability
- Patent as a source of information
- Prior art searching
- Unitary patent (UPC)
- Inventorship
- European patent guide – European Patent Office

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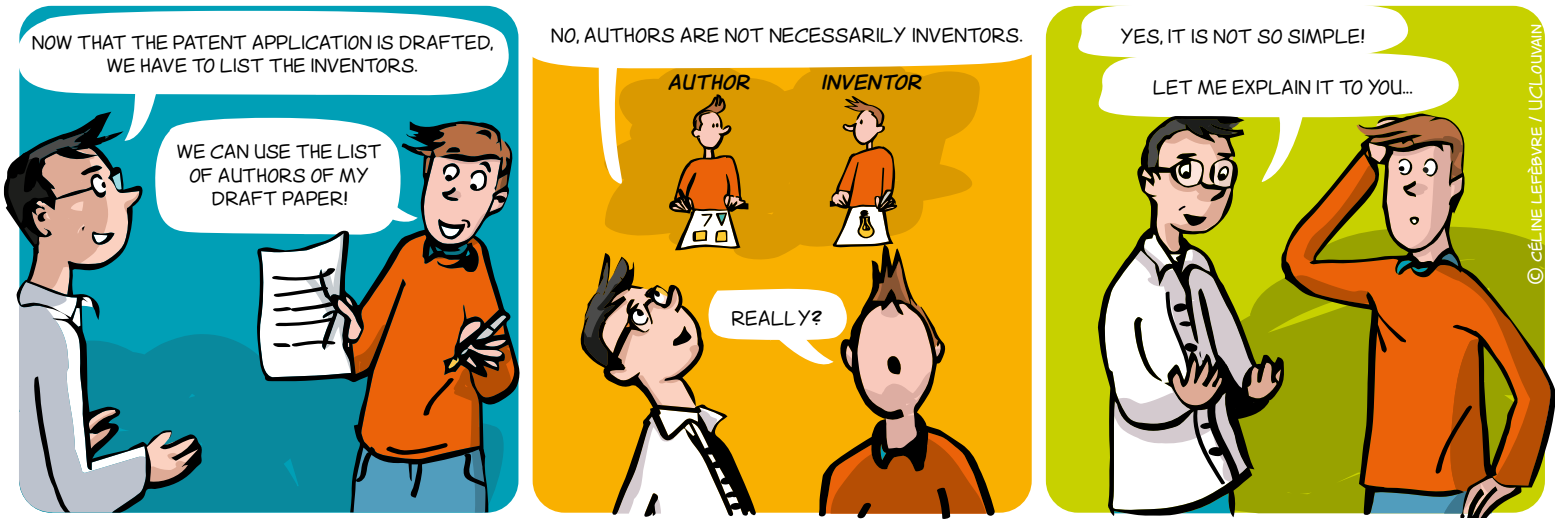
INVENTORSHIP

To be or not to be an inventor



WHO IS AN INVENTOR?

There is no universal definition of an inventor. Inventorship is governed by national criteria. In some countries, like in the USA, the law and/or the caselaw gives a clear definition of this concept. In other countries, like in Europe, the definition is not so well established.

→ **BE/EP:** Each person with legal capacity who has made an inventive contribution to the development of the invention must be considered as an inventor or co-inventor. No distinction is made as to whether one person contributed more than another.

→ **US:** An inventor is a natural person who has contributed to the conception of the invention. 'Conception' is defined as the formulation of a clear and complete idea of the invention in working order. An idea is sufficiently clear and complete when the invention may be carried out by applying ordinary skills without having to perform extensive research or experiments.

The order of the inventors is irrelevant to their contribution to the invention

HOW TO DESIGNATE THE INVENTORS?

Inventors are designated provided they made an active inventive contribution to the conception, the development, the improvement, etc. of the product or process object of the patent application, particularly the patent claims in the US.

Therefore, inventor designation is made independently of any honorary, hierarchical, financial, service or friendship consideration. The mere fact of being the head of the laboratory or being the hierarchical superior of a true inventor does not make you automatically an inventor. Moreover, since the claims may be amended in the course of the patent application examination, the list of inventors can be reviewed accordingly.

In a patent application, it is possible to have:

→ inventors who did not physically work together or at the same time,
→ inventors who did not make the same type or amount of contribution,
→ inventors who did not make a contribution to the subject matter of each part of the invention described in the patent application.

USEFUL LINKS

- Definition of inventorship in Belgium
- Definition of inventorship in the USA

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WHY IS THE CORRECT DESIGNATION OF INVENTORS IMPORTANT?

Inventors have to be named when filing patent applications. However, inventorship should not be confused with ownership. As a general rule, the University, as employer, is the owner of inventions conceived by its researchers (employees) during their research activities at the University. Students including PhD students who are not employees may assign their rights to the University to benefit from the same University support as that provided to researchers (see **PI Transfer of right**).

The correct designation of inventors is in addition required:

→ to identify the researchers who may benefit from the financial returns attributed to inventors according to the regulation of their institution.

→ to determine the shares of ownership of a patent application in case of inventors affiliated to distinct institutions, usually according to the principle of "ownership follows inventorship".

Moreover, it is critical that all inventors (and only inventors) are designated in a patent application, since a patent that fails to name the correct inventors may be ruled invalid.

HOW TO DOCUMENT INVENTORSHIP?

The designation of inventors provided for in the "**LiEU Invention Disclosure Form**" is easier when each inventor can demonstrate their contribution relying on proofs such as:

- laboratory notebooks,
- minutes of meeting indicating participants and their contributions to the discussion,
- applications for research grants,
- summary notes or other internal memos concerning the invention.

YOU CONTRIBUTED TO AN INVENTION BUT CAN YOU BE DESIGNATED AS AN INVENTOR?

Click on the right answer

You provided a technical solution to a technical problem during the conception of the invention:

↳ YES ↳ NO

You conceived at least some features present in the patent application by providing the means to implement them but did not perform the work:

↳ YES ↳ NO

You contributed to the conception of a feature that is not in the patent application

↳ YES ↳ NO

You suggested an idea of a result to be accomplished without formulating the means of accomplishing it:

↳ YES ↳ NO

You provided ordinary means (materials/ equipment) or substantial work in the implementation/validation of the invention, by applying ordinary skills or according to the instructions of someone else:

↳ YES ↳ NO

You were only involved in the implementation/reduction to practice of the invention (not its conception, nor an inventive contribution to its development or its improvement), i.e. the process of demonstrating that the claimed invention works for its purpose (including its implementation or validation):

↳ YES ↳ NO

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TRANSFER OR COLLABORATION OPPORTUNITIES

to offer visibility to your research

SPECIFICALLY

A transfer or collaboration opportunity is a form, usually written in English, containing:

- A brief description of the **research results**
- The benefits and advantages of the results compared to existing solutions
- The targeted areas of application
- The intellectual property status
- The state of maturation of the results (**TRL scale**)
- The type of **partnership** sought
- The keywords
- The laboratory's/institution's references
- The KTO's contact details

WHY?

- To promote and/or transfer research results, whether protected or not, from Universities and Higher Education Institutions to various partners and potential users.
- To enable the Society (companies, associations, research centres, etc.)to benefit from the advances in research.

ADD VALUE

Bringing value by transferring, selling or pursuing research through new academic and/or industrial collaboration.

TRL SCALE (TECHNOLOGY READINESS LEVEL)

The TRL scale defines nine levels of maturity for a technology, from the idea to the market.

It provides a common frame of reference for defining the state of maturity of a project and specifies the technical developments accomplished at each level.

TYPES OF PARTNERSHIP

Licensing, transfer, academic collaboration, industrial collaboration, knowledge transfer, etc.

WHO WRITES IT UP AND FOR WHOM?

The researcher writes up the transfer opportunity or the collaboration opportunity together with his/her KTO, for the following recipients:

- Commercial and non-commercial companies
- Research centres
- Associative sector
- End-users
- Business operators

WHEN?

- Always after identifying results to which value can be added.
- According to the strategy for protecting intellectual property.

The timing of the writing and publication of the transfer opportunity or the collaboration opportunity can thus vary and is defined in consultation with the KTO.

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VALUATION OF COMPUTER SOFTWARE

Marketing strategy 1/2

BEFORE ANYHING ELSE...

Any transfer involving code requires the origin and the status of the software components to be established and any components that may require a rewrite to be identified. The use of some external libraries can, for example, compromise the marketing scheme being considered.

This can also have a significant impact on

i **THE DISTRIBUTION OF THE SOFTWARE**

Key points to consider in developing a marketing strategy:

1. **REVENUE:**

free, freemium, fixed payment, etc.

2. **ARCHITECTURE:**

software, mobile app, cloud/SaaS service, etc.

3. **INTELLECTUAL PROPERTY:**

patent protection, business commercial secrecy, open source, etc.

4. **CHANNEL:**

third-party company, spin-off, service delivery, online platform, etc.

5. **PRODUCT**

software, consultancy, hardware/software hybrid solution

6. **REFERRED RETURN**

economic revenue, visibility, societal impact, etc.

A well thought-out (software) marketing strategy increases the impact and the visibility of your research!

WHAT BUSINESS MODEL SHOULD YOU CHOOSE?

1. The quality and relevance of a **Business Model**

- **is measured by its relevance to the needs of the market**
- **requires analysis of the expectations of the end users**
- **must rely on the strengths of the developed solution**

The **SOFTWARE DISCLOSURE FORM** allows a reflection on these three elements

2. Examples of business model

Proprietary	*The creator sets the price of his product*	**Windows**
Dual Licencing	*Paid version supported by a free community version*	**MySQL**
Value-added service	*Sale of intellectual services in all their forms: advice, expertise, package development, in-house, TMA*	**Odoo**
In-app purchases	*Free application with additional paid features*	**Candy Crush**
Software as a service (SaaS)	*Application available online via subscription*	**Office365**
Subscription	*Pricing based on the volume of data exchanged/stored*	**Amazon Cloud**

WHAT METHODS CAN YOU USE TO SET THE PRICE?

Pricing has to rely on the usual methods, and in particular a market study, a comparative analysis of the competition... There is no universal method for estimating the value of a piece of software. It is also common to combine several evaluation criteria, which are not necessarily specific to the software.

It is also usual practice to base it on the following criteria:

- **NPV (Net Present Value)**

This allows a calculation of the value of a technology based on a financial plan, which requires some knowledge of the market.

- **benchmark**

This allows a royalty rate to be offered based on the rates usually observed in similar transactions. Alternatively, you can also set a royalty rate based on the percentage of the budget allocated to R&D in the company or sector under review.

- **Replication cost**

An estimation of the number of men multiplied by the months required for a competitor to redevelop the technology from scratch.

Compensation mechanisms are varied:

- **royalties**
- **up-front**
- **milestones**
- **collaboration prospects**
- **etc.**

TOOLS

The COCOMO II method

estimates the value of software based on the development budget calculated from the number of lines of code (replication cost), from which **technical debt** is usually drawn.

More info

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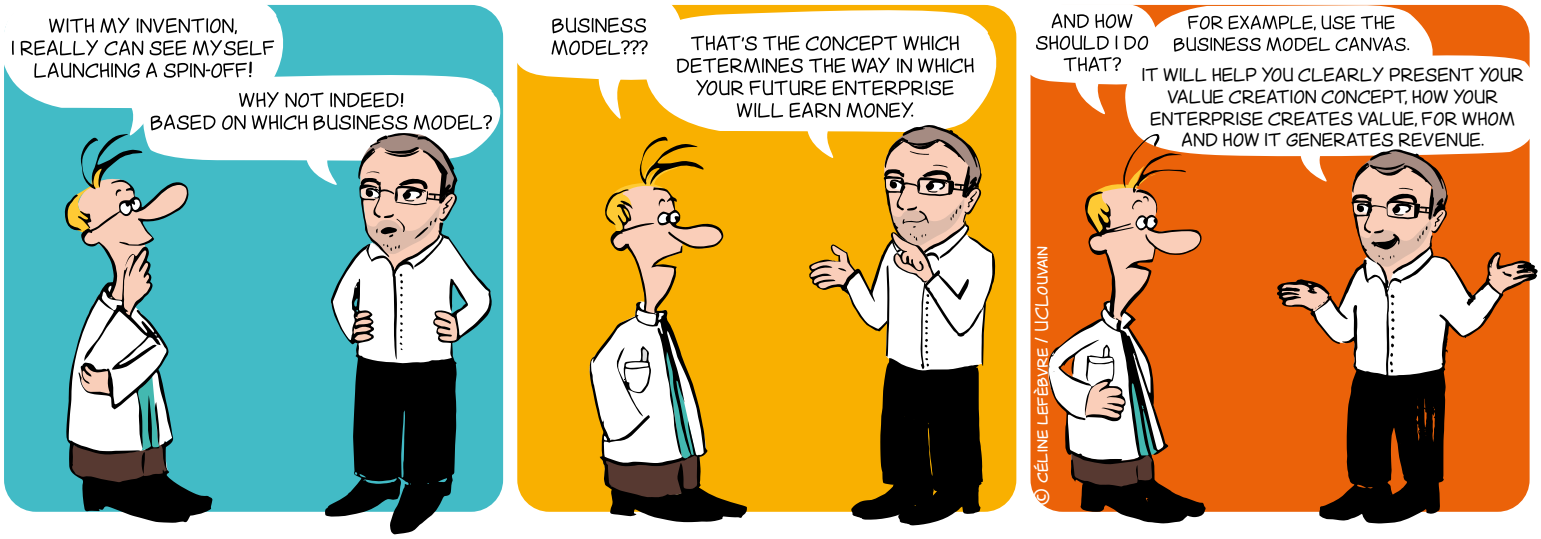
THE BUSINESS MODEL CANVAS

A strategic management and entrepreneurial tool 1/2



A LITTLE BIT OF HISTORY

In 2004, Alexander Osterwalder completed a Ph.D. thesis on business models with Prof. Yves Pigneur (HEC Lausanne, Switzerland).

The Business Model Canvas was born!

Two years later the approach outlined in his thesis began to be implemented around the world.

To accompany the method, Alexander Osterwalder and Yves Pigneur published an original and innovative book in 2009, which has sold a million copies in 30 languages: the Business Model Generation (2009, ISBN 978-2-8399-0580-0).

WHAT?

The Business Model Canvas - often referred by the acronym BMC - is a visual representation that facilitates iterative development (or adaptation) of new (or existing) business models. It is composed of nine blocks which helps an entrepreneur to build a value-added proposal to customers and understand the financial in- and outflows involved in his/her business.

WHY?

The BMC is designed for building business models through brainstorming sessions.

It provides a holistic view of the business as a whole and gives people a shared language, leading to better strategic conversations and better ideas on the table.

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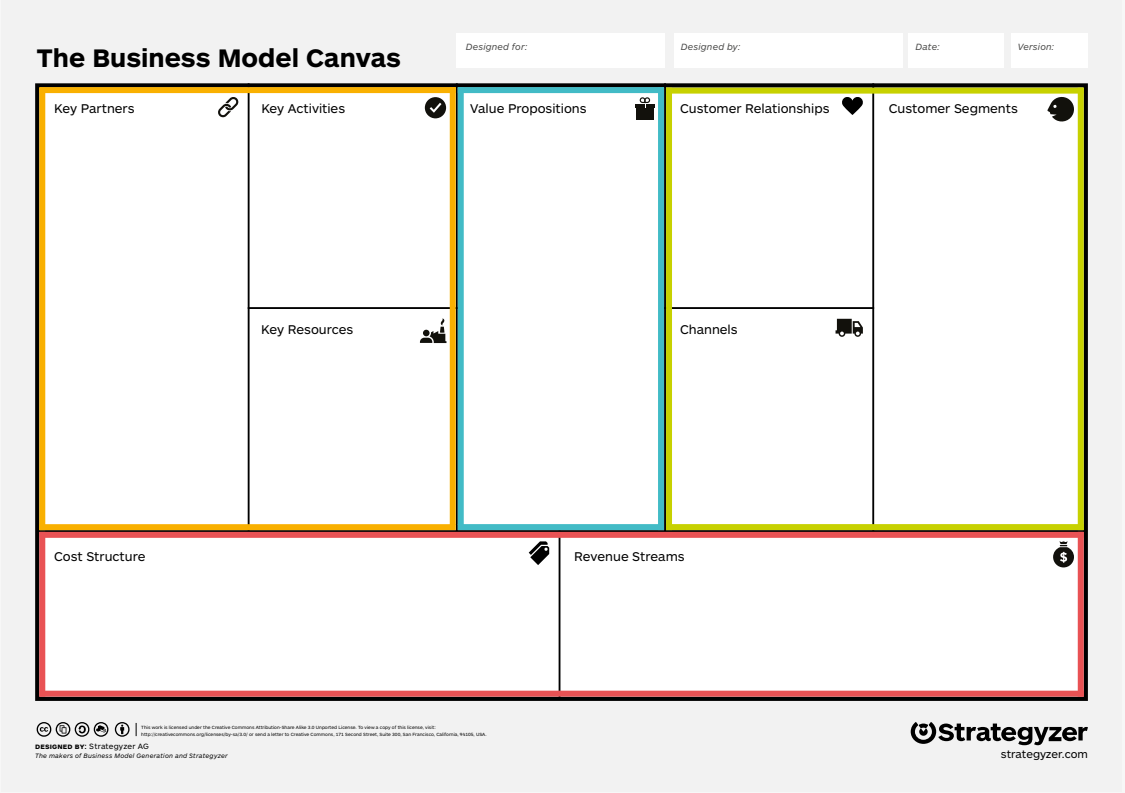
Describe, design, challenge, invent and pivot your business model!

THE BUSINESS MODEL CANVAS

A strategic management and entrepreneurial tool 2/2



VALUE PROPOSITION

What need/problem does your project address? What is your added value? What are the strong points compared to the competition?

KEY PARTNERS

Do you need external providers to promote your product/service, to complete your service offer etc.?

KEY ACTIVITIES

Which activities are essential to allow your economic model to work (production, supply chain, software development, network, platform, problems solving etc.)?

KEY RESOURCES

What resources are essential to the functioning of your business: premises, equipment, machinery, financial resources, human resources, software, brands etc?

COST STRUCTURE

What are the different types of costs related to the business model (cost logic, value logic, fixed costs, variable costs, economies of scale etc.)?

CUSTOMER SEGMENTS

For each product and/or service, what groups of individuals or organizations do you want to reach?
Are you targeting mass markets, niche markets, segmented markets or others?

CUSTOMER RELATIONSHIPS

What are the types of relationships established with each customer segment based on strategic objectives: to acquire, retain, upsell (personal assistance, self-service, automated services, communities, co-creation)?

CHANNELS

- How will you promote/sell your product and/or service?
- How will your customers assess your product and/or service?
- What after-sales service will you provide?

REVENUE STREAMS

What kind of income will be generated from each customer segment (from sale, subscription, rental/loan, licencing, brokerage, advertising etc.)?

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THE SOCIAL BUSINESS MODEL CANVAS

To structure ideas and actions in a reasonable manner! 1/2

WHAT IS A SOCIAL ENTERPRISE?[1]

A social enterprise is a business

- the main objective of which is to **have a social impact** rather than generating profit for its owners or partners,
- which predominantly **uses its surplus** for these social objectives,
- which is **managed** by a social entrepreneur **in a responsible, transparent and innovative manner**, including combining employees, clients and stakeholders affected by its activities.

[1] *Initiative for social entrepreneurship from the European Commission, Ref. Ares(2015)5946494, 18.12.2015, European Commission*

WHY CHOOSE A SOCIAL BUSINESS MODEL CANVAS?

Submitting to this allows the social entrepreneur:

- to anticipate the social impact of its activities,
- to measure its financial viability,
- to best predict the challenges he will face.

IN PRACTICAL TERMS

The SOCIAL business model canvas allows the:

- understanding, design, articulation and discussion of the heart of the concept;
- testing and development of prototypes to see if it is possible to passionately believe the impact of the project and its economic viability.

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The **SOCIAL Business Model Canvas** takes into account the special characteristics of social enterprises!

THE SOCIAL BUSINESS MODEL CANVAS

To structure ideas and actions in a reasonable manner! 2/2

WHAT IS THE DIFFERENCE WITH THE INITIAL TOOL?

Marketing outside the classical mechanisms of the market implies thinking more broadly about the blocks of the Business Model Canvas. For example:

VALUE PROPOSITION

The **value proposition** must go beyond the simple offer of a product or service. More broadly, it must consider the improvements generated by the activity (environmental, social cohesion, etc.).

KEY PARTNERS

In the same vein, the target of **beneficiaries** must often be extended to those who will benefit from the created impact (consumers but also users, citizens, public authorities, suppliers, etc.).

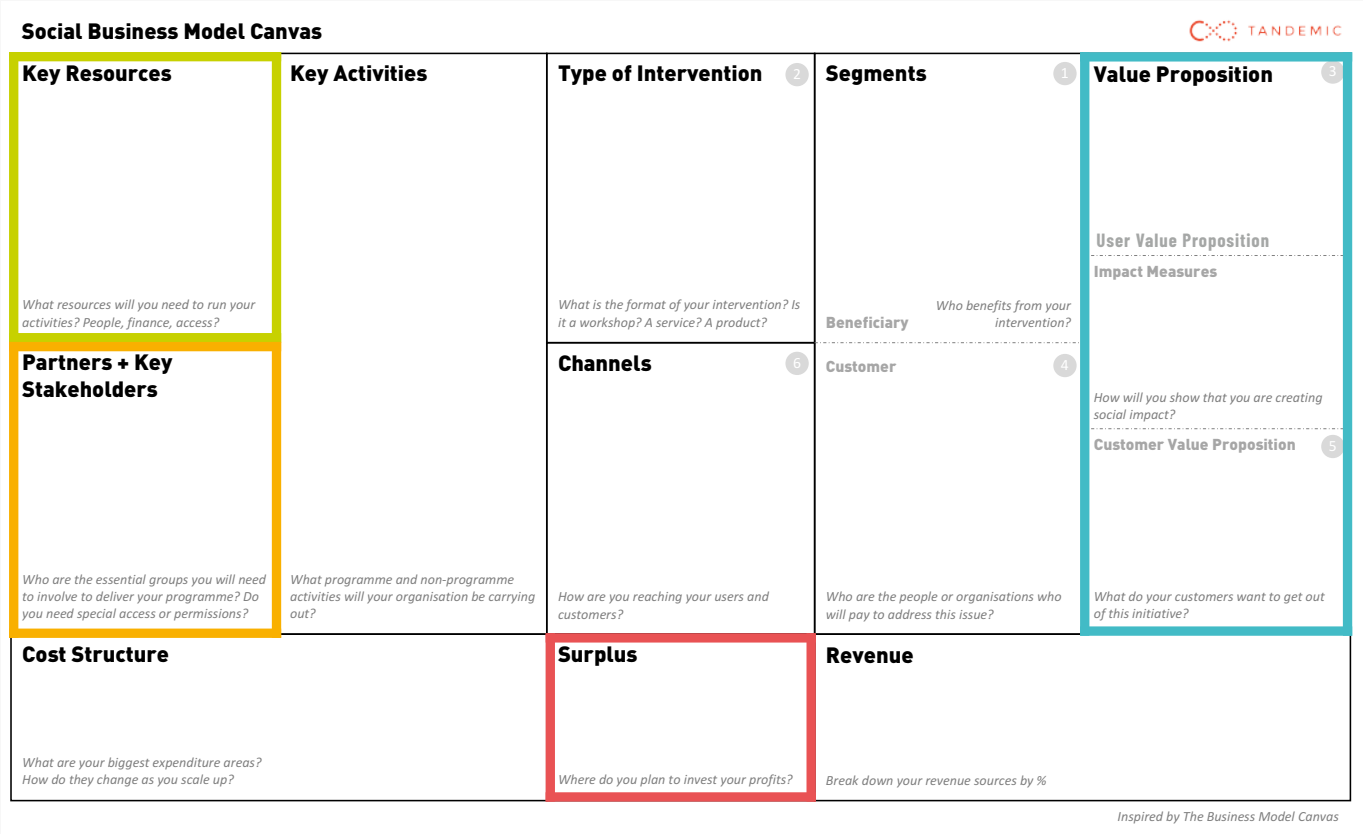
KEY RESOURCES

The **key resources** that will enable the company to function and achieve its goals also need to be widely understood (partnerships, collaborations, volunteering, subsidies, etc.).

SURPLUS

One special characteristic of the SOCIAL business model canvas is to add a block involving a definition of the management of **surplus** generated by the activity (captured value).

It is then necessary to consider set-aside, distribution of dividends, drawback or repayments, investment in another project, etc.



MORE INFO

FUNDRAISING

to turn research results into reality and apply them through spin-offs

A word to the wise: Seek advice every step of the way!

PREREQUISITES

A research result, however promising, does not necessarily have sufficient market potential to justify setting up a company. In such cases, other methods of promoting the company may be considered.

It is therefore vital, before embarking on the creation of a spin-off, **to validate the market potential and the viability of the business model envisaged**. The credibility of the project, and therefore the interest of potential investors, depends on it.

Your KTO will be able to help you with these steps and explain the framework within which the University envisages the creation of spin-offs.

WHAT IS IT?

To obtain funding from sources other than credit providers, a company can resort to **fundraising**. This involves bringing investors into a company's capital. These investors contribute money to the company in return for a stake in its share capital.

PROVIDING FUNDING TO MATCH THE COMPANY'S NEEDS

The most important aspect of raising funds is the assessment of the company's financial worth.

The founder, who has been involved in the project for months or even years, often fears being undermined if they open up their capital and give too large a stake to investors.

An all-too-common mistake: overestimating the financial value of your project to avoid dilution[1].

→ A financial assessment that is too high risks driving away potential investors and hindering subsequent fundraising.

When fundraising, it is essential that the company receives sufficient funds to meet its needs, even if this means agreeing to sell a percentage of the capital.

[1] *Dilution occurs in all capital increases, and therefore in most fund-raising operations. This phenomenon involves the company issuing new shares to new shareholders, which means - for the founders of the company - a reduction in their percentage holding of the share capital.*

NOT ONE BUT SEVERAL!

If things go well, the company will need to raise additional funds to ensure its growth.
The funding market can be structured as follows:

PRE-SEED | SEED/ANGELS | SERIES A | SERIES B | SCALE | PE | IPO

PRE-SEED
Subvention - Love money
< 100k€
Relatives (family and friends), grant

SEED – 1st round of funding
Large-scale market validation
100k to 500k€
Business angels, investors, small start-up funds

SERIES A – 2nd round of funding
Reaching profitability and a large audience
500k to 3.000k€
Previous investors, venture capital funds

SERIES B – 3rd round of funding
Expand internationally and/or buy out competitors
3.000k to 10.000k€
Venture capital funds

SCALE
Continue to grow rapidly, focus on international expansion
> 10.000k€
Investment banks, development capital funds

PRIVATE EQUITY
Internal and external growth
Institutional funds and funds from high net worth

IPO – Initial Public Offering – Initial public offering (IPO)
Open up capital to investors, grow the business, benefit from a higher profile

The more accurate the initial financial assessment, the easier the subsequent negotiations will be.
Get help from an external expert!

THE RIGHT BALANCE

Fundraising is about striking the right balance between:

- Capital and other sources of non-dilutive funding (loans of all types);
- Public and private investors.

There is a strong temptation to favour non-dilutive sources of finance, but putting the company into too much debt at the start risks compromising the entire project.

It is therefore important to validate the business model and draw up a financial plan based on realistic scenarios, in order to assess the company's needs as accurately as possible and adapt the funding arrangements accordingly.

Once again, this is a job in itself. Seek advice!

A WELL-NEGOTIATED SHAREHOLDERS' AGREEMENT

A shareholders' agreement provides a structure for the relationship between a company's co-shareholders.

It governs the rights and obligations of each party and sets out the conditions under which shareholders may join or leave the company.

It also makes it possible to settle any disagreements by providing shareholders with assurances regarding the terms and conditions of the fundraising under way.

There are many specific clauses. Seek advice!

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SWOT ANALYSIS

To help you develop your academic research strategy and maximise its impact!

INTRODUCTION

SWOT (**Strengths**, **Weaknesses**, **Opportunities**, **Threats**) can help you to maximise the impact of your research and find new funding and collaboration opportunities.

As a researcher, you're probably wondering how this analysis can help you and what the key steps are. Your KTO is here to help you!

WHEN?

SWOT analysis can be used at different stages of your research work. Firstly, it can be used right at the start of the process to assess the feasibility of your project. It will help you to identify the strengths and weaknesses of your research proposal, as well as the potential opportunities and threats you may face. It can also be used to assess the issues involved in exploiting the results obtained.

WHY?

This method will provide you with a clear vision of the different aspects of your research project and its exploitation. It will help you identify the competitive advantages you have over other researchers, as well as the gaps you need to fill to maximise the impact of your results. In addition, the SWOT analysis will enable you to identify emerging opportunities in your field, as well as the threats that could compromise the success of your project.

WHO?

SWOT analysis is useful for all university researchers, whether they are new or experienced. It can be used by doctoral students to structure their dissertation project, and also by established researchers who want to assess the relevance of their work and look for new opportunities for funding, collaboration or exploitation.

HOW?

The SWOT analysis is broken down into four parts:

Strengths, weaknesses (**internal factors**), opportunities and threats (**external factors**). To identify your strengths, you need to ask yourself about your skills, resources and specific expertise in your field of research. As far as your weaknesses are concerned, it is important to be intellectually honest and to identify the factors that could limit you in your work.

Opportunities are elements that could benefit your research, such as calls for projects, potential partnerships or technological advances in your field. Finally, threats are factors that could hinder your work, such as competition with other researchers or budget restrictions.

By using SWOT analysis on a regular basis, you can continue to assess the relevance of your work and find new opportunities throughout your research career. Don't hesitate to contact your university's Knowledge Transfer Office for more information and support in setting up and using SWOT analysis to manage your research activity.

SWOT ANALYSIS

To help you develop your academic research strategy and maximise its impact!

Internal factors

STRENGTHS

1. What are your strengths as a university researcher?
2. What specific skills do you have in your area of research?
3. What are the major successes or achievements of your research career?
4. What advantages does your institution/ university offer you in terms of resources, funding or collaboration?
5. What partnerships or collaborations have you established (with companies, other researchers or institutions, etc.)?
6. What research results can you add value to?
7. Are you going to obtain results that could be industrially exploitable?
8. Are these results innovative/disruptive?

WEAKNESSES

1. What skills or knowledge do you need to improve in your area of research?
2. How comfortable are you in promoting and supporting your research ideas with other researchers or financiers?
3. What obstacles could prevent you from carrying out your research projects?
4. Do you find it difficult to obtain funding for your research projects?
5. What time or resource constraints could affect your research projects?

External factors

OPPORTUNITIES

1. What are the emerging trends in your field of research that could offer you new opportunities for collaboration or funding?
2. What are the potential collaborations with other researchers, institutions or industries that could strengthen your research results?
3. What are the trends or developments in your field of research that could create new opportunities for you?
4. How great is the need or demand for your specific area of research?

THREATS

1. What are the major obstacles or challenges you face in carrying out your research projects?
2. What is the competition in your field of research and how can you stand out from them?
3. Are there any government policies or regulations that could have a negative impact on your academic freedom or the exploitation of your research results?
4. How could changes in technologies or research methodologies threaten the relevance or value of your research results?

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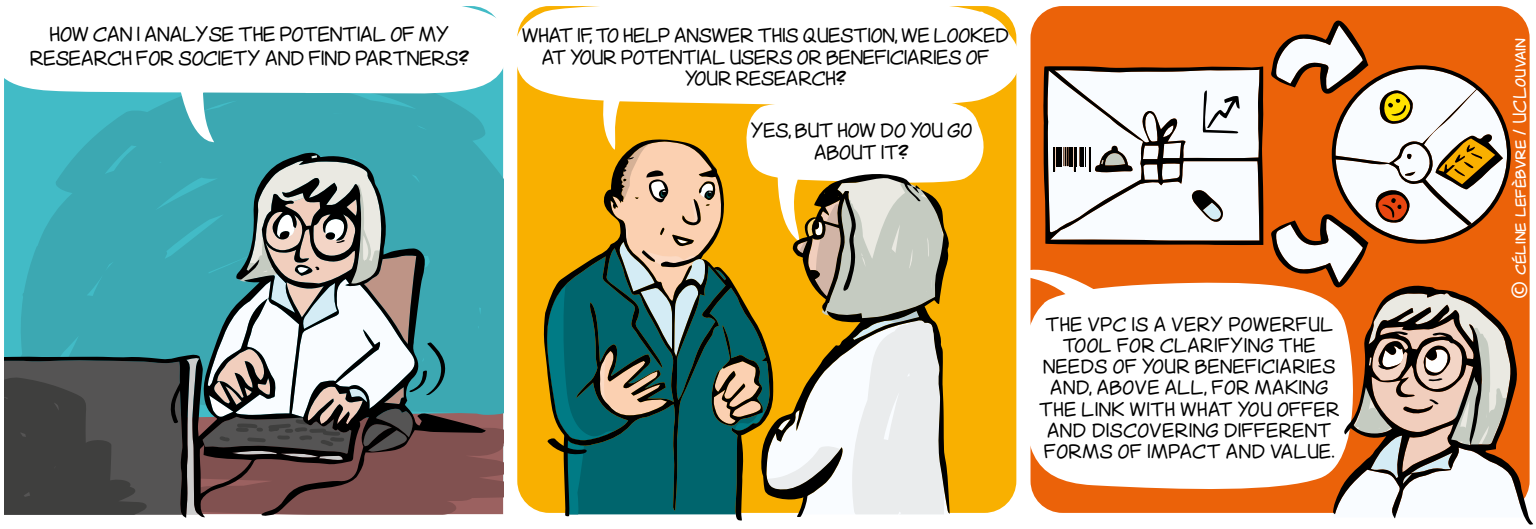
UNLOCK THE POTENTIAL OF YOUR RESEARCH WITH THE VALUE PROPOSITION CANVAS (VPC)



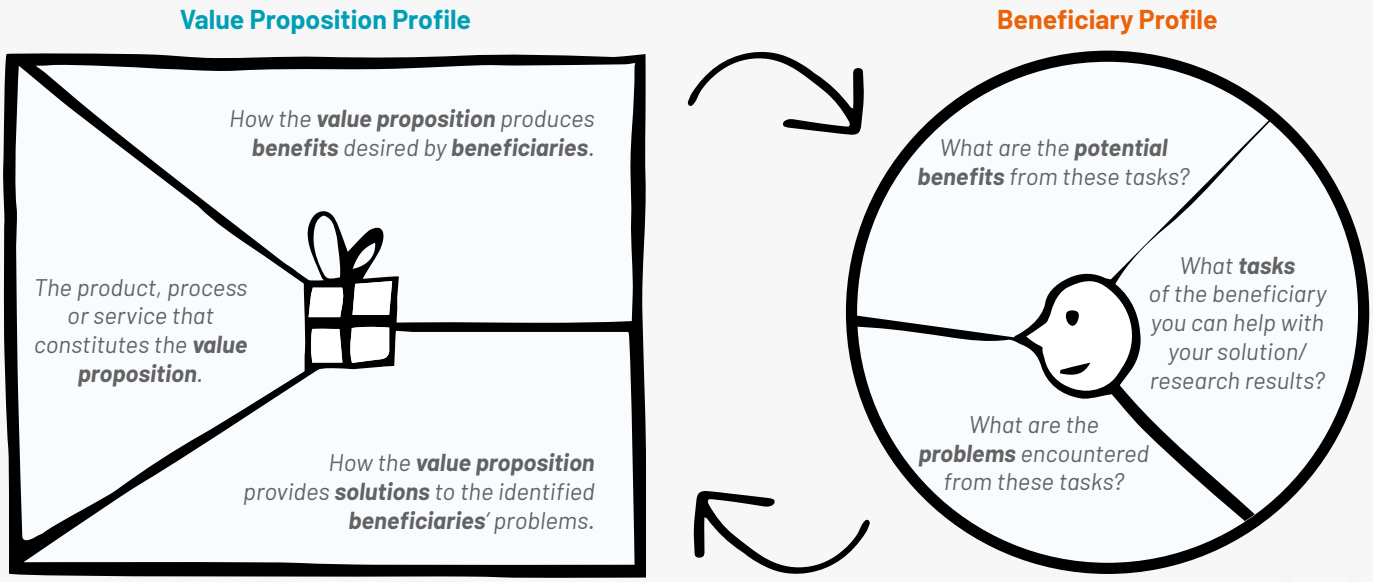
FIRSTLY

As a university researcher, you are also a player in the third mission of universities, which is to ensure the societal impact of your research work. One approach that could be beneficial in helping you achieve this objective is the Value Proposition Canvas. This method, popularised by Alexander Osterwalder and Yves Pigneur in their book "Business Model Generation", offers a strategic vision for understanding and creating value for your stakeholders. Let's explore the fundamental principles of the Value Proposition Canvas and highlight its benefits for your research activities.

WHAT IS THE VALUE PROPOSITION CANVAS?

The *Value Proposition Canvas* is a visualisation tool for analysing and identifying potential values for your key stakeholders. It is based on two essential components: the "Beneficiary Profile" and the "Value Proposition Profile".

- The "**Beneficiary Profile**" is a way of understanding your (future) value partners, including their needs, aspirations, issues and behaviours. It is essential to understand your end-users and the players involved in the research process in order to propose a relevant and attractive value proposition.
- The "**Value Proposition Profile**" is the counterpart to the "Customer Profile". It enables you to define and clarify your value proposition, i.e., the set of characteristics, benefits and solutions that your research can bring to your stakeholders. It is about identifying how your work can solve the problems of your end-users or offer new opportunities.



UNLOCK THE POTENTIAL OF YOUR RESEARCH WITH THE VALUE PROPOSITION CANVAS (VPC)

WHY?

The *Value Proposition Canvas* is relevant to you as an academic researcher because it focuses on user orientation and creating value for your stakeholders. By understanding the needs and problems of your end-users, you can tailor your research to deliver more relevant and meaningful results. This can also lead to more concrete knowledge transfer opportunities and improved collaboration with industry or other partners.

HOW?

The *Value Proposition Canvas* can be used at different stages of your research:

1. Problem identification:

By analysing the profiles of your end-users, you can identify the key problems they face. This can help you to focus your research on areas where you can bring real added value, and to find the right partners to carry it out.

2. Co-creation with stakeholders:

By involving your stakeholders in the research process from the outset, you can ensure that your work meets their expectations and specific needs. Co-creation helps to increase the relevance and applicability of your research results.

3. Communication and dissemination of results:

the *Value Proposition Canvas* can also help you to communicate the results of your research effectively by focusing on the advantages and benefits for your stakeholders. This will facilitate the dissemination and adoption of your work.

The *Value Proposition Canvas* is a powerful tool for improving the impact of your research by focusing on value for your key stakeholders. By understanding the needs and problems of your end-users and tailoring your work accordingly, you can create more relevant and meaningful research results. This strategic approach will help you maximise the impact of your research.

Contact your **Knowledge Transfer Office** for potential collaboration and knowledge transfer opportunities.

USEFUL LINKS

Official Value Proposition Canvas website
Video explaining the Value Proposition Canvas
Book explaining the Value Proposition Canvas

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Knowledge transfer and its process - Checklist for the researcher
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