



FlexiGrid

Project Acronym:	FlexiGrid
Project Full Name:	Enabling flexibility for future distribution grid – FlexiGrid
Grant Agreement:	No 864048
Project Duration:	3,5 years (starting 1 November 2019)

Deliverable D 9.1

IP Policy, assessment and operations

Work Package:	WP 9
Task:	T9.1
Lead Beneficiary:	Frida Barrett, IMCG
Due Date:	28/2/2020
Submission Date:	09/03/2020
Deliverable Status:	Final
Deliverable Style:	Report
Dissemination Level:	Public
File Name:	



This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 864048

Reading instructions

This report is divided into two parts. The first one is the IP-policy for the FlexiGrid project. The second one is for those who wish to have some vocabulary explained, know a bit more about IP matters, or how this IP-policy was produced. Some partners share some valuable experiences from previous projects and their thoughts of what they think is of special importance.

Authors

Surname	First Name	Beneficiary	e-mail address
Barrett	Frida	IMCG	frida.barrett@imcg.se

Reviewers

Surname	First Name	Beneficiary	e-mail address
Wahlström	Ulrika	IMCG	ulrika.wahlstrom@imcg.se
Bobochikov	Teodor	Entra Energy	teodor.bobochikov@entra.energy
Singh	Lavjit	EMAX	lavjit.singh@emaxgroup.eu

Version History

Version	Date	Modifications made by
1	15 Jan 2020	Frida Barrett
2	17 Jan 2020	Ulrika Wahlström, Frida Barrett
3	19 Feb 2020	Teodor Bobochikov, Lavjit Singh, Frida Barrett
4	28 Feb 2020	Frida Barrett

List of abbreviations

Abbreviation	Definition
FlexiGrid	Enabling flexibility for future distribution grid – FlexiGrid
IP	Intellectual Property
CA	Consortium Agreement
FTO	Freedom to Operate
NDA	Non-Disclosure Agreement
SME	Small or Medium Enterprise
DSO	Distribution System Operator
WP	Work Package

TRL	Technology Readiness Level
PPA	Power Purchase Agreement
O&M	Operation and Maintenance
MTA	Message Transfer Agent

TABLE OF CONTENTS

PART ONE: THE FLEXIGRID IP-POLICY

- Introduction to the IP-Policy
- The seven actions in the IP-policy
- Implementation of the IP-Policy

PART TWO: IP-POLICY BACKGROUND AND EXPLANATION

- 1.0 EXECUTIVE SUMMARY
 - 2.0 INTRODUCTION TO THE IP-POLICY BACKGROUND
 - 2.1 Protection of background and foreground assets
 - 2.1.1 Intellectual Assets
 - 2.1.2 Intellectual Property
 - 2.1.3 Freedom to Operate
 - 2.1.4 The Consortium Agreement
 - 2.1.5 Non-disclosure agreement
 - 2.1.6 Intellectual Property generated within FlexiGrid
 - 2.2 The Deliverable 9.1
 - 2.3 The importance of an Intellectual Property Policy
 - 2.4 The Intellectual Assets Template
 - 2.5 Impact goals
 - 2.6 Exploitation paths
 - 2.7 Delimitations
 - 3.0 WORK PROCESS
 - 3.1 The FlexiGrid proposal
 - 3.2 The FlexiGrid CA
 - 3.3 Interviews
 - 3.3.1 The CA and the need for other agreements
 - 3.3.2 The ownership; who owns what
 - 3.3.3 How to get market impact
 - 3.3.4 The needs and risk for publications
 - 3.3.5. Patents
 - 3.4 Methods
 - 3.4.1 Keep an up-to date Intellectual Assets list
 - 3.4.2 Decide upon suitable Intellectual Property protection
 - 3.4.3 Signed detailed agreements
 - 3.4.4 Give partners enough time to review drafts before strategic publishing
 - 3.4.5 Put the right person in the right place
 - 4.0 LEARNINGS FROM OTHER COLLABORATIVE PROJECTS
 - 4.1 Potential market barriers
 - 4.2 Taking a good partnership for granted
-

- 4.3 Unclear ownership
- 4.4 Avoid joint ownership if possible
- 4.5 Knowing where to find the knowledge accumulated within the project
- 4.6 Protection of open data
- 4.7 Publishing as a way of protecting your intellectual property
- 4.8 Different knowledge level regarding intellectual property rights

5.0 CONCLUSIONS

- 5.1 Review in Action Groups
- 5.2 First time in workshop

LIST OF FIGURES:

Figure 1: Intellectual Asset Template for FlexiGrid

Figure 2: Intellectual Asset Template for FlexiGrid, template for publishing

LIST OF TABLES:

Table 1: The FlexiGrid IP policy actions

Table 2: Example on how to define an intellectual asset

Table 3: Example of what different types of partners focus on

Table 4: Solutions including key commercial partners and the planned IP management

APPENDIX I: Explanation of Protection of Background and Foreground Assets

PART ONE

THE FLEXIGRID IP-POLICY

Introduction to the FlexiGrid IP-policy

This document is divided into two parts. Part one is the actual FlexiGrid IP-policy. Part two consists of background information. It explains how this policy was produced and give some more details and examples of why it is important to have an IP-policy and the vocabulary used. It also gives some of the FlexiGrid partners views and thoughts of IP-matter, what they think is especially important and lessons they have learnt from previous projects.

The seven actions in the FlexiGrid IP-policy

Below the seven actions in the FlexiGrid IP-policy is lined up.

Table 1: The FlexiGrid IP policy actions

ACTION	Explanation
1. Keep an up-to-date Intellectual Assets list	Use the intellectual assets template to state what is being developed in the project and by whom. Up-date it regularly.
2. Decide upon suitable Intellectual Property protection	Package the intellectual assets into patents or use other strategies for protection
3. Sign detailed agreements	Sign agreements that regulate details that the Consortium Agreement will not cover
4. Give partners at least 30¹ days to review drafts before strategic publishing	Make sure partners get the chance to review suggested topics and drafts before publishing
5. ‘Put the right person at the right place’	See to that someone is responsible for connecting your organisation’s business plan with the IP policy
6. Six monthly review at Action Groups meetings	Review and update the intellectual assets template

¹ Unless agreed on something else by all partners involved, like for example two weeks

7. Annual review by the Management Board	Let the project management board review intellectual assets template, at least once a year.
---	---

Implementation of the IP policy

The research in FlexiGrid can hypothetically, be used for many things during and after the project. The partners involved have different roles. One partner might want to use the findings while teaching or debating. Another might use it as an entrepreneur. Regardless how the partners want to use their new developments that will be made during the FlexiGrid project, they should make an inventory of their intellectual assets and keep it up to date at all times.

1) Keep an up-to-date Intellectual Assets list

The FlexiGrid project should use a template, the intellectual assets template (referred to hereafter in the IP-policy as ‘the inventory template’ or ‘template’) in order to document what assets that you foresee being developed in this project. By this procedure FlexiGrid partners will be better prepared to handle the outcome of the project. To ease this work, researchers can keep lab-books and log when inventions are made, what they are and by whom they were made.

The inventory template is a template that:

- Works as a way to follow-up how the project is proceeding and can be used to report the project progression
- Could be seen as an inventory of foreground that possibly could – after internal review – be used as topics for publications
- Is a great way of communicating progress among project partners

When to use the template

Here are some examples when it could be very useful to use the inventory. It is important that the list is up to date.

- 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

The template that has been developed for the FlexiGrid project can be seen in the figures 1 and 2 below.

2) Decide upon suitable Intellectual Property protection

When the intellectual assets are listed and up-dated regularly, one can see who has the right to protect it by turning the value of data and other assets into for instance patents.

However, as patents are expensive and in a technical project like this, where the technical development is moving swiftly filing for patents is not always going to be an option. Other options could for example be copyright, design and database protection, protection of open source, etc. Therefore, partners need to decide how the intellectual asset/s will be protected.

3) Sign detailed agreements

Sign agreements with the project partners you work closely with. This is to make sure that the inventions and ideas are kept a secret until you know whether you will file for a patent. Apply for patents when you are ready, do not wait too long. If you have trade secrets that you will never disclose, it is of essence to inform relevant personnel and to write Non-Disclosure Agreements before disclosing trade secrets between parties.

Even if you are planning to let other people and organisations use your invention/code, whatever it might be that you have created of value for others, for free, as an open source, it might still need to be protected in order to keep it an open source. Otherwise someone else can file for patent on it.

4) Give partners enough time to review drafts before strategic publishing

Documents produced by partners for external publications (e.g. in conferences) will be previously submitted to project approval, so that all partners can exercise their rights. According to the CA, a beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of, unless agreed otherwise, at least 45 days, together with sufficient information on the results it will disseminate. The best way and to do this is to put it into the FlexiGrid template. The topic should, when possible, refer to the number given to the asset on the intellectual assets template.

If partners haven't replied on documents, a draft sent for review within 30 days², the partner sending the request for publishing, is free to publish.

In conformity with the CA, each partner may decide to protect its results and remain the sole owner of the protected results, and partners may decide to jointly protect their joint results and remain joint owners of the protected result.

5) Put the right person at the right place

In many organisations, there is a disconnection between the IP policy and the overall business strategy.

² Unless a different time is agreed upon by all involved partners, which for example could be two weeks

Every important innovation opportunity requires a value proposition. The goal for companies must be to create and deliver customer value that is greater than the competitors. Decision makers tend to focus on need and competition and the people that the SMEs work with. Most people involved in this project are probably not decision makers, but staff. Staff, such as engineers, tend to focus on the techniques, the approach and how to solve the problems. In FlexiGrid we must make these two groups understand each other in order to get the innovation process to flow, so that the inventions created in the project eventually can reach the market.

It is also important to create an understanding between these two groups from the beginning of the project, in order to avoid negative surprises that might show otherwise after some time into the project. Therefore, the staff, such as engineers need to take the initiative to communicate with decision makers and staff that work with the business plans and intellectual property matters from the very beginning of the project.

6) Six Monthly review at Action Group Meetings

In the FlexiGrid project the template should be filled in at least in the ‘Six monthly review’, in the Action Groups meetings. The recommendation is also that template is filled in jointly in a workshop the very first time, preferably at the FlexiGrid consortium meeting in September 2020. The purpose of doing the above is that some partners that might find the task of filling in the Intellectual Assets Template challenging get some help, it gets done and not delayed or ignored, the jointly, or potentially jointly developed inventions or products get discussed across the WP’s and is helping to break the potential work in silos that often is the case in many other similar projects.

7) Annual review by the Management Board

The intellectual assets template will be reviewed by the Management Board at least once a year. In this way the Management Board gets a good overview of some of the developments in the project. Also, if the Actions Groups for some reason cease to exist, it is important to have a deadline at least once a year, where template needs to have been filled in by all partners³ involved in the development of the inventions, products, technical solutions etc.

³ Note that ‘partner’ also could be a third partner and not necessary one of the consortium members.

PART TWO

BACKGROUND AND EXPLANATION

1.0 EXECUTIVE SUMMARY

Intellectual Property, (IP) matters should be handled in a way that enables the innovations to reach the market. An agreed IP policy was presented in the FlexiGrid application and then elaborated by IMCG, sets out rules how the sixteen partners of FlexiGrid, should work and operate with intellectual assets and intellectual property in a project where the overall aim is to, through co-creation, deliver smart innovations that reach the market and make an impact. Although the word partners, as in the meaning FlexiGrid project partners, is used most of the time throughout the text, a lot of the time one also need to consider if it might be relevant to also include a third partner, if a third partner is involved in the development of something new.

The recommended IP policy for the FlexiGrid project is to follow these 7 actions:

Table 1: The FlexiGrid IP policy actions

ACTION	Explanation
1. Keep an up-to-date Intellectual Assets list	Use the intellectual assets template to state what is being developed in the project and by whom. Up-date it regularly.
2. Decide upon suitable Intellectual Property protection	Package the intellectual assets into patents or use other strategies for protection -
3. Sign detailed agreements	Sign agreements that regulate details that the Consortium Agreement will not cover
4. Give partners 30 days* to review drafts before strategic publishing	Make sure partners get the chance to review suggested topics and drafts before publishing
5. ‘Put the right person at the right place’	See to that someone is responsible for connecting your organisation’s business plan with the IP policy
6. Six monthly review at Action Groups meetings	Review and update the intellectual assets template
7. Annual review by the Management Board	Let the project management board review intellectual assets template, at least once a year.

* Unless all partners involved agree on a different timeframe, which for example could be two weeks

Characteristic for an EU-project that focuses on innovation is that the outcome of the collaborative work differs from the techniques and research brought into the project by the organisations individually. The technologies that will be tested, elaborated and implemented in the FlexiGrid will need to be commercialized in order to reach the market and create an impact. The IP policy will support efficient future market roll-out. However, what also is important I this

project is to design innovative business models, services and processes in order to add flexibility to the grid.

As in other EU projects, a Consortium Agreement, CA, has been signed, but the IP policy states that we need to do further work in order to protect foreground assets and facilitate the route for the inventions to have an impact and reach the market. The FlexiGrid project aim to secure that 2/3 of FlexiGrid's results, which have been positively validated, reach market impact.

As the partners in the FlexiGrid project have different experiences of collaborative projects such as this and different knowledge of Intellectual Property matters, several interviews were carried out before writing this document. The purpose was to find out how much the partners had thought about these matters already, to gather experience on how the partners best work with IP matters in the project and if the IP policy set out in the FlexiGrid proposal could be improved or enhanced. Several of the interviews took a coaching form, to help the partners think about IP matters, or think about them differently. Companies might be used to work in one way when they work on their own, or alongside another organisation, but when working in a collaborative project where companies and organisations co-create, a different approach to IP matters is demanded for the innovations to be deployed and reach the market.

The main aim of this report is to show the IP policy, how the project partners need to work with it, how the IP policy set out in the proposal has been enhanced by taking experienced partners' views on board, improving the IP policy set out in the proposal and serve as a guide on how the partners should work and handle IP matters in the project.

The key to success is to systematically, on a regular basis, document intellectual assets brought into the project and assets being developed within the project. For a researcher, this documentation, after being reviewed by relevant project partners, is valuable when preparing for publications. For SME's, the documentation, or inventory, is of value if filing for a patent, or when raising potential investors' interest and to avoid unnecessary conflicts with collaboration partners within the project.

This non-technical report also lists potential barriers for inventions to reach the market and explains terms used when discussing protection of inventions, such as intellectual assets, intellectual property and freedom to operate, etc.

In this report some information is repeated with the purpose to ease the understanding of IP work and for all partners in different context, regardless of previous experiences in the field.

2.0 INTRODUCTION TO THE IP-POLICY BACKGROUND

In the FlexiGrid project, 16 partners; academia, small and medium sized enterprises (SME), Distribution System Operators (DSO) from Sweden, the Netherlands, Belgium, Romania, Bulgaria, Switzerland, Luxembourg and Turkey, work together. The project partners are aiming to demonstrate cutting-edge technologies enabled by advanced platform for local energy

exchanges and providing flexibility to distribution system operators in order to secure, stable and affordable operations of electrical distribution grids for de-carbonising energy systems with high shares of renewables. This involves having flexible electric grids with increased storage and system integration with various producers and consumers.

One of the main objectives is to secure future evolution of FlexiGrid-innovations beyond the project life. Another one is deployment and replication of FlexiGrid solutions for flexible markets. In order to manage the deployment and replication of the inventions and products developed in the project, they need to be commercialised.

In EU-projects such as this where partners work in collaboration to develop techniques, it is of utmost importance to have a clear IP policy for how we work with IP matters in the project so that inventions and products can be commercialised and deployed further.

It is also important to highlight that to be able to achieve a flexible electric grid it is not enough to develop smart new technologies that enable that. It also requires innovation in business models and processes driven by members in the consortium, not necessary involved in the technical development, in order to actually make the trading of the electricity happen. More work with business models will be carried out in Task 9.4.

The mechanisms of collaborative trading between the market participants also have to accommodate for standards and practices in the energy sector like investment decisions, funding, project financing, PPA's (Power Purchase Agreements) and/or auction rules, O&M (operation and maintenance) and other factors that are important for defining a participant commercial position, motivation and risk management.

It is the combination of a 'flexible energy market design' and IT that will make the product at the end.

IMCG has experience within the field of IP and has developed an IP policy, which was introduced in the FlexiGrid proposal. Below you see the policy with suggested actions as suggested in the proposal policy along with a longer description of each step. It consisted of six action points with a recommendation to use an Intellectual Assets Template that was developed in the Horizon 2020 project United-Grid. This was however, during the writing of this report, developed further. The development includes a recommendation of a 7th action. The Intellectual Assets Template, originated from the United-Grid project but was developed and inspired by another Horizon 2020 project IMCG has experience from, the InspireWater project.

The six action points for the IP policy that were set out in the proposal were:

- Keep an up-to-date Intellectual Assets list
- Decide upon suitable Intellectual Property protection
- Sign detailed agreements
- Give partners two weeks to review drafts before strategic publishing
- Put the right person at the right place
- Annual review by the Management Board

More details about these action points can be found under the ‘Work process’ chapter, under ‘Methods’.

2.1 Protection of Background and foreground assets

All partners entered FlexiGrid with great know-how. These are intellectual assets and intellectual property that are called background assets. What will be developed in the project is called foreground assets.

IMCG has great experience from a number of EU projects where SMEs and academia work together with larger, often global companies in order to invent something new. We have learned that project partners are at different knowledge levels regarding competence and know-how within the area of intellectual property rights. During the interviews, we did with some of the FlexiGrid partners, we have come to the conclusion that FlexiGrid is no exception.

2.1.1 Intellectual Assets (IA)

As stated above, we create new values – intellectual assets - in this project. These are values that other can use – for example in other research projects. There are many reasons for paying attention to and managing these in a good way to ensure the development of further research and utilisation.

An intellectual asset defined as a ‘value’, is not very easy to understand. Some examples of what could be regarded as an 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 ideas⁴. Note that it’s common that 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.

2.1.2 Intellectual Property (IP)

An Intellectual Asset is the base for an Intellectual Property (IP). An easy example is a patent, which is an intellectual property and it is created from an invention, which is an intellectual asset. What the IP does is packaging an intellectual asset in a complete fashion, so that it could be transferred to someone else to use and handle. Examples of intellectual assets are software, data, databases, processes and inventions. Examples of intellectual properties are software with licenses, open source licenses, manuals with copyrights, other copyrights and patents.⁵

2.1.3 Freedom to Operate (FTO)

Freedom to Operate (FTO) means to determine whether a particular action, such as testing or commercialising an innovation, can be done without infringing valid intellectual property, (IP) rights of others.

⁴ Intellectual Assets Strategy Framework, United Grid, Jan 2018, IMCG

⁵ United-Grid, Deliverable 8.2, Intellectual Assets Strategy Framework

Since IP rights are specific to different jurisdictions, an FTO analysis should relate to particular countries or regions where you want to operate. If you want to commercialise a new variety of a technology in your own country you might have complete FTO if there are no patents, trademarks, or other IP rights covering the technology, the process used to make it, or the way you wish to market it or in your country.

However, you might not have the same FTO if you want to export the technology to another country, where patents or other IP rights may have been issued covering the methods, etc. Determining whether there is freedom to operate in any particular jurisdiction is a major reason why patent databases are so important. If you, in a patent database, find a patent that seems to relate to the action for which you are seeking FTO, you can't immediately conclude that there isn't FTO, because for a variety of reasons the matter claimed in the patent could be available to use. For example:

- Patents may not have been applied for in multiple countries; the claimed matter is protected only where there is a patent
- Patents may not have been granted in some of the countries where applications were made; laws about what is patentable vary between countries
- Patents that were issued may not still be in force, if the patentee has not made regular payments that is due
- Patents are limited monopolies and they do expire

If you ask an attorney to render an FTO opinion, it might consist of finding such IP rights, issue jurisdictions, expiry dates and so on, and also assessing how the issued claims are to be construed and whether or not the issued claims might be invalid.

Most commonly, claims in a particular patent could be invalid because there is prior art, perhaps a publication or a public presentation about the matter claimed in the patent, that the patent examination process didn't find. In some countries, a patent could be vulnerable to challenge because an inventor wasn't properly named.

Claims may be construed to cover some actions and not others, for example, because of definitions in the body of the patent specification, or admissions made by the patentee while the patent application was being examined.

If there are valid intellectual property rights of others that would be infringed by the action you want to take, you may be able to obtain freedom to operate with respect to any one of those rights by negotiating for a license with the owner of the IP rights. That doesn't give you rights with respect to any other IP, though. You might find that to obtain FTO in a country with many valid patents covering the action you want to pursue; you need to obtain many licenses from many different parties.

With this strategy report, we aim to raise awareness concerning what patent rights can inhibit a partner's right to exploit a certain technique after the project is finalised. The purpose is to make all project partners aware of the importance of asking oneself questions like:

- Are you free to commercialise this technique?

- Will new licences or agreements be needed?
- Who owns the most relevant patents today?
- Have you taken necessary steps to secure the possibility within the project?

2.1.4 The Consortium Agreement (CA)

When starting up the FlexiGrid project, all us partners agreed upon being prepared to provide our pre-existing know-how to contribute to the project's success. By signing the Consortium Agreement, CA, we show that we respect each other's intellectual property rights on all pre-existing items that are used during project execution. Clear steps towards the management and protection of the intellectual property of the project, as well as the relation between partners are described and specified in the CA.

Section 8 in the CA addresses results and section 8.1 states that results are owned by the party that generates them. Section 8.2 addresses joint ownership, which is of relevance when several partners develop new techniques together.

The purpose of the CA is to establish a legal framework for the project in order to minimize any internal issues within the project consortium related to the work, IP-ownership, confidential information, access rights to background and results for the duration of the project and any other matters of the consortium's interest. Our project application states that access rights to results and background will be granted according to art. 45-59 of the EU Regulation 1290/2013, which will provide formal guidelines as to how reports, payments, management etc. are organised and how important issues such as the intellectual property rights and resolution of disputes are dealt with. It also contains procedure for resolution of conflicts. The general principle of that is, if conflicts arise, there is an attempt for them to be resolved at the lowest level. The Management Board is responsible for implementing the procedures for solving conflicts and disagreements.

Where several beneficiaries have jointly carried out work generating a given result and where their respective share of the work cannot be ascertained, they will have joint ownership of such result. They may establish an agreement regarding the allocation and terms of exercising the joint ownership in the consortium agreement and/or in a separate joint ownership agreement, including definition of the conditions for granting licenses to third parties. Conditions of the transfer of ownership of own results to third parties will also be defined in the CA ensuring that the rights of the other project partners will not be affected by such transfer.

Note that the CA doesn't regulate details. It is time-consuming to set up a CA and get many partners to agree on it if it contains too many details. Therefore, the CA describes – in a general matter - how different questions are handled, rather than going into details.

2.1.5 Non-disclosure agreement, NDA

A Non-disclosure agreement, NDA, which is also known as non-disclosure is simply a contract between two or more parties where the subject of the agreement is a promise that the information conveyed will be maintained in secrecy.

These agreements can be mutual agreements, where both parties are obligated to maintain secrecy, or they can be unilateral agreements, where only the receiving party becomes obligated to maintain secrecy.

Mutual confidentiality agreements are useful when both parties will be conveying confidential information, such as for inventor groups. Standard unilateral confidentiality agreements, which are probably most common in the innovation arena, are used when only one party is turning over confidential information, perhaps to a potential investor or prospective licensee.

2.1.6 Intellectual Property generated within FlexiGrid

The development in the smart grids field is rapidly evolving and large efforts are made, which foreseeably should render in greater volume of patents filed. This is however not the case, partly due to:

- The nature of the intellectual assets in the project are models, algorithms, which are hard to protect
- Several of the inventors are SME's which generally neither have time, nor the funding to own and maintain attainable patents
- The academics, which stands for a considerable amount of the development in the field evolves in carrier by publishing

However, during the interviews made in order to create this report and by reading the project application, it's clear that some partners see many potential inventions that they plan to file for patent. Note that there are different levels of foreground IP which might be created in course of the project:

- Individual and joint IP – which belongs to individual partners, or is jointly owned by partners working in a particular task and is restricted to those partners
- Generic IP – which can be used by all partners of the consortium. Some of the generic IP will be made more widely available to European academics, SMEs and other industrial organisations
- Publicly available IP – which will be published at conferences, on the public web site and made available with no restrictions as for instance, publications

To prepare for the deployment and exploitation of the project results, the Management Board will constantly monitor the progress of the research, as well as the advances outside the consortium with support of the Advisory Board, for an early monitoring of foreground knowledge which should be protected, and for a continuous updating of the research/work programme to improve project effectiveness.

2.2 The Deliverable 9.1

The IP policy should facilitate for the project partners when it comes to secure exploitation rights for increased possibilities to reach the objective that 2/3 of FlexiGrid's results which have been

positively validated, reach market impact. This will be done through logged progresses that will ease proper protection and an understanding when it is okay to publish project results and when it isn't.

The FlexiGrid deliverable D9.1 is to deliver an IP Policy, assessment and operations. It is important to have an IP policy in place prior to contract signing, but also to make sure that this actually takes place and the intellectual assets are gathered on beforehand. The contract signing process will be eased by gathering intellectual assets at an early stage and on regular basis in the project. To help the partners with the understanding of the IP matters this report also contains information about potential market entrance barriers, how information can be protected through formal mechanisms, how it can be protected through confidentiality agreements and be freely disseminated.

As IMCG has realised and is the case in most collaborative projects such as this one, the knowledge of intellectual assets differs a lot from partner to partner, but also from the different people that are involved in the project. Therefore, certain methods and vocabulary connected to intellectual assets are described in appendix I. The intellectual assets inventory template that we are to use in this project is to be found in.

2.3 The importance of an Intellectual Property Policy

An IP policy supports an efficient future market roll-out and is a core requirement to grow innovation capability alongside the development of new and accepted business models. The outcome of a collaborate innovation projects always differs from what partners individually bring into the project. In order to clarify who owns the exploitation rights of that outcome, an intellectual property policy must indicate how partners are to handle intellectual assets and property within the project.

An IP policy is important for all project partners to follow because it will:

- Reduce the risks and barriers regarding exploitation rights
- Enable a smoother procedure for publishing
- Increase the possibility of having the right people at hand
- Prepare partners for future opportunities (a potential investor or a research funding organisation will see what you own and will quickly be able to determine if you are to get funding or not).
- Communication for impact (with the project's assets well described, it's easier to present results for investors and potential collaborators)
- Include all partners
- Make it easier for the partners involved to find the inventions and knowledge accumulated within the project and what partner that is involved in what

Regarding the first bullet point: reducing the risks and barriers regarding exploitation rights, the partners/third parties may avoid future conflicts by;

- Referring to the CA
- Entering a new detailed agreement conjunctly with the CA to safeguard perceived risks.
- Write non-disclosure agreements before disclosing trade secrets between partners and/or other parties.

Other agreements that could be needed are agreements related to for example technology transfer, MTA (Message Transfer Agents). Entering agreements is especially important when there is a joint ownership. A detailed agreement can also define boundary conditions for pursuing commercial objectives in the future by joint owners. It is also important to assess risks associated with agreed transactions between joint owners and write agreements regarding these.

2.4 The inventory template

The inventory template is a template that:

- Works as a way to follow-up how the project is proceeding and can be used to report the project progression
- Could be seen as an inventory of foreground that possibly could – after internal review – be used as topics for publications
- Is a great way of communicating progress among project partners

Table 2: Example on how to define an intellectual asset

Type of Intellectual asset	Definition	Example
Invention	Device or method to solve a given problem	Material, algorithm, tool, instruments

Source: Intellectual Asset Strategy Framework, United-Grid, 2018

The table below illustrates an example on what different types of organisations in a project like FlexiGrid typically focus on. By using the template it is easier for the inventions developed within the project, to finally reach the market, which is a major objective of this project.

Table 3: Example of what different types of partners focus on

	RESEARCH PARTNERS	INNOVATION PARTNERS	DEMONSTRATOR PARTNER USERS OF SOLUTIONS
	e.g. TU/e, Chalmers, HES, RISE	e.g. IMCG, T4E, Energo Pro, SIMAVI	e.g. EMAX, AH, EP, OEDAS, GE, ESR
FOCUSES ON:	Making progress and finding new topics to publish.	Making progress and developing inventions, working closely with both researchers and DSOs.	Operative business, business as usual.

THE IP POLICY SUGGESTS TO:	Secure that there is an updated Intellectual Asset inventory – it will enable a conversation with both SMEs and DSOs.	Secure Freedom to operate, decide what IP management strategy is suitable - file for patents, hide sources, etc. This will be of interest for the DSO, since the DSO will demand a clear picture of the SME’s intellectual property.	Make sure the operative personnel is in close cooperation with the DSO’s innovation manager, so that someone involved in the project can make decisions on whether to buy the invention being developed in the project or not (hence getting it to the market).
-----------------------------------	---	--	---

An example of how an Intellectual Assets Framework Strategy can work as a tool for securing market entrance for the inventions being developed in the FlexiGrid project.

The recommendation is that one more action the ‘Six monthly review in the Action Groups meetings’ is added to the actions that was already agreed to in the project proposal to have in the IP policy. The recommendation is also that template is filled in jointly in a workshop the very first time, preferably at the FlexiGrid consortium meeting in September 2020. The purpose of doing the above is that some partners that might find the task of filling in the Intellectual Assets Template challenging get some help, it gets done and not delayed or ignored, the jointly, or potentially jointly developed inventions or products get discussed across the WP’s and is helping to break the potential work in silos that often is the case in many other similar projects.

The template that has been developed for the FlexiGrid project can be seen in the figures 1 and 2 above in the IP-Policy. It was developed by taking aboard experienced partner’s point of views and suggestions. Partly it was also inspired by Horizon 2020 funded project InspireWater’s Intellectual Assets Inventory.

2.5 Impact goals

FlexiGrid has a strong focus towards exploitation and future commercialisation. In order to reach these impact goals and even the main objectives, which can be seen below, it is important to consider IP-matters for each partner at an early stage.

Some of the FlexiGrid expected impacts are to:

- **contribute to the Clean Energy for All Europeans** package and the 2030 Climate-Energy objectives
- **strengthen small and medium-sized DSOs** with cutting-edge technologies and solutions in a cost- effective manner, giving them the tools that they need to mobilize new actors in their role as neutral facilitator in electricity distribution
- **use multiple innovative market platforms**, with technology enabling to empower customers providing a route to market and business cases for stakeholders that are willing to provide flexibility to the network via the DSOs
- have **strong show cases that support scaling up and replication**

- ensure **post project scalability, knowledge transfer**, scaling and replication within a large geographical coverage, including multiple market types
- **increase distribution grid flexibility**, which increase the DSO's ability to operate with high levels of electricity production from variable **renewable sources**

Overall Objectives of FlexiGrid

- To develop an integrated IoT architecture for flexibility measures and electricity grid services
- To develop and deploy innovative market models and enabling mechanisms that provide services to the DSOs
- Deploy cutting-edge smart grid technology as an enabler
- Develop and deploy innovative and enabling commercial and contractual architecture, based on block-chain technology
- Test the framework by deploying into consumer premises, retailers and DSOs
- Scale across Europe and globally

2.6 Exploitation paths

In order for the project to reach impact, deliver flexibility and retail market options for the distribution grid, the Technology Readiness Levels, TRL, will have to be increased. The ambition is to mature results, from 5-6 to TRL 8.

The table below shows the solutions including key commercial project partners and the planned IP management.

Table 4: Solutions including key commercial project partners and the planned IP management

Predicted Solution/Service	Key commercial partner/s	TRL Dev.	IP management
Flexible markets for energy exchanges and provision of flexibilities for the grids: Peer-to-pool and block-chain solutions	EMAX, SIMAVI, DSOs	6 => 8	Open source
Advanced real-time clustering for virtual distribution grids to handle grid congestions, especially in extreme events	SIMAVI, DSOs	5 => 8	All novel aspects will be protected
Flexibility measures by local energy storage and coordinated EV's charging	IMCG's, DSOs	5 => 8	All novel aspects will be protected
IoT platform for enhanced observability, control and communication	SIMAVI, DSOs, T4E	5 => 8	Open source
Multi-channel communication platform to enhance customer engagement	IMCG, SIMAVI	6 => 8	All novel aspects will be protected
Step-by-step guide for DSOs -to get a structured pathway to develop the flexible distribution grid based on context	RISE	5 => 8	Open source
Financial Instruments adaptation and alignments to flexible distribution grid logics and business models	RISE, IMCG	6 => 8	Open source

2.7 Delimitations

The main aim of this report is to show the IP policy, how the project partners need to work with it, how the IP policy set out in the proposal has been enhanced by taking experienced partners' views on board and improved the IP policy and the how the partners should work and handle IP matters in the project.

Not all partners have been interviewed for this report. However, IMCG has tried to cover some SMEs, some research organisations and some DSO's in order to get different perspectives on strategies concerning intellectual assets.

This report also describes project barriers that can prevent the project inventions to reach the market, but it doesn't take into account partner's individual market barriers, such as competitors or competitive techniques or methods.

3.0 WORK PROCESS

The information and analysis presented in this report are based on the FlexiGrid IP policy set out and other information from the FlexiGrid project proposal, the Consortium Agreement, (CA), desktop research and previous experiences IMCG has had from similar projects such as the Horizon 2020 United-Grid and the Inspire Water-projects and interviews.

3.1 The FlexiGrid proposal

To ensure proper intellectual property management, which should maximize the impact and market relevance of the knowledge generated in the project, it's written in the FlexiGrid proposal that:

In order to clarify who owns the exploitation rights of project outcomes, an IP policy must indicate how partners are to handle intellectual assets and property within the project. The objective is that IP matters should be handled in a way that enables the innovations to reach the market.

General principles: Knowledge and IP matters will be settled in a consortium agreement (CA), signed by the consortium prior project start.

Ownership: Each participant will own the foreground/results it generates. Background will be clearly identified within the CA and when applicable, granting of access rights will be clearly specified.

Joint ownership: When results are generated jointly, participants will seek to reach an agreement. The CA will define rules to do so.

Protection use and dissemination: Results capable of industrial or commercial application must be protected taking into account legitimate interests. Prior notice must be given to other participants.

Access right: Partners may define the background needed in any manner and may exclude specific background. At a preliminary stage, partners agreed on open access publishing. However, in the future, partners may opt for gold or green access to peer-reviewed scientific publications, which might result from the project, depending on the type of information to be published.

Management of knowledge: A knowledge process will be initiated by the Innovation in terms of holding a work shop the first time the partners fill in the Intellectuals Assets Template for the FlexiGrid project. This enables co-operation and allows creation of new knowledge.

The conducted patent searches and freedom to operate, (FTO) assessments performed by the commercial partners shows that the key functionalities of individual and integrated FlexiGrid solutions have not been patented or otherwise officially protected to date. This leaves adequate freedom to the consortium to exploit and protect its findings, i.e. intellectual assets. Once a result is available, the consortium shall be in charge of investigating the novelty of the invention and propose the possibility to apply for a patent protecting the generated IP.

The intellectual assets will be duly protected. Mainly by confidentiality agreements between solutions value-chain partners and IP (see 2.2.4 and Task 9.1).

The FlexiGrid proposal section 2.2.5 regards Intellectual Property and Knowledge Management and Protection. It states that the IP policy of the project is an important part of the project exploitation plan. During the project meetings the internal results will be reviewed with the goal of identifying important ideas and defining an individual strategy for the positioning of these ideas in the standardization and commercialization processes.

The outcome of a collaborative innovation project always differs from what partners individually bring into the project. Therefore, the partners need to clarify who owns the exploitation rights of different outcomes, something that is clarified further in this report.

3.2 The FlexiGrid Consortium Agreement (CA)

The Consortium Agreement (CA) has been signed by all partners and the assumption is that all partners are aware what is written there. However, for those of our project partners, who might not be experienced in working in projects, it could be a good thing to review the CA in order to get a reminder of what it covers. It is generally written and should not be mistaken for being a Non-Disclosure Agreement (NDA).

3.3 Interviews

During January 2020 IMCG has had phone interviews with the SMEs SIMAVI, EMAX, Entra Energy, the research institute Eindhoven University of Technology, Chalmers University of Technology, Haute école spécialisée de Suisse occidentale, RISE and the DSOs Göteborg Energi and Energo Pro.

The interviews were set up to get a picture of the partners' knowledge regarding IP matters, their experiences and their thoughts about the FlexiGrid project and to give some coaching by IMCG in these matters. The interviews were also a way to get people's experiences from similar projects and gain some valuable input what they think is importance to consider in order for this project to succeed in the best possible way. The partner's valuable experiences are partly presented in this report, partly already spread among the consortium whilst having the more coaching type of interviews.

The interview questions regarded:

3.3.1 The CA and the need for other agreements

The comments on the CA agreements varied. Some had not read it at all. Most people had read through the CA briefly and said that it was OK and had no comments. Some had read it more thoroughly and realised the importance of it. One had already put in some background information in it as that organisation realised the importance of that. Some thought that it was good with a CA and that there should be no more need for them or their organisation to handle IP matters further, but changed their mind after the telephone conversation/interview.

3.3.2 The ownership; who owns what

Most people were not clear about who owns what in the project as it is now or will be owned by who later on. Some partners seem to take for granted that what they developed in the project (on their own, or together with other partner's) would be owned by them, or at least free to use by them and by third parties after the end of the project. The importance of specifying foreground assets already in the CA was highlighted by the interviewer⁶, or at least do it in the IP Policy template, Intellectual Assets Template early on in the project and the importance of it to be updated on a regular basis.

3.3.3 How to get market impact

As one of the main objectives for the development is to reach market impact with the inventions or products developed in the project, it was discussed what their views on this was and how they think we should work in the project to best reach that. Some thought that this was not something that really involved them much, some gave some valuable input on how we ought to work and what has worked well and not in previous projects. Some said that this was one of the most important matters, if not the most important and that it is really important that we actually do create impact with the FlexiGrid project.

3.3.4 The needs for and the risk of publications

The importance of publicising articles and papers was discussed as well as the risk of it for the project, its partners and the importance to follow the procedures set out in the CA.

⁶ Frida Barrett, IMCG

3.3.5 Patents

Although most partners interviewed did not seem to plan to file for patent, some admitted after some conversation that they might do, but later on or after the project end, or that they might do although they do not plan for it now. Some said that there was need for it as they would want anyone and as many as possible, to use their invention afterwards. The interviewer⁷ then highlighted that although they want the invention to be used by anyone, want it to be an ‘open source’, it might need to be protected so that no other organisation can claim patent on it and make other parties pay for it.

3.4 Methods

During the writing of this report, the IP policy set out in the FlexiGrid proposal is used as a base. The six action points for the IP policy that were set out in the proposal were:

- Keep an up-to-date Intellectual Assets list
- Decide upon suitable Intellectual Property protection
- Sign detailed agreements
- Give partners 30 days⁸ to review drafts before strategic publishing
- Put the right person at the right place
- Annual review by the Management Board

3.4.1 Keep an up-to-date Intellectual Assets list

All partners are to use the intellectual assets template, to document what assets that you foresee being developed in this project. By this procedure all us partners in FlexiGrid, will be better prepared to handle the outcome of the project. To ease this work, researchers can keep lab-books and log when inventions are made, what they are and by whom they were made.

“It is simply not enough to have an Intellectual Assets Framework in place. In order to make best properly use of the inventions developed within the project, it is important that the intellectual assets template is being filled in by the partners on a regular basis. Furthermore, it is important that this also is looked upon by the other partners”, says Frida Barrett, Innovation Development Manager, IMCG.

Since there will be continuous developing results in the FlexiGrid project, it is important to update the intellectual asset list, on a regular basis. IMCG suggests that this is done for the first time before the second consortium meeting, which will take place in September 2020.

3.4.2 Decide upon suitable Intellectual Property protection

When the intellectual assets are listed and up-dated regularly, one can see who has the right to protect it by turning the value of data and other assets into for instance patents. This is also to be written in the intellectual assets template for FlexiGrid.

⁷ Frida Barrett, IMCG

⁸ Unless a different time is agreed upon by all involved partners, which for example could be two weeks

However, as patents are expensive and in a technical project like this, where the technical development is moving swiftly filing for patents is not always going to be an option.⁹ Other options could for example be copyright, design and database protection, protection of open source, etc.

3.4.3 Sign detailed agreements

Sign agreements with the project partners you work closely with. This is to make sure that the inventions and ideas are kept a secret until you know whether you will file for a patent. Apply for patents when you are ready, do not wait too long. If you have trade secrets that you will never disclose, it is of essence to inform relevant personnel and to write Non-Disclosure Agreements before disclosing trade secrets between parties.

Even if you are planning to let other people and organisations use your invention/code, whatever it might be that you have created of value for others, for free, as an open source, it might still need to be protected in order to keep it an open source. Otherwise someone else can file for patent on it.

The technology providers in FlexiGrid, the SMEs, need to look at their exploitation plan and study the CA. Since the CA is generally written, as it should be, it won't cover all the matters that are needed for you to reach the market. In order to avoid misunderstandings and possible issues regarding exploitation rights, IMCG encourages you to sign detailed agreements, for example Non-Disclosure Agreements (NDA), with the project partners you work closely with.

3.4.4 Give partners enough time to review drafts before strategic publishing

Documents produced by partners for external publications (e.g. in conferences) will be previously submitted to project approval, so that all partners can exercise their rights. According to the CA, a beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of, unless agreed otherwise, at least 45 days, together with sufficient information on the results it will disseminate. The best way and to do this is to put it into the FlexiGrid template. The topic should, when possible, refer to the number given to the asset on the intellectual assets template.

If partners haven't replied on documents, a draft sent for review within 30 days¹⁰, the partner sending the request for publishing, is free to publish.

In conformity with the CA, each partner may decide to protect its results and remain the sole owner of the protected results, and partners may decide to jointly protect their joint results and remain joint owners of the protected result.

The IP policy is essential for an efficient handling of information within the consortium, as well as to the transfer of knowledge to the outside world. The management procedure suggested will

⁹ Interview with Teodor Bobochikov, CEO, Energy Entra, 14 Jan 2020

¹⁰ Unless a different time is agreed upon by all involved partners, which for example could be two weeks

help us to identify situations when the owners themselves might not have foreseen the need for protection.

Researchers might know at a very early stage what topics they would like to publish during the project. Therefore, IMCG suggests that it is stated in the Intellectual Asset Template, so that anyone in the project can write down the topic and other partners can add information that they might want to contribute with. In that way, we will know early on, which partners that will be concerned about a certain topic.

3.4.5 Put the right person at the right place

In many organisations, there is a disconnection between the IP policy and the overall business strategy.

Every important innovation opportunity requires a value proposition. The goal for companies must be to create and deliver customer value that is greater than the competitors. Decision makers tend to focus on need and competition and the people that the SMEs work with. Most people involved in this project are probably not decision makers, but staff. Staff, such as engineers, tend to focus on the techniques, the approach and how to solve the problems. In FlexiGrid we must make these two groups understand each other in order to get the innovation process to flow, so that the inventions created in the project eventually can reach the market.

It is also important to create an understanding between these two groups from the beginning of the project, in order to avoid negative surprises that might show otherwise after some time into the project. Therefore, the staff, such as engineers need to take the initiative to communicate with decision makers and staff that work with the business plans and intellectual property matters from the very beginning of the project.

“See to that someone is responsible for connecting your company’s business plan with the IP strategy. A decision maker must be involved when the goal is to make sure the inventions made in the project make a market entrance, says Ulrika Wahlström”, Innovation Project Manager, IMCG.

The information and knowledge gained through the interviews is highlighted below and gives some concrete examples of what is good to think about and to consider in this project in terms of IP matters. The purpose is also to show how important it is to consider and make a policy and a plan for how to work with intellectual assets early on in the project and what effects it could have, or not have, if we don’t.

4.0. LEARNINGS FROM OTHER COLLABORATIVE PROJECTS

There was some valuable input and tips of what to think about and important matters to consider in this particular project for it to succeed as well as lessons learnt from previous similar projects.

The interviews carried out was partly to gain partners' knowledge regarding IP matters, their experiences and their thoughts on how we best work with them in the FlexiGrid project. It includes thoughts about the importance of having a joint Intellectual Assets Template, how and when to fill it in. The importance of working with IP matters in order to succeed in the project and get market impact. As well as what problems unclear ownership can cause in the project and that it would be favourable, to try to avoid too much integration whilst developing products in the FlexiGrid project, if possible. The importance of publishing inventions developed in the projects, but also important issues to consider before doing so were also raised.

Although it might seem simple enough to fill in the intellectual asset template, it is yet another thing to do for the project partners and there might be some resistance if one has not done anything like that before. One might also feel that this is not really something one feel comfortable in doing and might need some help with. Most partners are naturally very focused on their main tasks and deliverables and prioritize those in the first instance in the project. The risk is then that the important task in filling in the inventory template gets delayed and then even further delayed as the project moves on.

David Steen, Postdoctoral Researcher, Chalmers University of Technology believes that it is important to think about the intellectual assets one possesses at an early stage when engaged in collaborative projects where partners are dependent on each other and value the things they create with each other differently. In an ideal world, one would sit down together for half a day or so and talk this matter through properly.

The point of view is that too often people involved in the project have not thought things through properly, what intellectual assets the organization/company actually does have. It is easy to think that 'one has nothing', but when one really start to think and talk about it, one realizes that they might have a few methods and instruments that could be of value for certain companies working in the project.

The proposal was made that each organization involved in the development of products or inventions within collaboration projects such as these, ought to early on in the project (or before) sit down together for half a day and brainstorm about what intellectual assets they do have and break the details down and try to imagine what one will have at a later stage in the project. As it is really difficult to know in these projects what assets one really will have after some time into the project. It would also be valuable to repeat the 'half-a-day-session' within six months or so.

The big problems seem to occur when partners collaborate and see different values in different things.

The people involved in the projects often need to be pushed and reminded that the main reason for why the partners in the project are developing the inventions and products is that they later on

can be spread, deployed and commercialized elsewhere and not simply end up becoming a simulation model.¹¹

These thoughts are also something that Teodor Bobochikov, CEO, Energy Entra, 14 Jan 2020¹² and Lavjit Singh, Business and Market developer, EMAX share¹³. It was expressed that commercialization and business cases should be our focus from day zero within the project. Teodor fears that the outcome of the project might be that, although everyone delivers their WP's, unfortunately, in the end we don't have a solution that can be deployed elsewhere. He believes we need to pay special attention to team and task alignment to secure not only WP execution and deliverables delivered, but making sure their coherence with the goal of having a product/solution that actually works and solve problems and/or provide value for the customers.¹⁴

4.1 Potential market barriers

When working together with partners in a project, new potential barriers arise when it comes to possibilities to enter the market. It isn't sufficient with a patent or Freedom to Operate. That 'something' that is being developed together with partners in FlexiGrid is not protected by an FTO. IMCG has gained experience in this area from a large number of EU projects, in which we have identified a number of potential barriers that we as a project must be aware of and overcome, in order to reach market impact. Our interviews with project partners also added to the picture of potential market entrance barriers.

4.2 Taking a good partnership for granted

In the beginning of a project, all people involved in the project get to know each other, and everything works smoothly. We have all signed the Consortium Agreement, CA, and it feels safe to work together. However, the Consortium Agreement doesn't regulate details, which is why it is not safe to only rely solemnly upon the CA.

Phuong Nguyen, Assistant Professor at Eindhoven University of Technology thinks that the CA is a general legal framework, but when companies have their own specific legal documents that they need to work with it can be difficult, as they also need to comply with their particular rules. We cannot specify all the terms in the CA in the beginning of the project. When you have to take the next step, it is important to find the right person within the company to speak to, to be able to specify rules, terms and perhaps make more detailed contracts after some time in the project. Some are very supportive, some are not. You need to find someone who is willing to talk about

¹¹ Interview with David Steen, Postdoctoral Researcher, Chalmers University of Technology, 10 Jan 2020

¹² Interview with Teodor Bobochikov, CEO, Energy Entra, 14 Jan 2020

¹³ Interview with Lavjit Singh, Business and Market developer, EMAX, 10 Jan 2020

¹⁴ Interview with Teodor Bobochikov, CEO, Energy Entra, 14 Jan 2020

intellectual assets and properties in order to make progress and to be able to make a more detailed contract.¹⁵

4.3 Unclear ownership

When entering FlexiGrid all partners bring in know-how and some bring in patents or other assets. If this information is not documented, stating who brought in what in the project, it will be even harder to understand who will have the exploitation rights to the inventions being developed during the project. Also, future potential investors or customers, will not know if you own the product or service you would like to sell to the market. Therefore, you and your company will not be considered a good investment.

New intellectual assets developed in a project are difficult to protect. It is important to work with additional agreements, such as non-disclosure agreements (NDAs).

Carmen Oana, Project Manager at SIMAVI, stated that it is important to have an IP policy when working in projects such as the FlexiGrid-project. She thinks that it would be great to have a joint intellectual assets template for the partners to fill in.

In previous projects SIMAVI have worked in, they have made NDA's and have not experienced any conflicts between partners. Carmen believes that it is important that each partner involved in their development with the API-platform makes formal agreements as soon as it is clearer what partner will do what in the project. In this case in project month 9.¹⁶

4.4 Avoid joint ownership if possible

It is really important to work with intellectual assets, properties and ownership rights, etc. as different partners invent and develop different pieces of the software in these types of projects. Especially when partners develop different fragments that are integrated with each other.

These problems have occurred in the past in the past. For example, in a previous project where one of the partners that had developed a software in conjunction with another partner. At the end of the project, it proved that one of the partners was not so interested in commercializing it. It was then that more difficult for the other partner to further develop the product and to commercialise the jointly developed product.

One way of preventing this from happening again could be to sign contracts. However, it might also be a technical solution. It was questioned if the developed systems have to be so integrated with each other. It would be good if the different partners could develop more separate systems that can function more separately and 'talk to each other' instead of being so integrated with each other.

¹⁵ Interview with Phuong Nguyen, Assistant Professor at Eindhoven University of Technology, Jan 7, 2020

¹⁶ Interview with Carmen Oana, Project Manager, SIMAVI, Jan 9, 2020

In the FlexiGrid-project we will be working with a platform, where there will be several functions developed. He thinks that it would be a good idea to aim to develop the systems as separately as possible.¹⁷

Jessen Page, Professor Systems Engineering, at Haute école spécialisée de Suisse occidentale, (HES) believes it is important that different partners develop their own software, which communicates with others, rather than develop more integrated systems.

In this project, the software will be developed by e.g. SIMAVI. One option could be that the software they develop could penetrate the control systems at HES, which could basically control all the appliances. This is something HES does not want to see.

Jessen wants to draw a line between SIMAVI's software and their own, that they have developed. HES wants to have developed their own code for their building and cooperate with SIMAVI by exchanging information between their software, rather than integrating them. This would give HES the option to control what they have. This doesn't mean HES isn't willing to share the code with others in the project, such as SIMAVI, but would like to keep control over it. They will want to protect the code they have developed, so that they could still have access to their code and can share that with future potential partners.¹⁸

4.5 Knowing where to find the knowledge accumulated within the project

The project in itself could also benefit from an inventory list in terms of helping partners keep track of where to find the knowledge accumulated within the project. Georges Darbellay, Manager of Strategies and Innovation, ESR has experienced from working in other similar projects, that the valuable knowledge accumulated within the project can be hard to get hold of in the project as it is scattered amongst the participating partners. If all the partners fill in an inventory lists on a regular basis, it will be easier for the other partners to know who has what knowledge.¹⁹

4.6 Protection of open data

The whole point of providing open data is that it should be free to use. However, if not properly protected, others can claim the owner rights of it and users might have to pay to use the data that from the beginning was intended to be open. Hence due to lack of protection, it will then only be available for those who pay.

¹⁷ Interview with Magnus Brodin, Director Electric Power Systems, Rise, Jan 8, 2020

¹⁸ Interview with Jessen Page, Professor Systems Engineering, 13 Jan 2020

¹⁹ Interview with Georges Darbellay, Manager of Strategies and Innovation, ESR, January 7, 2020

4.7 Publishing as a way of protecting your intellectual property

A common way to ensure that the IP is seen as your organisation's or company's is to publish and reference it widely, always ensuring that your organisation's name is attributed to where it is mentioned. The more you are seen online with your IP, the more support your patents have.

An organisation that frequently uses the publishing method as a way of protecting for example methods they have developed is RISE. As RISE primarily develop methods with the aim that they should be able to be used in other projects, also by other organisations if interested.

Normally one is making sure that the methods that RISE has used and developed are published so that they can be available and used by others. Often RISE is the organisation that knows the methods they have developed best, but if other organisations use them and use them as well as RISE, they have no problems with that either, although there are exemptions.

Methods for protecting intellectual property have changed a lot over the years. A long time ago all the focus was on patents. Today, that's not enough if the exclusionary rights are to remain strong throughout an invention's lifecycle. This is the reason why strategic publishing has become an important part of the IP strategy and to publish results are of special importance to FlexiGrid, since there are project objectives regarding that.

As a researcher, one might not aim to reach the market with your research results; the aim might be to make a career by publishing what has been accomplished. To publish results of the project is something that partners in the project should and will do. However, to publish results containing too detailed information, can cause premature disclosure and inhibit other partners in the project to file for patent.

It is important to let the other partners in the FlexiGrid-project read the text that is planned to be published before it is published. It is also important to check facts, so a partner does not publish any information that is classified as confidential by another partner. Therefore, a validation by all the involved partners is required.

In the CA it says: A beneficiary that intends to disseminate its results must give advance notice to the other beneficiaries of, unless agreed otherwise, at least 45 days, together with sufficient information on the results it will disseminate.

Any other beneficiary may object within, unless agreed otherwise, 30 days of receiving notification, if it can show that its legitimate interests in relation to the results or background would be significantly harmed. In such cases, the dissemination may not take place unless appropriate steps are taken to safeguard these legitimate interests.

You can create disclosures by publishing a validating text describing an invention publicly, with a clear publication date and authenticity. By having an accurate list, you will also feel more secure when you or someone else in the project are to publish public results. The list will show how much should or should not be revealed in an article, the Intellectual assets template for FlexiGrid including template for publishing.

According to the United-Grid Intellectual Assets Strategy Framework²⁰, a review system is preferable, before deciding to publish project results. The report recommends acting according to this before publication:

- Send the intended publication out to a review board, preferably with one representative from each organisation involved in the project
- If any of the parties wishes to postpone publication due to patenting, an objection should be made within two weeks²¹, (although in the FlexiGrid project it is 30 days, unless all partners agrees on something else, like for example two weeks).
- If any party wishes to file for patent, a delay in publication could be made for up to for example six months

This is a common way for Universities to operate and normally works well.²² Therefore this Intellectual Asset Strategy Framework is recommending that also the FlexiGrid project follows this procedure.

As discussed during the first WP-meetings²³, the WP-leaders of each WP will be responsible to communicate to the other WP-leaders if a new article, presentation for a conference needs to be provided. Then the Intellectual assets template for FlexiGrid including template for publishing will be updated. By default, readers and contributors may be the only people to approve. The review board mentioned in the bullet above will in the FlexiGrid project consist of the WP-leaders.

4.8 Different knowledge level regarding intellectual property rights

When SMEs and larger organisations work together, it often becomes clear that they don't have the same know-how regarding intellectual property rights. While a large, global company might have a whole department dedicated to legal issues, an SME might only consist of a few people and have no legal expertise at all within the company. Furthermore, SME's often can't afford to hire the legal competence needed to stand against a larger company.

5.0 CONCLUSIONS

Task 9.1 which will carry on until month 36. It involves identification of new knowledge, implementation of IP policy and intelligence. Whilst interviewing many of the participants and whilst writing this report, IMCG came to the conclusions described below.

²⁰ The Intellectual Assets Framework Strategy for FlexiGrid, Jan 2018

²¹ According to the FlexiGrid CA

²² Interview with David Steen, Postdoctoral Researcher, Chalmers University of Technology, 10 Jan 2020

²³ 19-20 Nov, 2019

Some of the partners in the project have been involved in similar projects before and understand the importance of having an IP policy in place for the project, especially in an innovative collaboration project such as this. Some are more inexperienced and have not come across or worked with IP issues before and are not entirely sure what it entails and the importance of it. Many researchers and larger companies do have set structures and procedures to deal with IP matters, sometimes their own department that deals with the matters, but far from all. Even if the companies do have expertise in this field, it is not sure that the person/s involved in the project are aware of that and know the importance of liaising with those experts. Smaller SMEs are more likely to neither have this knowledge, or the finance to deal with it on their own and might be dependent on external help.

5.1 Review in Action Groups

Action Groups in the FlexiGrid project were formed as a complement to the work in the Work Packages, (WP), to prevent the partners in the project to work in silos, as often becomes the case in projects like these.²⁴

Most partners, in projects such as the FlexiGrid, have full focus on their main tasks and deliverables, filling in an Intellectual Assessments Property Template might not be prioritised and easily get delayed or ignored. Some partners might also find the task a bit challenging, are not entirely sure how to approach the task of filling in the template.

To prevent the partners from delay or to ignore the filling in of the Intellectual Assessments Property Template, it would be of value for the project that all partners, before each Action Group meeting, (which should take place at least every six months) have filled in the template, or at least considered it (although the conclusion might be that there is nothing to fill in).

By doing it jointly, the for some considered a bit challenging task could be facilitated. By doing it together, questions and reflections might also pop up that could be beneficial for other partners and the project as a whole, which might not be the case, if all partners were to do it separately.

5.2 First time in workshop

The very first time it is filled in, it would be a good idea to do it in a workshop, with some help and guidance of how the organisations should approach the task. As all partners need to consider the IP matters as soon as possible. Therefore, the next consortium meeting would be a good time to do it, in September 2020.

²⁴ FlexiGrid Consortium meeting 16 -18 Dec 2019