KNOWLEDGE TRANSFER AND ITS PROCESS

CHECKLIST FOR THE RESEARCHER

Erkki Makkonen © Fotolia

UNIVERSITÉ DE NAMUR

An initiative of partners of the LIEU Network (SynHERA, UCL, ULB, ULg, UMons, UNAMUR, USL-B) with the essential contribution of Céline Lefèbvre for the illustrations and graphic design.

LIEU

USER GUIDE >

STEPS >

of the knowledge transfer

TOOLS >

for the researcher

- Patent as a source of information
- Software
- Technology Readiness Level
- Prior art searching
- Laboratory notebook
- Invention disclosure
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- Proprietary Variety Protection Certificate
- Design and model
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- What happens when a patent application is filed
- Transfer or collaboration opportunities
- Business Model Canvas

CONTACT >

Request the presence of an advisor of your KTO

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>

In response to a request from researchers, the LIEU Network has developed an interactive electronic 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 and HEI of the Fédération Wallonie-Bruxelles (SynHERA, UCL, ULB, ULg, UMons, UNamur, USL-B)

According to Erkki Makkonen © Fotolia

USER GUIDE

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.

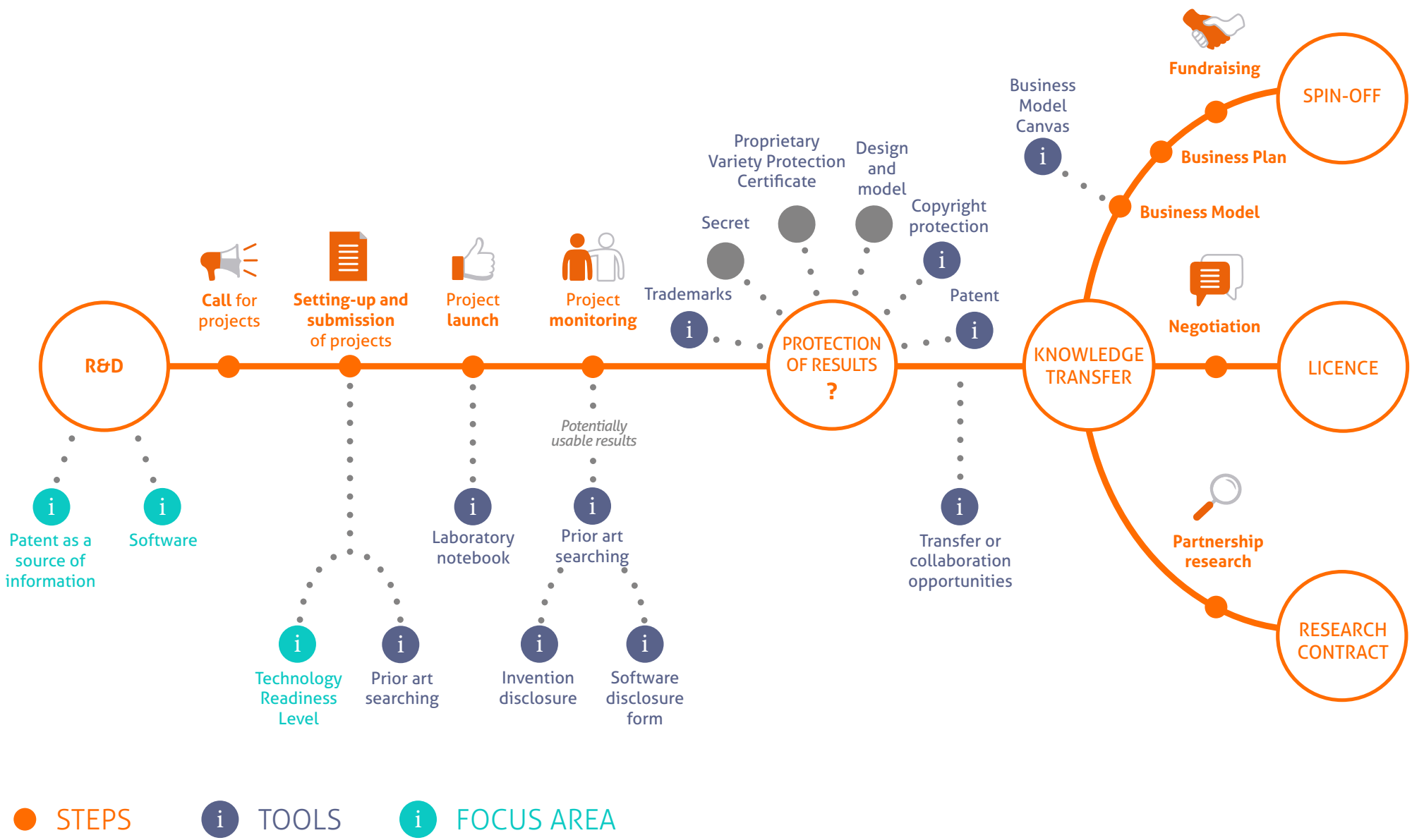
Finally, this guide only makes sense if it is really useful to you: all your suggestions for improvements are therefore welcome!

Have fun surfing and reading!

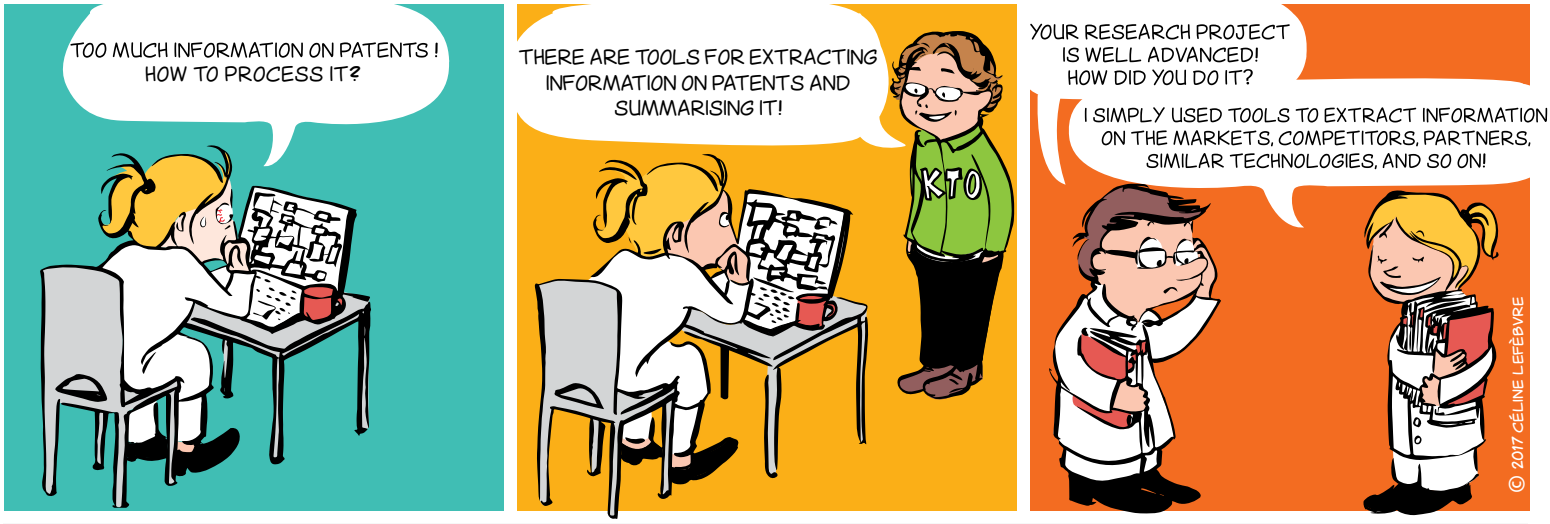
Important note: many links allow you to move around inside this guide. If you use Foxit Reader, don't forget to activate the hand tool function. This is not necessary with Adobe Reader.

TOOLS AVAILABLE TO RESEARCHERS DURING KEY STEPS OF THE KNOWLEDGE TRANSFER

If knowledge transfer is envisaged, scientific publication must be done by agreement with the KTO.



THE PATENT AS A SOURCE OF INFORMATION

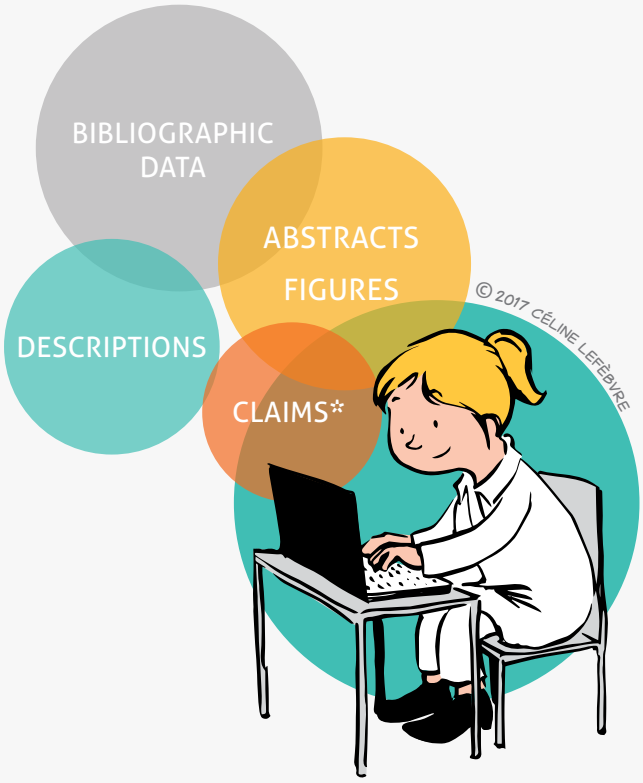


WHY?

- **Direct** your R&D strategies
- **Get to know** the research teams in a field
- **Determine** emerging, promising technologies
- **Search** for precise technical information
- **Discover** potential partners, monitor your competitors
- **Identify** new players entering the market
- **Define** market trends and opportunities

PATENTS = AVAILABLE INFORMATION

The patent is an industrial property right which gives the patent owner the exclusive right to exploit an invention and exclude others from so doing as from a certain date and for a limited period. In return, the **technical information** relating to the invention must be **disclosed in the patent application** so that anyone can reproduce it. Patent applications are published 18 months after the filing date.



* The claims define the scope of the legal protection

Patent applications contain technical, economic and legal information.

THE PATENT AS A SOURCE OF INFORMATION

HOW?

Scope of the search

Search in patent databases

Structured data
Classification codes, references, etc.

Unstructured data
Documents: abstracts, descriptions, etc.

Images

Tools for extracting and viewing data

Gathering information

Sets of patents (applications or granted)

Statistical **analyses**, documents, etc.

TOOLS

Patent databases

→ **PatentInspiration***
http://www.patentinspiration.com

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

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

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

* These databases allow you to process information contained in patents through statistics.

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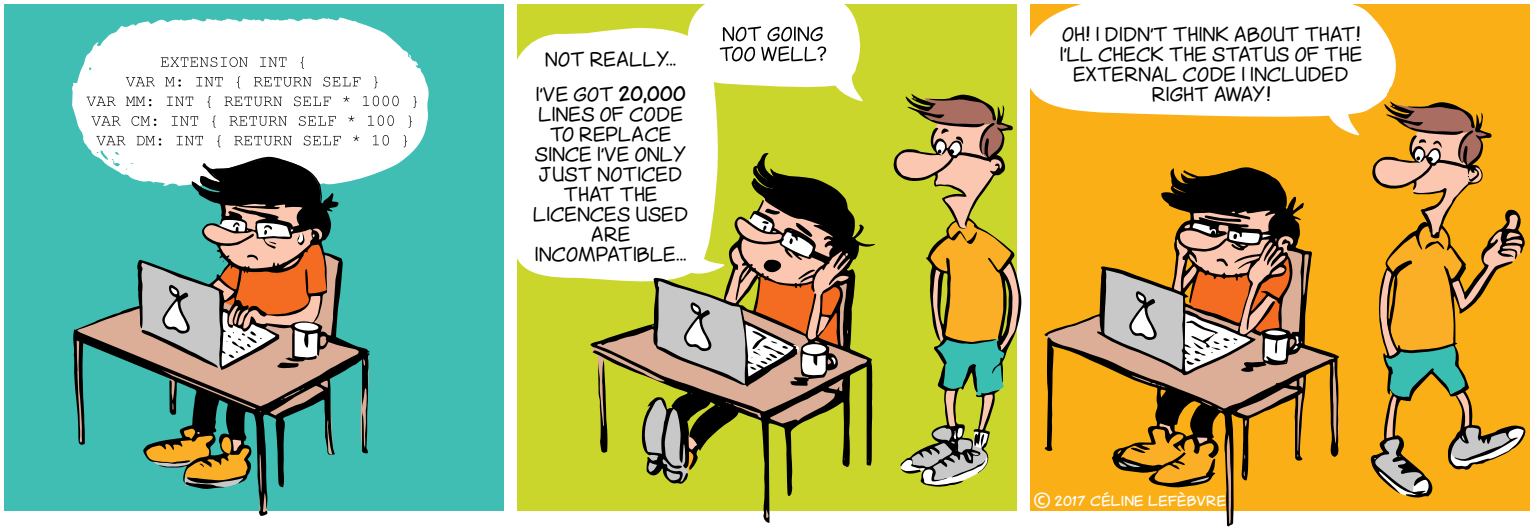
SOFTWARE

Better safe than sorry...



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:

If part of the code belongs to a **EXTERNAL PARTNER**, this partner has the right to veto any project that includes the software, be it 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).

SOFTWARE

Better safe than sorry...

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

Don't forget: only the institution is entitled to protect Intellectual Property.

- **Copyright:** protects the form (source code).
- **Patent:** protects functionality (~algorithm). And yes, software is patentable, even in Europe.
- **Trademark and domain name:** protects reputation.
- **Confidentiality agreement:** necessary for collaborating on proprietary software.
- **Industrial design:** protects original graphic interface.
- ***Sui generis* law on databases**: protects the investment necessary to obtain a quality database.

GPL

Copyright (C) 2016-2017 University of "..." // 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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This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public Licence for more details.

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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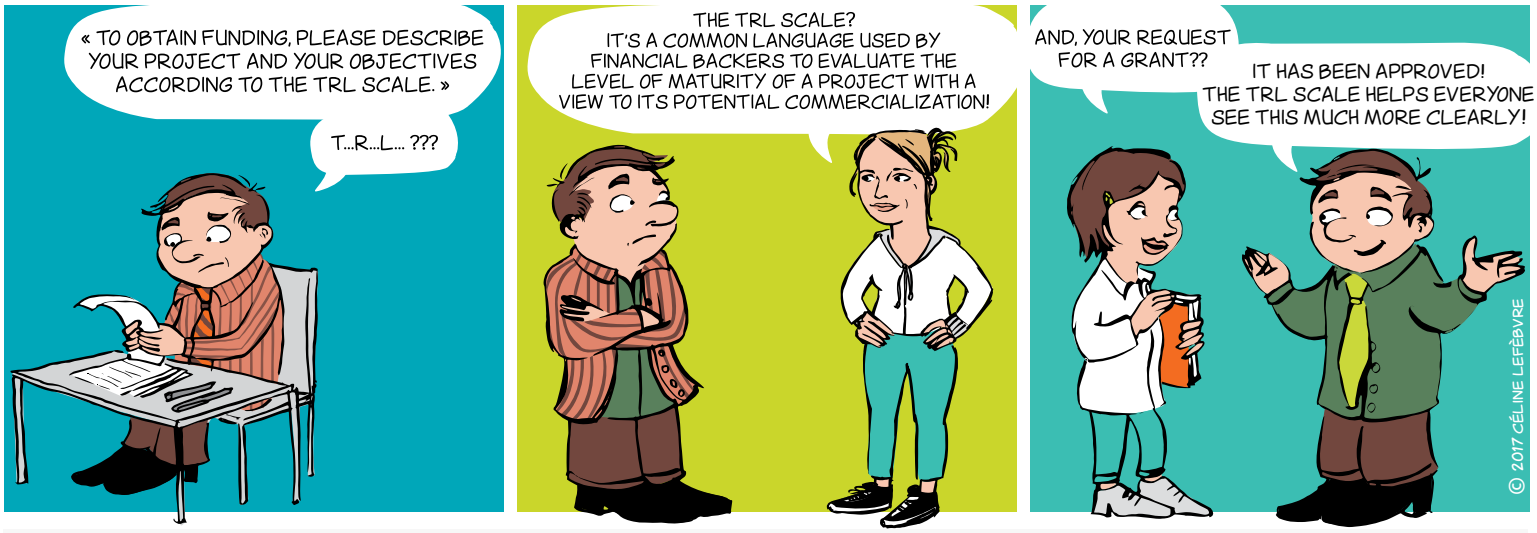
TECHNOLOGY READINESS LEVEL

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 (LIaison Entreprises-Universités) Network and AEI (Agence pour l'Entreprise et l'Innovation)

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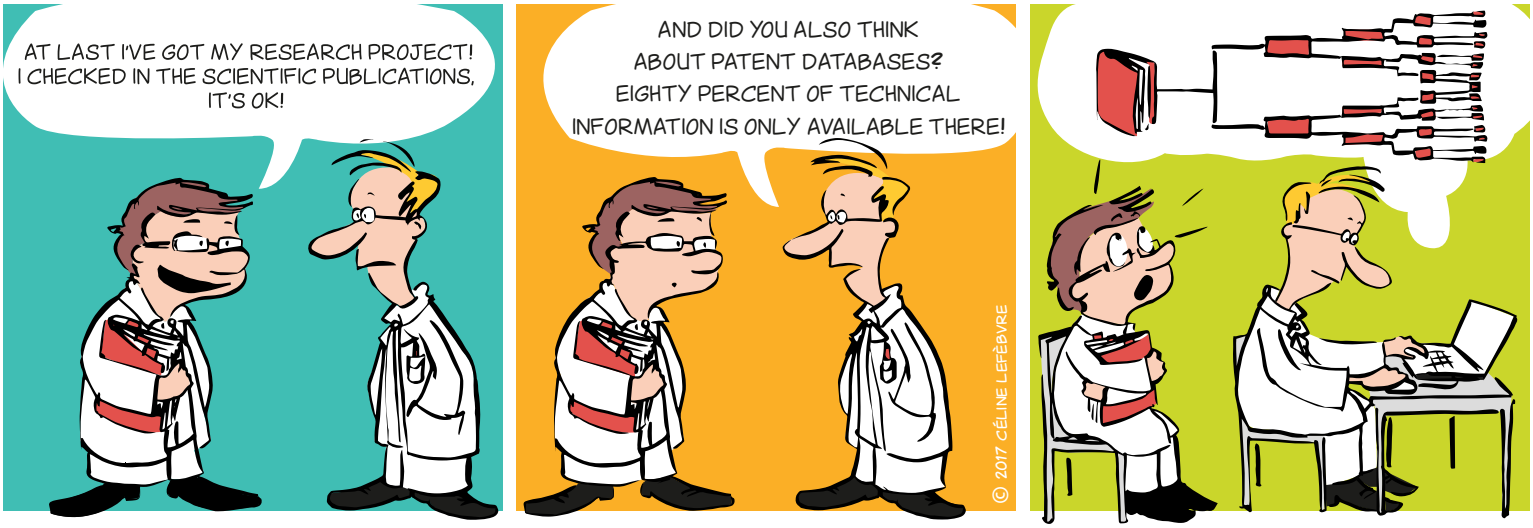
PRIOR ART SEARCHING

in patent databases



WHY?

To launch a research project, file a patent application, identify partners or competitors, and to assess freedom to operate.

WHAT IS A PATENT?

A patent is a right of ownership granted by a public authority on a geographical territory and for a determined period.
This official right gives the patent owner the right to prohibit a third party from exploiting - in other words manufacturing, using, marketing and/or importing - the protected invention without the owner's authorization.

Patent = technical solution to a technical problem

WHAT ARE THE CONDITIONS FOR AN INVENTION TO BE PATENTABLE?

- → **Novelty**
- → **Inventive step**
- → **Industrial applicability**

WHAT IS PRIOR ART SEARCHING?

Prior art searching involves determining the **state of the art**, in other words all the information, patents or other publicly available sources before the filing date of an application.

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.

80% of the world's technical information is only to be found in patents !

HOW?

1) Conduct a prior art search BEFORE filing a research project or patent application.

2) Define the technical problem you want to resolve.

3) Stay alert to everything that is/has been published by third parties or by inventors themselves! (patent application, scientific article, presentations by public speakers, article in non-specialist journal, invention exhibition at a trade show, commercialization of inventions, etc.) since these form part of the state of the art and are therefore likely to kill the novelty and/or inventiveness of an invention.

4) Know the state of the art in the field in question so that you can distinguish what is commonly known from what will be innovative.

5) Prepare your research strategy by combining various search parameters: key words, classification codes, names of applicants (partners, competitors) or of inventors and citations. **Adapt it** using an iterative process based on documents found. **Document it** so that you don't lose the main thread!

6) Use **public databases** that are free to use (or free in part) as a first line approach.

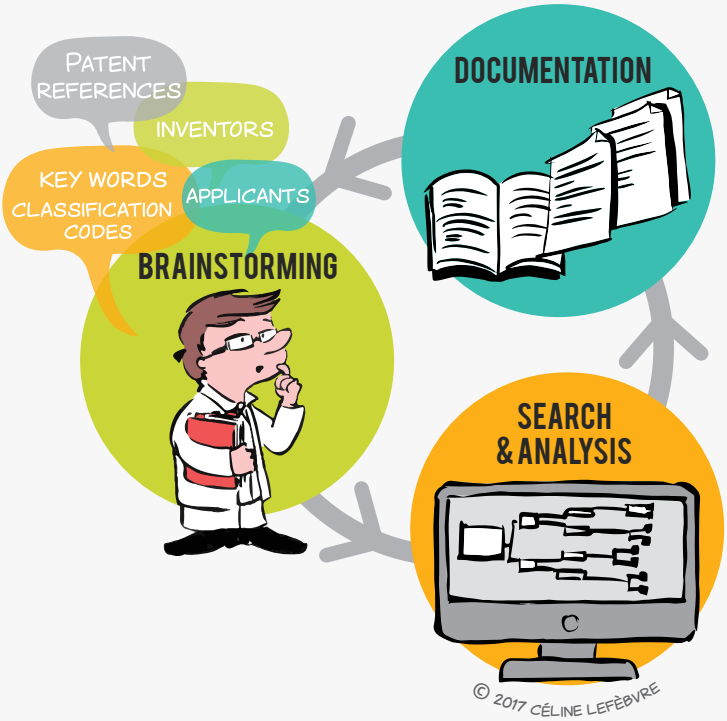
→ **PatentInspiration**
http://www.patentinspiration.com

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

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

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

7) Complete the information with the help of a an advisor or specialist organization such as PICARRÉ.



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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

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

USE THE LABORATORY NOTEBOOK WITHOUT MODERATION

Your research down in black and white!

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 no loose sheets of paper and numbered pages

WHAT ABOUT THE ELECTRONIC VERSION OF THE LABORATORY NOTEBOOK?

Electronic versions exist

- To improve the management and traceability of data
- To simplify the search for information
- To optimize reporting
- To facilitate teamwork and collaborations
- To better take into account the needs and constraints of certain disciplines such as the Humanities and Social Sciences, Information and Communication Technologies, etc.

But they are often difficult to implement and have high purchase costs.
The LIEU Network is considering this other version of the laboratory notebook.

HOW TO GET IT

UNamur:
secretariat.adre@unamur.be

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This PDF version gives an overview of the document.
Please contact the Research Administration to access and fulfil the electronic version.

CONFIDENTIAL

This document is an essential preliminary to any procedure related to the protection of research results.

The purpose of this document is to collect the information required to understand the results of scientific research and to evaluate these results for protection and commercial potential. To this end, it contains a technical section and a section concerned with the economic opportunities afforded by the results. These aspects in combination will enable a decision to be made as to the best method of exploitation.
Any university is faced with choices when it intends to disseminate and exploit the results of its scientific research. Should they publish the results, keep them secret or exploit them by means of a spin-off, collaborative research with industry. Should they protect them by means of a patent, a drawing and model, or a brand?
It is important to realize that the entire exploitation process can prove costly. In order to maximize the return on the effort, time and money expended by knowledge transfer officers and researchers, it is appropriate to clarify a few points:

1. Usable results are a set of new results that can be exploited industrially or commercially, it is therefore inadvisable to begin a complete process of exploitation when the commercial potential is limited (for example, more advantageous alternatives are already on the market; the market is too restricted or immature, etc).
2. An invention does not necessarily form the subject of a patent application. It is important to bear in mind that other methods of exploitation can be taken up, depending on the context. The non-technical section of the invention disclosure therefore proves its worth here, since it makes it possible to specify the general context and evaluate the opportunity to select one method of exploitation over another.
3. The exploitation procedure is a long-term partnership between researchers and the Knowledge Transfer Office (KTO). As such, both parties need to assess the importance of investing time and effort in the process.
4. Any researcher wishing to give an industrial dimension to his research will need to show prudence in reporting his results and in making use of the tools provided material transfer agreement (MTA), confidentiality agreements, etc.

The role of knowledge transfer officers is to support the researcher in the exploitation process. Thus, we remain at your service for any assistance you think it might be useful to obtain.

DISTRIBUTION: Please submit the completed disclosure form by e-mail or via postal mail to your KTO.

To be completed by the researcher

Title of the invention:

Inventor in charge of the file

Last name: First name:
Institution: Unit:
E-mail: Phone:

For KTO (Knowledge Transfer Office) use only

File number:

File manager:

Date:

KTO recommendations:

Co-ownership:

ULB	☐	.....%						
UNamur	☐	.....%	UMONS	☐	.....%	Other:	to fill in	.....%
ULg	☐	.....%	USaint Louis	☐	.....%	Other:	to fill in	.....%
UCL	☐	.....%	SynHERA – HE:	to fill in	.....%			

Methods of exploitation contemplated:

Publication	☐	Patent	☐	License	☐	Software	☐
Research project	☐	Spin-off	☐	Biological material	☐	Other :	

1.a. Description of the invention: provide a brief general description of the invention, list 5 keywords and if required include a schema/picture.
(Please include full description in English in an appendix).

1.b. Scientific sectors and application: list the scientific and the application sectors that you think that might benefit from your invention.

		Scientific sectors	Application sectors
1. Natural sciences	1.1 Mathematics *(includes research on statistical methodologies but excludes applied statistics which should be classified under the relevant field of application)*	☐	☐
	1.2 Computer and information sciences *(hardware development to be 2.2, social aspect to be 5.8)*	☐	☐
	1.3 Physical sciences	☐	☐
	1.4 Chemical sciences	☐	☐
	1.5 Earth and related environmental sciences *(includes oceanography, hydrology)*	☐	☐
	1.6 Biological sciences *(medical to be 3, agricultural to be 4)*	☐	☐
	1.7 Other natural sciences	☐	☐
2. Engineering and technology	2.1 Civil engineering	☐	☐
	2.2 Electrical, electronic and information engineering	☐	☐
	2.3 Mechanical engineering *(includes nuclear engineering but nuclear physics to be 1.3)*	☐	☐
	2.4 Chemical engineering	☐	☐
	2.5 Materials engineering *(nanoscale materials to be 2.10, biomaterials to be 2.9)*	☐	☐
	2.6 Medical engineering *(biomaterials to be 2.9)*	☐	☐
	2.7 Environmental engineering	☐	☐
	2.8 Environmental biotechnology	☐	☐
	2.9 Industrial biotechnology	☐	☐
	2.10 Nanotechnology *(nanomaterials and nano-processes, biomaterials to be 2.9)*	☐	☐
	2.11 Other engineering and technologies	☐	☐
3. Medical and health sciences	3.1 Basic medicine *(plant science to be 1.6)*	☐	☐
	3.2 Clinical medicine	☐	☐
	3.3 Health sciences *(includes services, sport, social biomedical sciences, ethics)*	☐	☐
	3.4 Medical biotechnology	☐	☐
	3.5 Other medical sciences	☐	☐
4. Agricultural sciences	4.1 Agriculture, forestry and fisheries *(agricultural biotechnology to be 4.4)*	☐	☐
	4.2 Animal and dairy sciences *(animal biotechnology to be 4.4)*	☐	☐
	4.3 Veterinary sciences	☐	☐
	4.4 Agricultural biotechnology	☐	☐
	4.5 Other agricultural sciences	☐	☐
5. Social sciences	5.1 Psychology *(includes therapy for learning, speech, hearing and other disabilities)*	☐	☐
	5.2 Economics and business	☐	☐
	5.3 Educational sciences *(includes training, pedagogy, didactics)*	☐	☐
	5.4 Sociology	☐	☐
	5.5 Law	☐	☐
	5.6 Political sciences	☐	☐
	5.7 Social and economic geography *(transport engineering to be 2.1)*	☐	☐
	5.8 Media and communications	☐	☐
	5.9 Other social sciences	☐	☐
6. Humanities	6.1 History and archeology *(history of science and technology to be 6.3)*	☐	☐
	6.2 Languages and literature	☐	☐
	6.3 Philosophy, ethics and religion	☐	☐
	6.4 Arts, history of arts, performing arts, music	☐	☐
	6.5 Other humanities	☐	☐
7. Other	To describe	☐	☐

1.c. NEED/NEW: in the related fields, which problem or need is addressed by this invention? Does the Invention meet an unmet need or answer an unsolved problem? Why/How?

1.d. ADVANTAGES: define the solution this invention brings to solve this problem**.** What are the novel aspects of your invention? What's the "invention core"? (Technical features, functions and advantages/results?)

1.e. OTHER APPLICATIONS: try to think out of the box; which other applications might be envisaged if your invention would go through adjustments; and what would these adjustments be?

1.f. BENEFITS: detail why this solution is different from existing ones and please explain why and/or how?:

Yes	No	?	
☐	☐	☐	CHEAPER. The invention is cheaper to make or use than currently available products or processes. **Why/How?:**
☐	☐	☐	EASIER TO USE. The product or process is less complicated, less labor intensive, more user friendly than currently available products or processes. **Why/How?:**
☐	☐	☐	EASIER TO MAKE. The product is less complicated to make, or its manufacturing process is less complex than those of currently available products. **Why/How?:**
☐	☐	☐	SAFER. The product or process is safer for the operator, bystanders or animals than currently available products or processes. **Why/How?:**
☐	☐	☐	MORE ECOLOGICAL. The product or process recycles materials that normally end up in landfill sites or is less polluting than currently available products or processes. **Why/How?:**
☐	☐	☐	FASTER. The product or process works faster than currently available products or processes. **Why/How?:**
☐	☐	☐	MORE PRECISE. The product or process yields more accurate results than those usually achieved using currently available products or processes. **Why/How?:**
☐	☐	☐	MORE ATTRACTIVE. The product would appeal to a broader segment of the market than the products currently on the market. **Why/How?:**
☐	☐	☐	CLEAR VALUE. Other products or processes are so similar that the virtue of this product/process will be readily apparent. **Why/How?:**
☐	☐	☐	BETTER SIZE. The product is more compact, or is larger and with greater capacity, than currently available products. **Why/How?:**
☐	☐	☐	BETTER WEIGHT. The product is lighter or heavier whichever is preferable, than currently available products. **Why/How?:**
☐	☐	☐	MOST DURABLE. The product is more durable than currently available products. **Why/How?:**
☐	☐	☐	MORE RELIABLE. The product breaks down less frequently, or the process is more consistently successful, than with currently available products or processes. **Why/How?:**
☐	☐	☐	EASIER TO FIX. The product is less complicated or costly to fix or adjust than currently available products. **Why/How?:**
☐	☐	☐	GROWING MARKET. There has been steady growth in the target market for your product or processes over a number of years. **Why/How?:**
☐	☐	☐	EASY FOR MANUFACTURERS TO SWITCH. The product or process is sufficiently similar to currently available products or processes that users or manufacturers will easily be able to switch.

			Why/How?:
☐	☐	☐	HIGHER PROFIT MARGIN. Their product or process is easier and cheaper to make than currently available products or processes, but can be sold at a comparable price. **Why/How?:**
1.g. specify the positioning of your invention on the market			
☐	☐	☐	LASTING MARKET. The need or demand for the product will last for a very long time. **Why/How?:**
☐	☐	☐	LARGE MARKET. There is already a large market for this product or process, or the appeal of the product or process can be expected to create a large market where none previously existed. **Why/How?:**
☐	☐	☐	HARD TO DUPLICATE. Competitors will have difficulty producing an equivalent product or process, or in solving problems without it. **Why/How?:**

2. Type of invention

☐ new compound, molecule ☐ new production process

☐ new product ☐ new use for a known product / process

☐ new device ☐ new method

☐ new service ☐ other, please explain:

3. Oral and/or written public disclosures made by inventors

By checking the appropriate box, please indicate whether this invention, in full or in part,
has been subject to a disclosure ☐ Yes No☐ will be subject to a disclosure ☐ Yes No☐

Please supply copies of documents that have been or will be subject to a disclosure.

Type of disclosure [1]	Medium [2]	Date of disclosure	Reference	NDA [3]	Document
				☐ Yes	*upload*
				☐ Yes	*upload*
				☐ Yes	*upload*

[1] Type of disclosure : Written, past; Written, upcoming; Oral, past; Oral, upcoming
[2] Medium : Journal article, Private thesis (master or doctoral), Public thesis (master or doctoral), Abstract, Conference/seminar, Poster session, Project report, Grant application, Industry meeting, Other
[3] Non-Disclosure Agreement. *Please supply a copy of the non-disclosure agreement.*

- A sequence (DNA, protein, etc.) has been placed on a database or biological material (plasmid, micro-organism, ...) has been deposited in a collection? ☐ Yes ☐ No ☐ NA

If Yes please mention the database or the collection:…….

4. Funding. If you have benefited from funding, even if only in part, at any stage of the research, please state the source by filling in the appropriate boxes below. If the funding contract includes conditions relating to ownership of results of the research, please enclose the contract as appendix, together with a copy of the scientific program.

Type [1]	Name/acronym	Duration	Nature of the contract	Industrial sponsor/patron

[1] Type : European, Regional (Walloon Region, etc.), National (FNRS, etc.), Internal funding, Other

5. Contractual background:

- Does the invention incorporate any material supplied by a third party? ☐ Yes ☐ No
- Does the invention incorporate any confidential results supplied by a third party? ☐ Yes ☐ No

If yes, please supply a copy of the MTA (material transfer agreement) or CDA (confidential disclosure agreement)

6. Laboratory notebooks:

- Is the invention described in / supported by laboratory notebooks? ☐ Yes ☐ No
- If so, are those notebooks available on request? ☐ Yes ☐ No

NOTICE :
This page is to be completed following the procedures put in place by the various universities and universities of applied sciences. Please contact your KTO for further information.

1. Bibliographical search

Are there other research or industrial teams who work in the field of the invention? ☐ Yes No☐
If yes, please list and attach copies of any publications (oral or written) most closely related to the invention :

1.
2.
3.

What were the **keywords** used to perform the search?

A. Concepts	***B. Keywords/synonyms***
Concept 1:	
Concept 2:	
Concept 3:	
Concept 4:	
Concept 5:	
Exclusion concept :	

2. Patent search

- Was a first search carried out by PICARRE in collaboration with the researchers
  ☐ Yes date:…… ☐ No

If yes, please enclose the search strategy in an appendix, together with an analysis of previous work that is relevant in terms of its difference in relation to this invention and the drawn conclusions.

If not, has a search been carried out based on patents databases ? ☐ Yes ☐ No

If yes, complete the following table:

ID	Keywords or classification code	Search tool	Search field	Number of documents	Number of relevant documents
1		to fill in	to fill in		
2		to fill in	to fill in		
3		to fill in	to fill in		
4		to fill in	to fill in		

- Select the most relevant document(s) (1-3 docs) and explain in a few words the technical differences with your invention.

The most relevant document is generally the one that corresponds to a similar use and requires the minimum of structural and functional modifications to come to the invention

3.a. Technology Readiness Level (TRL). Select the most suitable TRL for the technology (TRLs may be not perfectly adapted to your specific technology, select what seems closest

IDEA	☐	**TRL 0** :Idea	Unproven idea/proposal. Paper concept. No analysis or testing has been performed.
LAB SCALE	☐	**TRL1**: Research and Development begins	Basic functionality/principles demonstrated by analysis. Shall show that the idea is technologically conceivable.
	☐	**TRL 2**: Basic principles confirmed	Analytic studies, small scale testing in laboratory environment. Shall show that the technology can is likely to meet specified objectives with additional development. Practical applications can be invented. Applications are speculative and there may be no proof or detailed analysis to support the assumptions.
	☐	**TRL 3**: Validation at lab scale	Analytical studies and/or laboratory studies deliver results that validate predictions/objectives. If relevant, validation of separate elements of the technology. (Examples may include components that may not yet be integrated or representative)
PILOT SCALE	☐	**TRL 4**: Prototype(s) available, first tests	Prototype(s) is/are built and functionality demonstrated through testing over a limited range of operating conditions. If scalable, these tests are realized on scaled versions.
	☐	**TRL 5**: Prototype results at full scale	Prototype first use at full-scale: technology qualified through testing in intended environment, simulated or actual. The new hardware is now ready for first use.
	☐	**TRL 6**: Prototype validated in relevant environment	A representative model/prototype is tested and validated in relevant environment. Represents a major step up in a technology's demonstrated readiness (Examples may include testing a prototype in a high-fidelity laboratory environment or in simulated operational environment).
MARKET SCALE	☐	**TRL 7**: Operating system in operational environment	Technology integration is tested in operational environment. Full-scale technology is integrated for test into intended operating system with full interface and functionality. Requires demonstration of an actual system prototype in an operational environment.
	☐	**TRL 8**: Technology is proven to work	Test program is realized in intended environment: the technology shows acceptable performance and reliability over a period of time.
MARKET	☐	**TRL 9**: Market	Actual application of technology is in its final form - Technology proven through successful operations.

3.b. RESOURCES: what are the key resources that are required to continue the development of your invention: people (yourself, lab team,…), lab involvement (team, identified research program,…), funding, need for external partner? Please indicate whether these resources are -and will remain- available.

3.c. ACTIVITIES: What are the key activities (lab analysis, prototyping, scaling-up, methods, know-how…) that are required to continue the development of your invention?

3.d. COMPETITORS: Why are the benefits significantly better than the competition? What are the alternatives?

3.e To whom (users, customers, industry) is this invention dedicated? List the names of companies you think might be interested in using your technology to make, use or sell products or services. Please specify with examples (company names, press articles…) + Applications?

If you have a contact at any of these companies, be sure to provide name, position, e-mail and telephone. (We will obtain your permission before contacting anyone).

Company	Have you had contacts with this company?	Contact Name	Position/Title	E-mail	Phone	Does this company already offer a similar product?
	☐ Yes ☐ No					☐ Yes ☐ No
	☐ Yes ☐ No					☐ Yes ☐ No
	☐ Yes ☐ No					☐ Yes ☐ No
	☐ Yes ☐ No					☐ Yes ☐ No

3.f. Prototype availability: Is a prototype available? If no**,** how much time is needed to obtain a prototype / sample / demonstration tool?

3.g. Are you interested by the creation of a spin-off company for the valorization of this discovery? ☐ Yes ☐ No

Who could be involved in that spin-off project?

3.h. If the invention is licensed, would you be willing to collaborate with the licensing company as a principal or as a technical advisor? ☐ Yes ☐ No ☐ NA

IV. Contributors to the invention

CONTRIBUTORS

Please list all contributors to the invention known at this time. The list of inventors will be finalized later, after consultation with your Knowledge Transfer Office.

Last Name		Description of contribution to the invention
First Name		
Institution		
Research unit		
Phone		
Email		
Last Name		Description of contribution to the invention
First Name		
Institution		
Research unit		
Phone		
Email		
Last Name		Description of contribution to the invention
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Institution		
Research unit		
Phone		
Email		

SIGNATURES

WARNING: inventorship is a matter of law and the below list should include the name of all persons who may qualify as legal inventor. An incomplete list of inventors, or a list that includes persons who have not in fact contributed to the inventive work, may therefore result in the lapse or invalidity of a patent.

Inventors (to be signed before witnesses)

I have acquainted myself with the University's rules, which I accept.

My signature at the foot of this document confirms my agreement to the Research Department's administrative procedure for an invention disclosure. I agree to co-operate fully with the KTO by supplying any document or information required for the registration, upkeep and possible defense of patents, negotiations of license contracts and the exploitation of the results of my research. I undertake to sign any document required for the registration or issue of patent applications, also an inventor's agreement, whose purpose is to settle the method of distributing income earned by exploiting the invention. **I undertake not to disclose the invention either orally or in writing during the priority period of the patent application without notifying the KTO.**

Inventor #1		**Inventor #2**	
Last name:	First name:	Last name:	First name:
Inventor's share (%):	Nationality:	Inventor's share (%):	Nationality:
Private e-mail:		Private e-mail:	
Private phone no.:		Private phone no.:	
Legal address:		Legal address:	
Position:		Position:	
Funding: to fill in if other, precise:		Funding: to fill in if other, precise:	
Date & signature		Date & signature	
Inventor #3		**Inventor #4**	
Last name:	First name:	Last name:	First name:
Inventor's share (%):	Nationality:	Inventor's share (%):	Nationality:
Private e-mail:		Private e-mail:	
Private phone no.:		Private phone no.:	
Legal address:		Legal address:	
Position:		Position:	
Funding: to fill in if other, precise:		Funding: to fill in if other, precise:	
Date & signature		Date & signature	
Inventor #5		**Inventor #6**	
Last name:	First name:	Last name:	First name:
Inventor's share (%):	Nationality:	Inventor's share (%):	Nationality:
Private e-mail:		Private e-mail:	
Private phone no.:		Private phone no.:	
Legal address:		Legal address:	
Position:		Position:	
Funding: to fill in if other, precise:		Funding: to fill in if other, precise:	
Date & signature		Date & signature	

Witnesses. *To be signed by two witnesses, including the head of department and an external witness (the last-named to be subject to a confidentiality agreement) who have understood the invention solely on the basis of this document.*

On (**date**), I read this invention disclosure and understood its content.
Last name, first name Signature

On (**date**), I read this invention disclosure and understood its content.
Last name, first name Signature

This PDF version gives an overview of the document.
Please contact the Research Administration to access and fulfil the electronic version.

1. SOFTWARE DISCLOSURE IDENTIFICATION

Date :

Contact Person:

Software Name :

Version Number :

2. SOFTWARE DEVELOPMENT INFORMATION

Development Phase (final, beta, production…) **/ Technology Readiness Level (see annex 1)**:

Type of Development

- ☐ Generic Software or Stand alone software
- ☐ Algorithm
- ☐ App
- ☐ Module/Plug-in
- ☐ Database
- ☐ Research Tool/Library
- ☐ Game

If Module/Plug-in, name the framework/platform associated:

Software protection information

☐ Is there a logo? If yes, please send the logo together with this document.

Brand protected : ☐ no / ☐ yes : date and reference :

☐ Source code protected ? If yes, please describe the type of protection :

Programming language(s) used (C++, PHP/MySQL, Fortran…):

Desired Distribution (open-source / commercial / both):

Requirement(s) to run the software (OS/Hardware/Software license/other codes):

Support (manual/Online help/Tech support?)

Dependencies of the Software (e.g. open-source libraries, modules developed by a partner…):

Copyright Holder	Name (or short description)	License type (GNU, BSD etc.)

Funding: (type = Internal Funding, Regional, National, European or Other)

Type	Name/acronym	Duration	Nature of the contract	Industrial sponsor/partner

3. GENERAL INFORMATION

1. **Description of the software:** provide a brief general description of the software and its added value, list 5 keywords and if required include schema/pictures.

2. **NEED:** which problem(s) or need(s) is (are) addressed by this software? Does the software meet an unmet need or answer an unsolved problem? Why/How?

3. **BENEFITS:** detail why this software solution is different from existing ones and please explain why and/or how?

Yes	No	?	
☐	☐	☐	CHEAPER. The software is cheaper to make or use than those currently available on the market. **Why/How?**
☐	☐	☐	EASIER TO USE. The software is less complicated, less labor intensive, more user friendly than those currently available on the market. **Why/How?**
☐	☐	☐	EASIER TO MAKE. The software is less complicated/complex to develop than those currently available on the market. **Why/How?**
☐	☐	☐	FASTER. The software works faster than those currently available on the market. **Why/How?**
☐	☐	☐	MORE PRECISE. The software yields more accurate results than those usually achieved. **Why/How?**
☐	☐	☐	MORE ATTRACTIVE. The software would appeal to a broader segment of the market than those currently on the market. **Why/How?**
☐	☐	☐	CLEAR VALUE. Other software currently available on the market are so similar that the added value of this one will be readily apparent. **Why/How?**
☐	☐	☐	MORE RELIABLE. The software breaks down less frequently, or is more consistently successful, than those currently available on the market. **Why/How?**
☐	☐	☐	EASIER TO FIX. The software is less complicated or costly to develop and maintain than those currently available on the market. **Why/How?**

4. MARKET POTENTIAL

4.1. Specify the positioning of your software on the market

☐	☐	☐	LASTING MARKET. The need or demand for the software will last for a very long time. **Why/How?**
☐	☐	☐	LARGE MARKET. There is already a large market for this software, or the appeal of the software can be expected to create a large market where none previously existed. **Why/How?**
☐	☐	☐	GROWING MARKET. There has been steady growth in the target market for your software over a number of years. **Why/How?**
☐	☐	☐	HIGHER PROFIT MARGIN. Their software is easier and cheaper to make than those currently available on the market, but can be sold at a comparable price.

			Why/How?
☐	☐	☐	EASY FOR USERS TO SWITCH. The software is sufficiently similar to those currently available on the market that users will easily be able to switch. Why/How?
☐	☐	☐	HARD TO DUPLICATE. Competitors will have difficulty developing an equivalent software, or in solving problems without it. Why/How?

4.2. To whom (users, customers, industry) is this invention dedicated? List the names of companies you think might be interested in using your technology to make, use or sell products or services. Please specify with examples (company names, press articles…) + Applications?

If you have a contact at any of these companies, be sure to provide name, position, e-mail and telephone. (We will obtain your permission before contacting anyone).

Company	Have you had contacts with this company?	Contact Name	Position/Title	E-mail	Phone	Does this company already offer a similar product?
	☐ Yes ☐ No					☐ Yes ☐ No
	☐ Yes ☐ No					☐ Yes ☐ No
	☐ Yes ☐ No					☐ Yes ☐ No
	☐ Yes ☐ No					☐ Yes ☐ No

5. CONTRIBUTORS

Please list all contributors to the software known at this time. The list of contributors will be finalized later, after consultation with your Technology Transfer Office.

Last Name		Description of contribution to the invention
First Name		
Institution		
Phone		
Email		
Last Name		Description of contribution to the invention
First Name		
Institution		
Phone		
Email		
Last Name		Description of contribution to the invention
First Name		
Institution		
Phone		
Email		

Annex 1 -- Software TRL Scale developed with the LIEU Network

LAB SCALE	☐	TRL1: Idea	Basic research begins to be translated into applied research and development. Examples may include a concept that can be implemented in software or analytic studies of an algorithm's basic properties.
	☐	TRL 2: Invention	Once basic principles are observed, practical applications can be postulated. The application is speculative and there is no proof or detailed analysis to support the assumptions.
	☐	TRL 3: Feasibility - Analytical and experimental critical function and/or characteristic proof of concept	Active research and development is initiated. This included analytical studies to produce code that validates analytical predictions of separate software elements of the technology. Examples include software components that are not yet integrated or representative but satisfy an operational need. Algorithms run on a surrogate processor in a laboratory environment.
PILOT SCALE	☐	TRL 4: Integrated prototype - Technology component and/or basic technology sub-system validation in laboratory environment	Basic software components are integrated to establish that they will work together. They are relatively primitive with regard to efficiency and reliability compared to the eventual system. System software architecture development initiated to include interoperability, reliability, maintainability, extensibility, scalability, and security issues. Software integrated with simulated current/legacy elements as appropriate.
	☐	TRL 5: Product prototype - Technology component and/or basic sub-system validation in relevant environment	Reliability of software ensemble increases significantly. The basic software components are integrated with reasonably realistic supporting elements so that it can be tested in a simulated environment. Examples include "high fidelity" laboratory integration of software components. System software architecture established. Algorithms run on a processor(s) with characteristics expected in the operational environment. Software releases are "Alpha" versions and configuration control is initiated. Verification, Validation, and Accreditation initiated.
	☐	TRL 6: Product demonstrator - Technology system/subsystem model or prototype demonstration in a relevant environment	Representative model or prototype system, which is well beyond that of level 5, is tested in a relevant environment. Represents a major step up in software demonstrated readiness. Examples include testing a prototype in a live/virtual experiment or in a simulated operational environment. Software run on processor of the operational environment are integrated with actual external entities. Software releases are "Beta" versions and configuration controlled. Software support structure is in development. Verification, Validation and Accreditation are in progress.
MARKET SCALE	☐	TRL 7: System prototype demonstration in an	Represents a major step up from Level 6, requiring the demonstration of an actual system prototype in an operational environment. Algorithms run on processor of the operational environment are integrated with

		operational environment	actual external entities. Software support structure is in place. Software releases are in distinct versions. Frequency and severity of software deficiency reports do not significantly degrade functionality or performance. Verification, Validation and Accreditation completed.
	☐	**TRL 8**: Actual system completed and qualified through test and demonstration	Software has been proven to work in its final form and under expected conditions. In most cases, this level represents the end of true system development. Examples include test and evaluation of the software in its intended system to determine it meets design specifications. Software releases are production versions and configuration controlled, in a secured environment. Software deficiencies are rapidly resolved through support infrastructure.
MARKET	☐	**TRL 9**: Technology System proven through successful operations	Application of the software in its final form and under usage conditions, such as those encountered in operational test, evaluation and reliability trials. In almost all case, this is the end of the last “bug fixing” aspects of the system development. Examples include using the system under operational conditions. Software releases are production versions and configuration controlled. Frequency and severity of software deficiencies are at a minimum.

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!

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 €240 for 10 years for three classes and €37 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

Classification of products and services

→ http://tmclass.tmdn.org/ec2
→ www.wipo.int/classificatons

CONTACT

ADRE
secretariat.adre@unamur.be

UNIVERSITÉ DE NAMUR
LIEU LIAISON ENTREPRISES UNIVERSITÉS
FSE UNION EUROPÉENNE
Wallonie
LE FONDS SOCIAL EUROPÉEN ET LA WALLONIE INVESTISSENT DANS VOTRE AVENIR

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.

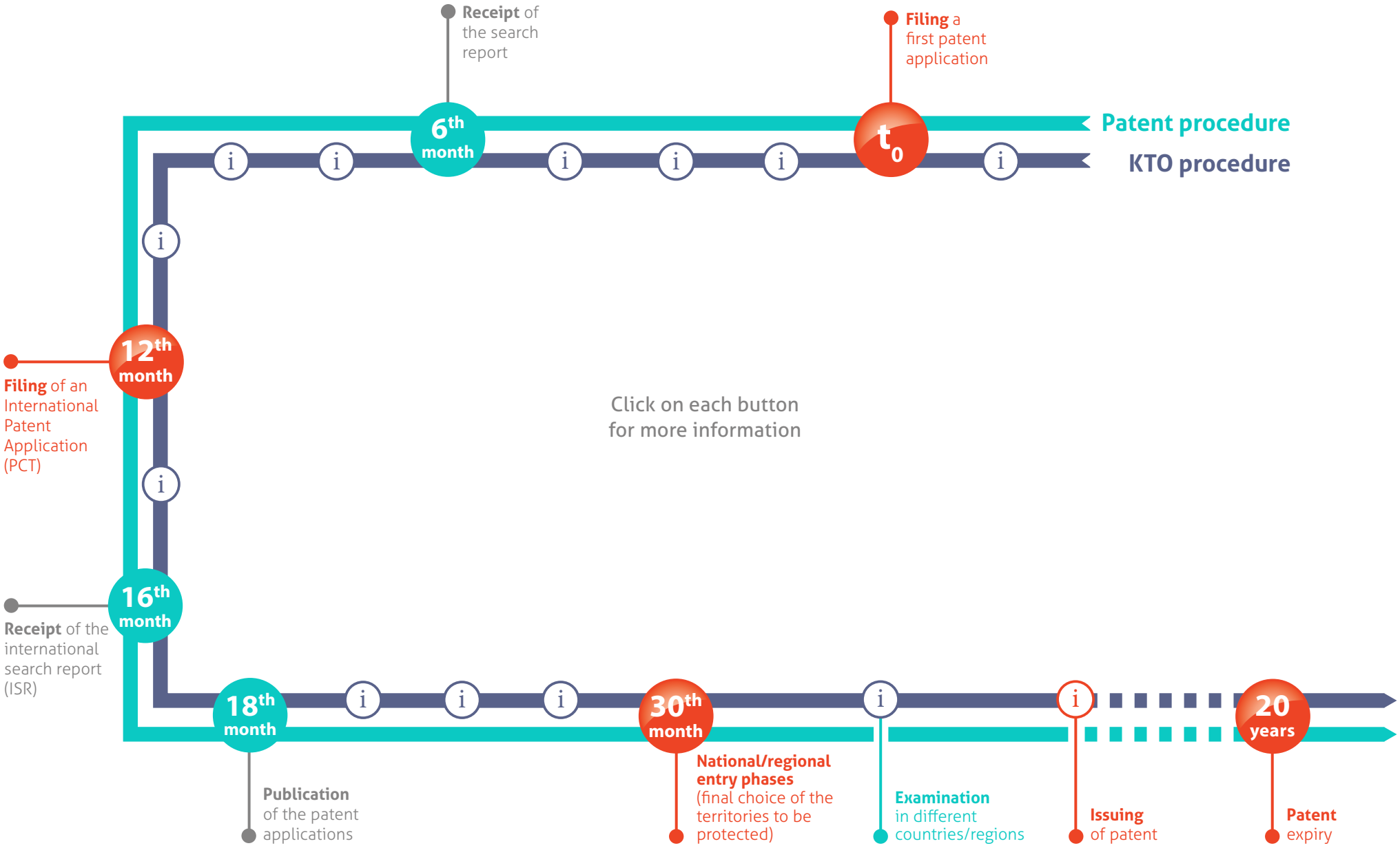
CONTACT

ADRE
secretariat.adre@unamur.be

PATENT

What happens when a patent application is filed?

Illustration of a typical procedure. Variations may be considered by your KTO.



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.

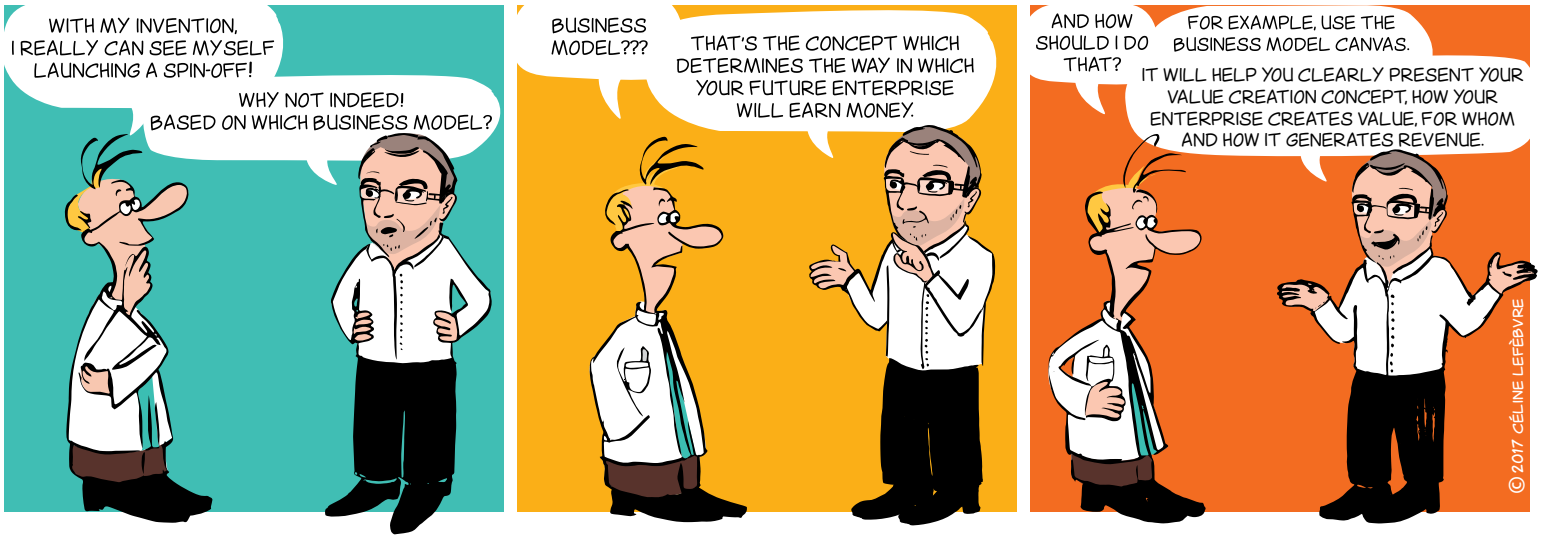
CONTACT

ADRE

secretariat.adre@unamur.be

THE BUSINESS MODEL CANVAS

A strategic management and entrepreneurial tool



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.

CONTACT

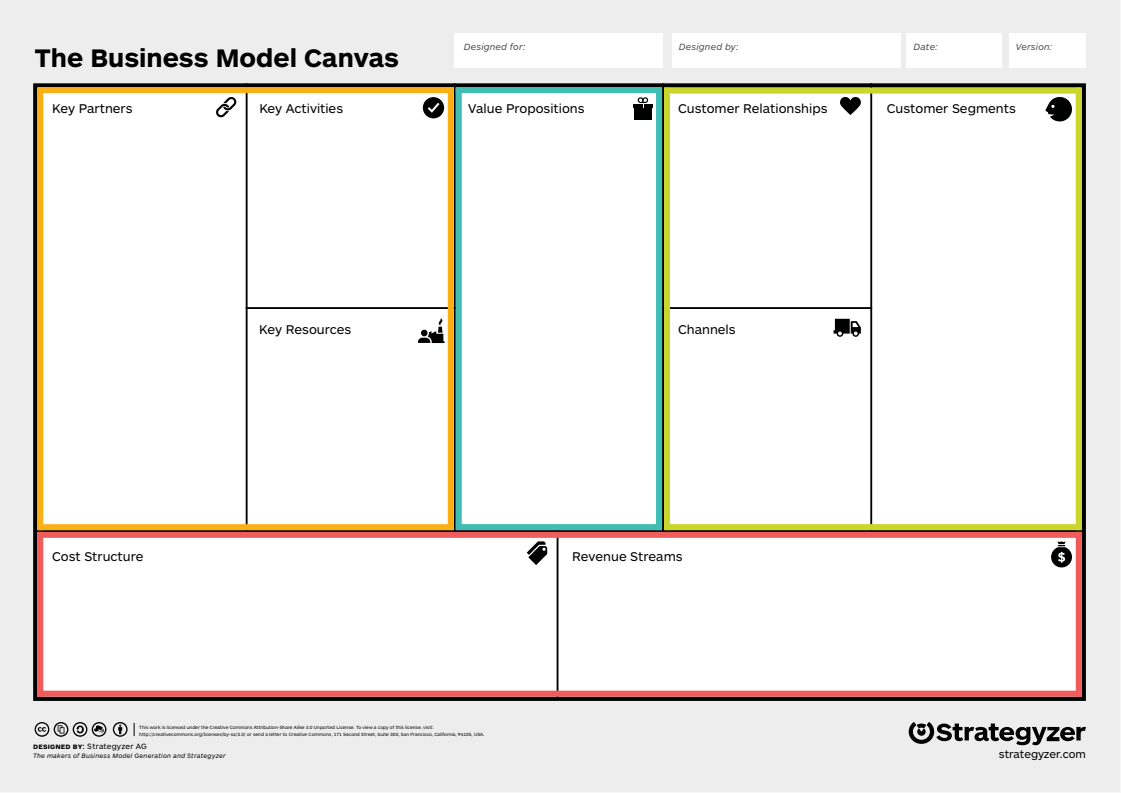
ADRE

secretariat.adre@unamur.be

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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