

Inventory of Intellectual Assets

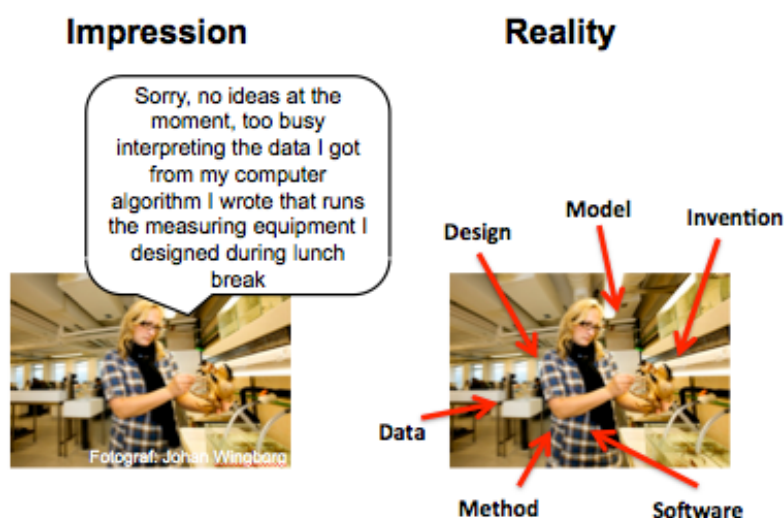
1. Nani Gigantum Humeris Insidentes - To stand on the shoulders of giants

Research means in many ways that you utilise what others have done before and build on that to create new knowledge. We use other peoples' models to structure the world, we use existing data and combine it with our own findings, we conduct measurements with equipment developed in prior projects, and so on.

In the same way, we create in our projects new values that others can use. It can often be used for other research projects and activities. These values are called "intellectual assets". There are many reasons for paying attention to and manage these in a good way to ensure the development of better research and even more utilisation.

2. What is an intellectual asset?

In a research project, the researchers needed a new kind of microscope to be able to do advanced measurements. A microscope was therefore built and the researchers developed special software for adjusting the mirrors in the microscope. They soon found out that many companies were interested in this particular software and the researchers could license out the software.



Examples of common forms of new knowledge that are developed in a research project and that can be “packaged” in an objectified intangible *intellectual asset* are: drawings and sketches, software tools, methods of utilisation, simulations, visualisations, data, algorithms, models, knowhow about implementation, knowhow about production, production methods, inventions and ideas. Many of these assets are created almost as side effects of the research process and are thereby not part of the research result, i.e. the answer to the research question.

Different research areas and projects naturally generate different types of intellectual assets. Below is a list of the most common types and a few examples.

Type	Definition	Example
Model	A systematization or taxonomy that can be used for description or analysis.	Statistical model, model organism, taxonomy for species, taxonomy for learning styles, conceptual model, theory and limitations or boundary conditions, computer architecture...
Method	A structured, well-defined way of working that creates a relationship between a set of inputs and a well-defined result, and that can be described in one or more deterministic sub-steps.	A way of working to gather data, a method for extracting substances, a production method, an algorithm, a method for cooperation, a process for managing materials or equipment, a teaching method, an advisory method, a way of setting up a test...
Data set	A set of related data points.	Survey results, measurements from sensors, interview answers, results from different experiments, simulation data, patient data, literature compilation...
Invention	Device or method to solve a given problem.	Material, algorithm, tool, instrument, cell-line, animal strain...
Software	Software.	Program made for analysis of data, simulation, control systems, benchmarking systems...
Design	A construction that can be represented or described by for example a drawing or other visualisation.	Shaping of a keel for a boat, pattern for a fabric, artwork, music, sheet profile, user interface, programming language...

3. What is the difference between intellectual asset and IP?

IP stands for “Intellectual Property”. IP is not the same thing as intellectual asset, but is sometimes used a little bit carelessly to denote the wider field. We have chosen to do a clear distinction between intellectual asset and intellectual property, where an **asset**

constitutes the basis for **property**. An easy example is a patent, which is an intellectual property and it is created from an invention, which is an intellectual asset.

With intellectual property we usually mean a “packaging” of an intellectual asset, which enables the asset to be transferred to someone else. This means that the packaging should be done in such a way so that the intellectual asset/s can be considered to be complete, i.e. all the intellectual assets that are needed in order for someone that is knowledgeable in the field to use it.

In a research project, new knowledge is continuously created. Parts of this knowledge can be identified as different kinds of separated assets. To be able to keep the control over how these assets are used and by whom, there might be reasons to protect these assets by “transforming” them to property with a well-defined copyright and commercial right. This is in many cases a prerequisite if you want to commercialise the asset through licensing or by creating a company, but equally important even if you plan on distributing the asset without any goal of making profit.

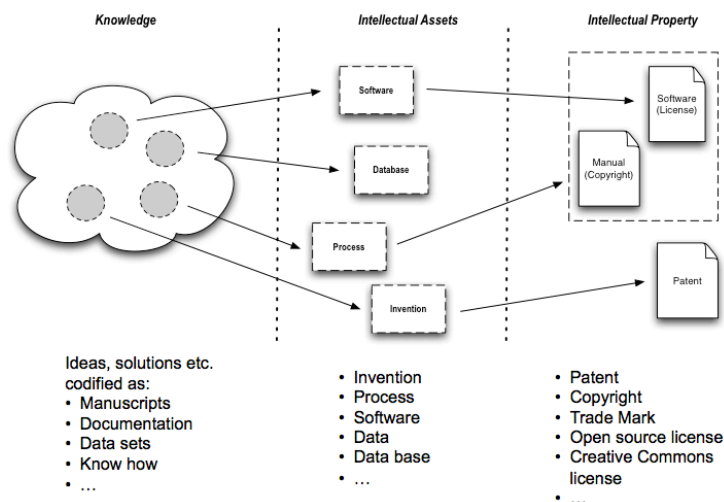
The term Intellectual Property is closely related to Intellectual Property Rights, i.e. the laws that create the basis for establishing and protecting the right to an Intellectual Asset. The most central forms defined in the intellectual property rights are:

- Patent
- Copyright
- Trademark
- Design protection

In our terminology these constitutes different forms of intellectual property, all which can be used as “packaging” of an intellectual asset. For example, a patent is an intellectual property that constitutes the packaging of an intellectual asset in the form of an invention. In the same way, copyright is an intellectual property that can be used to package an intellectual asset in the form of a document that describes for example a method.

The forms of intellectual property that are defined within intellectual property rights are to a large extent designed to protect commercial rights. However, more and more forms of intellectual property are developed that aim at facilitating a non-commercial, and controlled, distribution of intellectual assets. Open source license and Creative Commons are well-developed examples of such intellectual property. It is important to know that these forms of intellectual property do not interfere with the forms defined in the intellectual property rights, but is instead based on them. For example, both Open source licenses and Creative Commons are based entirely on Copyright laws. Even if you plan to spread your asset for free to the whole world, you have many reasons for

protecting it because otherwise someone else can claim that they own it and prevent the distribution of it or try to commercialise it.



4. Why is it important to create an inventory of intellectual assets?

A research group cooperated with a company within pharmaceutical research. The project was completed as planned and everyone involved was happy with the results. The company continued with the project but after a while they discovered that a regulatory authority needed data to be able to give an approval. The company turned to the researchers and asked them to send over the database. Just as the researchers were about to press the 'Send' button they remembered that they should check the cooperation agreement. There was not a single line in the agreement that said that the data belonged to both the researchers and the company. The researchers therefore started to think about if they should give the data to the company for free as a way to create good-will for future collaboration, if they should demand compensation to get more financing for their research, or if they should make the data available for everyone, and if these alternatives were in line with their innovation strategy.

Have you thought about distributing the new knowledge that you have developed in your research project? Maybe in the form of articles, handbooks or videos? Or as course-material for students or through commissioned education? Or use it as a basis for a project in cooperation with an industrial partner? Or license it to several companies for a fee? Or make it available to the whole world through a Creative Common license, which for example could make it possible for others to use it but not to earn money from it? Or maybe create a new company and turn the asset into a trade secret? Regardless of if you want to primarily utilise your research as an educator, debater, evaluator, advisor,

infrastructure developer, networker or entrepreneur, you have three important reasons for creating an inventory of your intellectual assets:

1. Readiness for action – to be able to react on opportunities

Awareness and categorization of your own intellectual assets makes it easier to take advantage on future opportunities in the most efficient way. Research funding organisations may want you to specify in a final report what the result of the project was, or in an application specify what you are bringing into the project. In these cases a description of the intellectual assets that exist or that might be created in the project is a valuable complement to other ways of describing a project.

Also, when new partners are added to a collaborative project it can be useful to create an inventory (e.g. clarifying what has already been done in the project). If you think in terms of assets, it is easier to analyse what other parties, both in academia and in the industry, that are working in your area. For example, this makes it possible to, in time, discover if there are patents that make research in a certain direction impossible or if there are any potential collaborators that are working in the same field.

2. Focus – to create unity in the research group

If everyone in a research group collaborates together it will be easier to create good results. A discussion around innovation strategy and to what extent you should focus on different forms of utilisation is facilitated by jointly creating an inventory of the group's intellectual assets. Then you avoid having tedious discussions around who owns what and the focus of the project later in the process, when it turns out that an asset potentially has a commercial value.

3. Communication – to make an impact

By describing one's research in terms of intellectual assets it also becomes easier to present the research for funding agencies and potential collaborators, both for applications and when reporting the results. An inventory makes it easier to identify the connection between the different assets and to package them in a way that makes them attractive for a third party, for example through a combination of software, algorithms, handbooks and data.

5. When should you create an inventory of your intellectual assets?

It is important to have a list of intellectual assets that are up-to-date. Therefore it is suggested that an inventory is created in line with publishing. This creates regularity and makes it easier to see if any asset needs to be treated separately, i.e. not disclosed in

the text because you want to apply for a patent or turn it into a trade secret at a later stage.

6. When can you use your inventory of intellectual assets?

Use the inventory when you:

- Write an application for research funding
- Present to potential partners
- Write an agreement for cooperative research
- Bring in a new partner to a project
- Report results and utilisation to the university
- Present research results to funding agencies
- Update your CV
- Formulate an innovation strategy in the research group
- Discuss with a colleague/Ph.D student about who owns what
- Speak to media

7. What do you need to keep track of?

Ownership of intellectual assets/property is often, to a large extent, regulated by the agreements that have been written between the parties that are involved in a project. But it is always important to clarify exactly who owns the right to a certain asset. Especially if it concerns something that belongs to a researcher that is employed at a university since the teacher's exemption gives the researcher the right to all patentable inventions.

An agreement for a project usually regulates how so called "*background*" (intellectual assets that you bring into the project) and "*foreground*" (intellectual assets that are created in the project) are treated and registered. By continuously maintaining an inventory of intellectual assets, for example in connection with each publication, you will have a list of assets that can be used as a basis for defining the "*background*" when writing an agreement.

An important situation is when a researcher gives intellectual assets to a Ph.D student to continue working on. Here it is important to be clear about who owns what and how the result will be utilised. Another special case is when a Ph.D student is employed by a company, then the agreement in most cases says that all the assets that the researcher generates belongs to the company.

It is important to note, particularly when cooperating with other universities, that there might be a difference in the *policies* when it comes to ownership. Some universities have for example, introduced that the employee and the university own educational material collectively. This makes it possible for the university to continue to use it even after the employment has ended. This means that even if the researcher is the originator, the commercial right is still shared between the researcher and the university.

8. How do you complete an inventory practically?

As mentioned earlier, it is important to create/update your intellectual asset inventory regularly and preferably in conjunction with a foreseeable publication in order to capture new assets. It is easiest to do an inventory of an almost or fully complete project. It is, however, possible to do an inventory on a project that hasn't started at all but in this case, the focus will be on the intended results and assets. Regardless whether you, as a researcher, implement the inventory by yourself, in a research group, or receive help from an Innovation Advisor/Intellectual Asset Analyst, you can still implement the inventory using the following steps: (a) Preparation, (b) Identification, (c) Characterization, (d) Utilisation, (e) Conclusion

A. Preparation

Well-prepared participants lead to quicker and more concrete results.

- It is a great idea to **distribute applicable material** to all participants and urge them to read and identify potential intellectual assets early on. Such documentation to distribute could include reports and presentations used when obtaining funding, project agreements, articles, and other research applications.
- **Send out the instructions** of the methodology to all participants prior to the meeting. Make sure to explain the purpose of the meeting and why it is important.
- At the start of the session, **go through the method** of constructing the inventory. This is to ensure that everyone is familiar with the steps, especially the six types of intellectual assets: method, model, data, software, designs, and inventions.
- Inform the group of the importance of not discussing and especially not showing or writing documents containing information that should be or are **confidential material**.
- **Construct the asset list** on a whiteboard, flipchart, or computer connected to a projector to ensure that everyone can see it.

B. Identification

The purpose of this stage is to find as many intellectual assets as possible in the project. Sometimes you need to revisit a number of the steps in order to gain a good overview of

the project and to ensure you gather new assets that you hadn't thought of before. Give every asset a unique name, a short and coherent description (non-confidential), and one of the types mentioned earlier.

- Start with recapping on the projects **purpose and goal**. When the project is finished, what has been gained in terms of new knowledge and intellectual assets?
- At the start of the project, which key resources existed already in terms of intellectual assets? These resources can be called "**background**", which is what you take with you into a project and that should have been registered in a previous inventory. Include them in the inventory but mark them specifically as "background" to distinguish them from the new assets.
- During the project, were new assets created through the **methods** that were applied or developed?
- What was the **result** of the project? Is it possible to characterise in terms of intellectual assets, and if so, which?

C. Characterisation

When the list of assets is fairly complete, the next step is to review the properties these have and the opportunities for potential utilisation.

- Go through the list of assets and document any **connections**, for example, that a specific model can usefully be applied to a given dataset.
- Revise the project application and agreement contract to identify who is the **owner** of every asset in terms of their organisation. If the contract isn't available, give someone the task of preparing it for the next meeting. Furthermore, discuss the ownership at an individual level in order to see those who have contributed to every intellectual asset and thus having ownership. Be aware of any **power imbalances** and ensure for instance that doctoral rights are given to the assets. Please note that individuals with multiple employers must keep track of the one represented in this particular project. For example, the teacher's exemption only applies to Swedish universities otherwise the employer owns the assets (including public sector actors).
- Discuss and document for each asset, which groups would benefit from access to the asset, and what steps must be taken to make it happen. Such a **hypothesis for utilisation** therefore consists of one or several **target groups** and one or several possible **innovation processes**. An innovation process could include the development of new education, posting information on the web, lobbying for a new standard or policy, writing a manual or article, patenting or licensing it to a third party, or starting a new business that provides goods or services.
- If a research group has assets that they don't wish to utilise discuss other potentially interested parties such as entrepreneurship programs.

D. Utilisation

Every project results in many assets, so it is important to pick out which ones to actually take further actions with. It is a good idea to utilise a research and innovation strategy to ensure consistent prioritization. In addition to strategy, there are also other factors to consider such as ownership, where it is obviously easier to manage assets that one currently owns. Another important factor is what you, as a researcher, are passionate about, what role you prefer to play in the innovation system and utilisation process, and what is beneficial from a career perspective.

There are various funds to verify the utilisation hypothesis and take the first steps in an innovation process. Sometimes there are special funds set aside in a research project for so called 'proof of concept' work. In other cases, verification funds can be applied for from funders such as Vinnova or from an innovation office.

- Go through the list of assets and choose out the assets that you want to **actively** work with.
- Are there any assets that are relatively **easy** to utilise? How? Who should do what and when?
- Speak with your innovation advisor about opportunities for financing for **verification** of these assets.

E. Conclusion

The last part is to summarize the inventory and what the next steps are for everyone involved.

- Review **decisions** and specifically, **who does what until when**.
- **Reflect** on the meeting in terms of what worked really well, what can be done even better by doing something more/less/different, if anyone deserves particular attention, due to doing a great job, and if the meeting has given rise to new thoughts and ideas that are applicable on other projects and/or activities.
- Identify an appropriate **time** for the next meeting.

9. Template for inventory

In appendix A you will find a template for an inventory of intellectual assets and in appendix B there is an example. The template consists of the following parts:

Name of asset: Give the asset a name that makes it easier to refer to, for example the K-model, the installation process or the evaluation survey.

Type of asset: Anyone of the following:

- Model
- Method
- Data set
- Invention
- Software
- Design

Categorizing the assets makes the inventory easier to manage and understand. However, if an intellectual asset suits more than one or none of the categories then the important part is to just list the asset somewhere.

Owner of the asset: Find out who owns the asset based on the agreements and the policies that are applicable in the specific context.

Description of the asset: Make a short description of the asset so it is possible to understand what it contains, but make it so general that no secrets are revealed.

Relation to other assets/property: Describe any relations to other identified assets. For example, other assets that might be prerequisites to be able to use this asset in a meaningful way, or other assets that this asset is considered to be developed from.

Description of utilisation of the asset/property: Make a short description of (a) what value you think the asset will bring to (b) what target group and what kind of (c) innovation process you plan to apply in order for this to happen and how you plan to or have protected the asset. Please observe that the purpose is to identify immediate thoughts and ideas, not to make a detailed investigation.

10. More information

More information about utilisation can be found at www.innovationskontorvast.se. You can also talk to an innovation advisor at your university or the innovation office that your university is associated with!

Appendix A. Inventory of intellectual assets

Project/research group:

Name:

Date:

Name of asset	Type of asset	Owner of the asset	Description of the asset	Relation to other assets/property	Description of utilisation of the asset/property

Appendix B. Inventory of intellectual assets – Example

Project/research group: Further development of project evaluation method

Name: Anna Andersen

Date: 2012-05-27

Name of asset	Type of asset	Owner of the asset	Description of the asset	Relation to other assets/property	Description of utilisation of the asset/property
XMK	Method	Company A, Company B, Anna A	Method for evaluating ICT-projects		Quality managers in ICT companies will get better impact, will be published as a handbook
Results from the use of XMK	Data	Company A	Data that was the result from using XMK at 10 workshops	Dependent on XMK	Is solely own by Company A and is used there
Analysis model for work-shops	Model	Company A, Company B, Anna A	Systematic way of analysing and presenting results from workshops	Dependent on XMK	Higher precision for SPI researchers, will be communicated to research group B in Finland
Interviews	Data	Company A, Company B, Anna A	The results from interviews with participants		The agreement between the parties specify that this data cannot be spread
Analysis model for interviews	Model	Company A, Company B, Anna A	Systematic way of analysing the interviews		Higher precision for SPI researchers, will be communicated to research group B in Finland
XMK-study method	Method	Company A, Company B, Anna A	Method for organising this type of study		Better SPI research, is described in a published article.