



**AGENT-BASED
SUPPORT TOOL FOR
THE DEVELOPMENT
OF AGRICULTURE POLICIES**

D8.1 Report on IPR/ Exploitation Seminars



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Executive Summary

Within the framework of AGRICORE’s WP8-related activities, particularly in Task 8.1 “IPR management”, three IPR exploitation workshops were organized and held by partner AXIA aiming to support the project’s exploitation planning and provide a basis for the rest of the WP8’s activities. Given the current pandemic situation, in order to achieve the timely and successful implementation of the project those 3 workshops were held remotely in the form of online webinars. In addition to the workshops, the IPR management analysis was carried out utilizing IPR and exploitation questionnaires that were circulated amongst the project partners, providing valuable inputs, and gathering the required information. Finally, individual online meetings were held between the IPR management team and each of the project partners, aiming to result in a clear characterization of the partners’ IPR as well as their exploitation paths and IP protection intentions.

This deliverable summarizes the aforementioned work, illustrating how the 3 IPR workshops were used together with the individual meetings and the circulated questionnaires to support and optimize AGRICORE’s IPR management, boosting its potential impact. The presentations of the 3 workshops are illustrated and put into perspective on how they integrate to the general IPR management strategy of the project.

Additionally, the characterization and determination of the partners’ background and foreground coming into the AGRICORE project are presented. Based on this, the identification of the individual key exploitable results arising from the respective backgrounds is illustrated and cataloged. Moreover, the deliverable includes a draft analysis of the IPR management plan highlighting the exploitation roadmap per partner based on their individual Ker Exploitation Results. In particular, special attention was paid to the exploitation intentions of AGRICORE partners for their individual KERs. Such intentions incorporate the foreseen and the potential exploitation routes of those results, as well as the IP protection planning and important aspects of it.

This report will also be used as input for upcoming key activities of the project such as the AGRICORE Suite’s open-source software license selection in Task 8.4. Particular focus was placed on the concepts surrounding open-source software licenses in the IPR exploitation workshops. The key ideas behind them were discussed and various examples were provided, in the workshops as well as in the individual meetings, focusing on supporting the consortium in the selection process and providing basic background on the selection criteria. Furthermore, the KER characterization included the identification and targeted gathering of information that are necessary for the license selection, covering important aspects of the selection criteria (dependencies, derivative works, exploitation routes).

Abbreviations

Abbreviations	Full Name
DoA	Description of Action
EOSC	European Open Science Cloud
EU	European Union
FADN	Farm accountancy data network
FAIR	Findable, Accessible, Interoperable and Re-usable data
ICT	Information and Communication Technology
IP	Intellectual Property
IPR	Intellectual Property Rights
KER	Key Exploitable Result
KPIs	Key Performance Indicators
OpenAIRE	Open Access Infrastructure for Research in Europe
OSS	Open-source software
PEDR	Plan for the Exploitation and Dissemination of Results
TRL	Technology Readiness Level
WIPO	World Intellectual Property Organization

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1 Introduction

This deliverable presents the methodology applied in order to implement the *Task 8.1 IPR Management* within AGRICORE as part of *WP8 Exploitation, clustering, and open sourcing*. More specifically, the IPR Management of the project is facilitated through the organization of 3 different IPR exploitation seminars/ workshops within the first 18 months of the project. These workshops serve as a basis for the definition of clear exploitation roadmaps for the individual key exploitable results generated within AGRICORE as part of the overall exploitation strategy.

The purpose of the IPR exploitation workshops is to identify in an early stage of the project the intentions of the consortium regarding protection of their foreground, the connection of the individual key exploitable results to the AGRICORE suite as well as the desired exploitation goals of each partner.

The main outcome of the 3 IPR exploitation workshops is the characterization of all key exploitable results developed within the project starting with a clear definition of the individual KERs per partner based on the background claimed as well as the determination of the exploitation routes desired in combination with the appropriate protection means (where applicable).

In detail, the deliverable describes the implementation of the IPR Management and covers:

- IPR Management within AGRICORE
- A general introduction to Intellectual property rights
- IPR Management training within AGRICORE by describing the 3 IPR exploitation workshops held
- A detailed characterization of each key exploitable result by partner as the main outcome of the workshops

2 IPR Management within AGRICORE

The IPR Management within AGRICORE refers to the selection process of the legal protection means available for the individual key exploitable results generated by each partner, respecting the open-source concept of the project. The goal is to supplement and enrich the individual exploitation and dissemination strategy with relevant information regarding the background used, the foreground generated, and the legal protection forms available for a successful market deployment of each key exploitable result.

Exploitable background/foreground and its use

A key part of a successful IPR Management implementation is the identification of the background and expertise brought to AGRICORE by the consortium as well as the foreground (exploitable results) generated throughout the project's lifetime.

Definition of Background

According to the EC, background is defined as “any data, know-how, or information –whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights – that: (a) is held by the beneficiaries before they acceded to the [Grant] Agreement, and (b) is needed to implement the action or exploit the results”.¹

Definition of Foreground:

According to the EC, “foreground is defined as the tangible and intangible results which are generated within a given project, including pieces of information, materials, and knowledge and whether or not they can be protected. It includes intellectual property rights (e.g., copyrights, industrial designs, patents, plant variety rights), similar forms of protection (e.g., rights for databases) and unprotected know-how (e.g., confidential material). Results generated outside a project are not foreground”.²

Within AGRICORE, background and foreground have been defined in the Consortium Agreement (CA) and the Grant Agreement respectively and have been validated by all partners through the IPR questionnaire and the PEDR questionnaire developed and distributed by AXIA Innovation.

Note that within AGRICORE, the foreground to be generated is of twofold:

1. Individual key exploitable results for each partner
2. AGRICORE suite as the joint exploitable result of the whole consortium

Supervision

For the facilitation of the exploitation, dissemination and communication activities throughout the project, the Exploitation and Dissemination Team (EDT) is foreseen by the GA. The EDT is responsible for the:

- Supervision of the elaboration of the “Plan for Exploitation and Dissemination of Project's Results”.
- Preparation, distribution, and collection of the non-disclosure agreements to enable and facilitate information exchange between the project consortium, and the EEAB and other entities to collaborate with in the framework of related initiatives and clusters.
- Elaboration of the project information to be exchanged with other external entities in compliance with IPR issues, presentation of that information to the GA, and modification of the final documentation as required.
- Preparation and follow-up of the workshops, which will be distributed to the GA, so this feedback is included in the final “Plan for Exploitation and Dissemination of Project's Results”.

¹ <https://www.iprhelppdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Background-in-H2020.pdf>

² <https://www.iprhelppdesk.eu/glossary/f>

- Supervision of the IPR management.
- Follow-up of the communication actions programmed.

For post-project exploitation purposes the Exploitation and Dissemination Active Partnership (EDAP) has been foreseen to be established. The responsibilities of this committee include:

- The EDAP team would actively explore potential services offered using the developed AGRICORE suite.
- Once opportunities appear, the EDAP team would analyse the potential contributions (either active or in the form of foreground) required from each partner and will calculate a tentative proposal for the interested client of the services to be provided, which will be validated by all the partners involved.
- This proposal will be translated to the client and in case of acceptance, the EDAP team would coordinate the delivery of the contracted services, as well as of the corresponding distribution of the benefits generated.

3 Intellectual Property definition

According to the World Intellectual Property Organization, which has given a very comprehensive definition of Intellectual Property (IP): “Intellectual property refers to creations of the mind: inventions; literary and artistic works, and symbols, names and images used in commerce”.³

There are two concepts of Intellectual Property:

1. **Moral right:** Moral rights are a specific set of rights that belong to the creator of a work. The creator of Intellectual Property is able to protect both, the personal value and the value of this creation. This means that the creator keeps the moral right to disclose his creation publicly but also, has the right to set commercial exploitation conditions and protect its integrity.
2. **Economic right:** Regarding the commercial value of his creation, the author holds the exclusive right to exploit his creation. Also, the author has the legitimate right to prevent third parties from manufacturing, selling, and using the creation without authorisation. When someone infringes, then the author should take legal action against unlawful use of their literary, industrial, and artistic creations.⁴

3.1 Intellectual Property Rights

Intellectual property rights (IPR) are the rights derived from Intellectual property. There are six types of intellectual property rights: patents, trademarks, copyrights, trade secrets, industrial design, and databases. The main goal of Intellectual Property Rights is to enhance the incentives of creators to give birth to new creations, something which further creates new opportunities for jobs, new technological feat, enhancing, generally, the global economic growth, while giving the creator the right of using his work through licensing, selling, or retaining his property. IPR embolden creativity and allow the creator to profit from the advantage arising out of their creation. IPR related laws permit the investors to make a profit for their investments in the research and development fields.

3.2 IPR Categories

There are 6 types of IPR and each one of them fulfils a specific purpose. In particular:

1. **Patent:** is a form of intellectual property that provides its owner the legal right to rule out others from using or selling an invention for a certain period of time, 20 years. In most countries, patents underlie in private law and the holder can prevent infringers by legal actions. Patents cede to an invention – a product or process that provides a new way of doing something or offers a new technical solution to a problem. Also, Patents can be ceded for Products, Devices, Systems, Compositions, Processes, Methods and Use. ⁵
2. **Copyright:** is a kind of intellectual property that provides its owner the exclusive right of coping an innovative work for a restricted time. The innovative work might be in a literary, artistic, educational, or musical form but also software belongs to this category. Copyright targets to protect the primary expression of an idea in the form of a creative work, but not the idea itself. It should be mentioned that Copyright law is not fully harmonised at the EU and therefore, the national laws of the country in which the author seeks protection apply.

³ <https://www.wipo.int/about-ip/en/>

⁴ https://www.esa.int/About_Us/Law_at_ESA/Intellectual_Property_Rights/Frequently_asked_questions#a2

⁵ <https://www.wipo.int/patents/en/>

Nevertheless, some form of harmonisation has been achieved through the different EU directives.

3. Trademark: According to the WIPO, “Trademark is a sign capable of distinguishing the goods or services of one enterprise from those of other enterprises. Trademarks are protected by intellectual property rights.” The owner keeps the complete right to use the trademark in relation to those goods and services. Trademark registration is the strongest way to protect a brand, a way to secure that no one else uses it. ⁶
4. Industrial design: “Industrial design rights are intellectual property rights that make exclusive the visual design of objects that are not purely utilitarian.” An industrial design refers to the shape, configuration, or composition of pattern or colour, or combination of pattern and colour in a three-dimensional form containing aesthetic value. An industrial design can be a two- or three-dimensional pattern used to produce a product, industrial commodity, or handicraft.” Most countries cede industrial design rights for at least 10 years, although the duration varies in each country. ⁷
5. Database: “A database right is a sui generis property right, comparable to but distinct from copyright, that exists to recognise the investment that is made in compiling a database, even when this does not involve the "creative" aspect that is reflected by copyright.” Like copyright, Database Right is a right which exists as soon as the database exists in a recorded form. Database Rights have duration for 15 years from the end of the year in which the making of the database was completed or, if it was published during that period, 15 years from the end of the year in which the database was first made available to the public. ⁸
6. Trade secret: “Trade secrets are a type of intellectual property that comprise formula, practices, processes, designs, instruments, patterns, or compilations of information that have inherent economic value because they are not generally known or readily ascertainable by others, and which the owner takes reasonable measures to keep secret. In some jurisdictions, such secrets are referred to as confidential information.”. ⁹

⁶ <https://www.wipo.int/trademarks/en>

⁷ <https://www.wipo.int/designs/en/>

⁸ <https://www.pinsentmasons.com/out-law/guides/database-rights-the-basics>

⁹ <https://www.wipo.int/trademarks/en/>

4 European Union principles on open access, open science, and open data

4.1 Open science

Open science is the new approach to scientific progress based on the exchange of all available knowledge using new collaborative tools and digital technologies. Through open science, research and scientific achievements are now exchangeable on a global scale. Open science reinforces the idea of a change in the scientific world towards publicly funded science, making it more accessible, transparent, collaborative, and closer to citizens.

Sharing data, scientific knowledge and methodologies among scientists ensures transparency, improves the quality of research, and, more importantly, boosts its impact. It also increases public acceptance and inspires higher public engagement. Therefore, the European Commission has adopted and prioritized its open science policy in all its research and innovation activities and programs. In connection with the open science policy objectives, many initiatives have been taken, supporting among others research integrity and result reproducibility, citizens' engagement, modern and advanced highly efficient education of new European scientists and more research related objectives. Moreover, EU funded research projects are required to ensure public availability of any project-derived scientific publications and also to enable open access to all research data to the extent this is possible (FAIR=Findable, Accessible, Interoperable and Re-usable data).

The open-access concept in science encourages every scientific paper or study, to be published in an open-access repository for scientific publications or in an open archive. The OpenAIRE (Open Access Infrastructure for Research in Europe) is a platform and a recommended entry point for scientists and researchers to be used as an open access repository for their scientific publications. For further information and clarifications, you may visit the webpage: <https://www.openaire.eu/>.

The European Open Science Cloud (EOSC) (<https://eosc-portal.eu/>) aims to promote access to and reuse of research data from publicly funded research. Because open access to this data is not certain, the European Open Science Cloud came to solve the problem by making it easier to access open research data based on public funding. It is the common, open access point where all databases are interoperable and accessible to every researcher and scientist, who wants to know the achievements and results of long-term research, assisting in their own research goal. Therefore, the benefits of EOSC are vital for the scientific community.

Additionally, the European Open Science Cloud (EOSC) is related to the idea of the European Commission building a worldwide, accessible across several fields of study environment, in which researchers, innovators, companies, and citizens can use or reuse, find, publish, any data, tools, publications and other outputs for research, innovation and educational purposes.

For more information on open science policies please visit: https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science_en, or for particular initiatives such as OpenAIRE and EOSC you can visit respectively: <https://www.openaire.eu/>, https://ec.europa.eu/research/openscience/pdf/ospp_euro_open_science_cloud_report-pdf

However, the adoption of such an open science policy insinuates the careful consideration of issues related to Intellectual Property Protection and Intellectual Property Rights management. Openness in science and, in extension, in the process of innovation consequently calls for updated IP management practices compared to the ones traditionally used in “closed” innovation

schemes, based on secrecy in innovation and exclusivity in exploitation. These updated practices revolve around the ideas of co-creation, transparency, interoperability, and, of course, licensing.

4.2 Open-Source Software

Open-source software (OSS) is a type of computer software in which the source code is released under a license. The holder of this license grants users the rights to use, study, change, and distribute the software code to anyone and for any purpose. This fact allows a continuous development of the software. A source code is a human-readable text with the goal to set exact rules and specifications for the computer that can be translated into the machine’s language. Within AGRICORE it is foreseen to develop a customisable computational tool, based on agent-based modelling techniques, for supporting policy design, policy impact assessment and monitoring. The AGRICORE tool will be released under an open-source license allowing stakeholders to improve, modify or update the code following their specific needs and goals. In this regard, it is important to explore the concept of open-source software by assessing the main benefits and the necessities it covers. Among the benefits of open source for the average user, the most popular is its cost-effectiveness since the majority of OSS is distributed freely. Furthermore, open-source software grants a level of flexibility to programmers and developers by allowing them to have open access to the source code and creating unique solutions, which can then be built upon by other members of the open source community. (more information on OSS can be found under: <https://opensource.org/>).

A very crucial factor that must be considered when adopting the OSS concept is the choice of an appropriate OSS license. Here, aspects such as the compatibility of licenses when reusing codes from external projects and the business model that you would like to serve, are quite important.¹⁰

There are numerous existing licenses to choose from and each of them serves a different purpose having a different scope. In order to have a clear overview and understanding of these licenses along with their specific advantages and disadvantages the following information have been compiled and shared with the AGRICORE consortium.

There are two main categories of open-source licenses, as shown below:

Copyleft licenses	Permissive licenses
<ul style="list-style-type: none"> • Granting right to use, modify, and share creative works without the permission of the copyright holder. • Any derivative work must maintain the <u>reciprocity of the obligation</u> 	<ul style="list-style-type: none"> • Granting right to use, modify, and share creative works without the permission of the copyright holder. • <u>Permitting proprietary</u> derivative works

Table 1 Categories of Open-Source Licenses

Their basic difference is on how they allow and/or constrain any derivative works to be used, published, and distributed. Therefore, the choice of license for an open-source software is affected by the licenses of any existing dependencies and will same wisely affect the licenses of any future work based on this open software.

Consequently, the criteria typically used for making the decision of the open-source license can be categorized into 4 main categories:

¹⁰ <https://timreview.ca/article/416>



Figure 1 Criteria for Open-Source License Choice

Examples of factors that have to be taken into consideration regarding each of the aforementioned criteria are:

- Intentions for exploitation:
 - a. Go-to-market strategy
 - b. Target market
 - c. Desired exploitation routes
- Dependencies:
 - a. Existing dependencies will have their own open source licenses
 - b. Licenses need to be compatible
- Further development:
 - a. Who will be able to modify and/or contribute?
 - b. Will it be used by others as a dependency?
- Derivative works:
 - a. Will it be used in proprietary work?
 - b. Will it be used by large businesses?
 - c. Will it be used by open sourcing community

Three main examples of open source licenses used in software, that consist of probably the most popular and indicative examples of open source licenses available, are presented in the table below:

Name	Category	Summary of description
MIT License	Permissive	<ul style="list-style-type: none"> • Do whatever you want with this software if you add a copy of the original MIT license and copyright notice to it.
Apache License	Permissive	<ul style="list-style-type: none"> • Freely use, modify, and distribute. • Explicitly grants non-exclusive rights to users that can be applied to both copyrights and patents. • Must include a copy of the license and add modification notices to all the files that you modify. • The unmodified parts of the software must retain the Apache License. The modified parts can be released under different licenses.
GNU General Public License (GPL)	Copyleft	<ul style="list-style-type: none"> • Not allowed to claim patents or copyright on the software. Moreover, you are obligated to display a copyright notice, disclaimer of warranty, intact GPL notices, and a copy of the GPL. • Not allowed to change the license or introduce additional terms and conditions. • Reciprocity obligation, which means you are obligated to release the source code and all the rights to modify and distribute the entire code.

Table 2 Examples of Open-Source Licenses

The three examples presented above highlight the main differences among the different types of licenses indicating the potential opportunities arising from the correct choice of license. These examples were included and presented in the 2nd IPR workshop (as shown in later sections), however they are numerous more licenses already used in software around the world that need to be considered.

Below, several popular open-source licenses are presented highlighting their main aspects for the sake of illustrative examples. Please note that not all characteristics and particularities of these licenses are mentioned below, therefore a URL link is provided for each one so that any interested reader can find all necessary details.

GNU General Public Licence GPL v3	
Type	Strong copyleft
Main aspects	<ul style="list-style-type: none"> • It is the most well-known copyleft license • Contains one of the strongest and most uncompromising copyleft clauses. • Reciprocity obligation: modified or not, any code redistribution will have to maintain this license • Integration: GPL can not be effectively combined in a single program with any non-GPL software.
Advantages	<ul style="list-style-type: none"> • Good choice for software applications that are self-standing and that their development is desired to be distributable • Strong copyleft clause supports the maintenance of the GPL-released code as open source
Barriers	<ul style="list-style-type: none"> • Limited applicability in the case of contribution to work of a third-party • Not recommended for libraries • Can possibly prohibit the integration of any such work to commercial proprietary context

Table 3 GNU General Public Licence

GNU Affero General Public Licence AGPL v3	
Type	Strong copyleft
Main aspects	<ul style="list-style-type: none"> • Created by modification of GPL, aiming in particular to applications of software as a service (SaaS) distribution • Reciprocity obligation: modified or not, any code redistribution will have to maintain this license • Integration: AGPL can not be effectively combined in a single program with any non-AGPL software.
Advantages	<ul style="list-style-type: none"> • Good choice for SaaS applications that are self-standing and that their development is desired to be distributable • Strong copyleft clause supports the maintenance of the AGPL-released software and its code as open source
Barriers	<ul style="list-style-type: none"> • Limited applicability in the case of contribution to work of a third-party • Not suitable/Disputable for libraries • Can possibly prohibit the integration of any such work to commercial proprietary context

Table 4 GNU Affero General Public Licence

European Union Public Licence	EUPL v1.1
Type	Flexible copyleft
Main aspects	<ul style="list-style-type: none"> • Created to comply to particular requirements under European Union law but can be adopted by both private and public organizations. • Can also be applicable to software as a service (SaaS) distribution • Reciprocity obligation: modified or not, any code redistribution will have to maintain this license • Integration: Contains flexibility clause that was introduced aiming to tackle some issues that may arise with cross-compatibility of copyleft licenses (list is included in the license)
Advantages	<ul style="list-style-type: none"> • Created to comply with European legislation and can be adopted in all European languages. • Can also provide strong copyleft protection in the absence of conflicting copyleft components • The flexibility clause is offering advantages in integration with contributions that are issued under other copyleft licenses
Barriers	<ul style="list-style-type: none"> • Not suitable for any minor contributions to works of third-parties • Disputable for libraries • Can possibly prohibit the integration of any such work to commercial proprietary context

Table 5 European Union Public Licence

GNU Lesser General Public Licence	LGPL v3
Type	Weak copyleft
Main aspects	<ul style="list-style-type: none"> • Has been created, in particular for the distribution of libraries, as a modified version of GPL • It achieves a limitation of the consequences of the copyleft clause for certain integration types (e.g. dynamic linking) • Reciprocity obligation: modified or not, any code redistribution will have to maintain this license • Can permit the integration of software(/code) that is distributed under the LGPL license with third-party software without requiring the third-party to adopt the same LGPL license for their own software. This software can even be proprietary. For this to be done, techniques like dynamic linking have to be used, for instance.
Advantages	<ul style="list-style-type: none"> • Preferable in application such as libraries, plugin modules and/or any other ready-to-use functional applications that are to be used by other programs • Supports the utilization of components that are distributed as open source by commercial products
Barriers	<ul style="list-style-type: none"> • Software to be issued under this license should be designed to accommodate dynamic linking to maintain the advantages of LGPL. That might not be possible for certain programming languages or platforms in particular. Similarly, that might also be possible but it might lead to suboptimal software design of sorts. • Copyleft protection is weak, so third-party contributions might end-up not being as open.

Table 6 GNU Lesser General Public Licence

Mozilla Public Licence	MPL v2.0
Type	File-level copyleft
Main aspects	<ul style="list-style-type: none"> • Aims to balance the gap between proprietary and open source software development. • The weak copyleft clause included in the MPL license applies at file-level (for each file) • Reciprocity obligation: modified or not, any code redistribution will have to maintain this license • Integration: integrating MPL-licensed code to a large program can be done avoiding copyleft effects by placing the aforementioned code in separate files (file-level license). This is how the MPL-licensed code will remain under the same license while at the same time the rest of the software may be issued under any license, even proprietary.
Advantages	<ul style="list-style-type: none"> • Recommended for libraries, plugins or other ready-to-use functional applications to be used by other projects • Aiming by design to keep the code open source while allowing its integration with proprietary (commercial) products of third-parties • Instead of requiring dynamic linking like LGPL, MPL can also use static linking
Barriers	<ul style="list-style-type: none"> • Weaker copyleft clause compared to LGPL • Third-party components derived from or done using MPL-licensed code might end-up be distributed as closed source

Table 7 Mozilla Public Licence

Apache Licence	APLv2
Type	Permissive
Main aspects	<ul style="list-style-type: none"> • It can grant a license for copyrights but also for patents. • Any unmodified part of the source code needs to remain under the same license. All modified code can be issued under any license desired (including proprietary). All changes need to be listed • Integration: Integration of APL-licensed code to a larger software (/code) can be done by any choice of downstream distribution license
Advantages	<ul style="list-style-type: none"> • Permissive character of the license is supporting code integration to third-party works. • Cross-compatibility issues are highly unlikely to arise when pursuing integration of APL-licensed code with copyleft third-party components
Barriers	<p>The patent-related clause may affect the issuer’s patenting strategy, in particular to patents related to software operation.</p> <p>Not as easily readable as other permissive licenses</p>

Table 8 Apache Licence

Massachusetts Institute of Technology Licence	MIT Licence
Type	Permissive
Main aspects	<ul style="list-style-type: none"> • The most well-known permissive license, due to its simplicity and permissiveness • Any unmodified part of the source code needs to remain under the same license. All modified code can be issued under any license desired (including proprietary) • Integration: Integration of MIT-licensed code to a larger software (/code) can be done by any choice of downstream distribution license
Advantages	<ul style="list-style-type: none"> • Permissive character of the license is supporting code integration to third-party works • Very short and very simple • Cross-compatibility issues are highly unlikely to arise when pursuing integration of MIT-licensed code with copyleft third-party components
Barriers	<ul style="list-style-type: none"> • Not including express patent license. Not recommended for software that is patent-dependent

Table 9 Massachusetts Institute of Technology Licence

Berkeley Software Distribution Licence(2-clause)	BSD-2-clause
Type	Permissive
Main aspects	<ul style="list-style-type: none"> • Bare minimum license conditions • Any unmodified part of the source code needs to remain under the same license. All modified code can be issued under any license desired (including proprietary) • Integration: Integration of BSD-licensed code to a larger software (/code) can be done by any choice of downstream distribution license
Advantages	<ul style="list-style-type: none"> • Permissive character of the license is supporting code integration to third-party works • Very short and very simple • Cross-compatibility issues are highly unlikely to arise when pursuing integration of MIT-licensed code with copyleft third-party components
Barriers	<ul style="list-style-type: none"> • Not including express patent license. Not recommended for software that is patent-dependent

Table 10 Berkley Software Distribution Licence (2-clause)

5 IPR Management Training within the AGRICORE Project

In the framework of Task 8.1 IPR Management and based on the DoA, it is foreseen to organize 3 IPR exploitation workshops/seminars for the whole consortium. These seminars serve as a basis for the coordination and implementation of the protection of the intellectual property generated by each partner within AGRICORE and will be part of the exploitation strategy of the projects key exploitable results.

The specific targets and goals of these workshops are:

1. Workshop 1: Determination of background and foreground IP based on results from IPR questionnaires, the first identification of exploitable results from the identified foreground.
2. Workshop 2: Update on exploitable results, the definition of individual exploitation paths and protection means. Identification of contributions and exploitation claims on the exploitable results.
3. Workshop 3: First thoughts on Roadmaps towards exploitation. Set up of a roadmap for exploitation and market.

The idea behind the workshops is to identify and clarify in an early stage of the project (up until M18) issues, misconceptions and modifications/ changes from the DoA regarding the Key exploitable results and their means of protection. The material used for the implementation of the three IPR Workshops/seminars can be found in Annexes I, II and III respectively.

It is important to mention that within AGRICORE the exploitation strategy is twofold: a) Exploitation of the individual KERs (Individual exploitation) and b) exploitation of the AGRICORE suite (Joint exploitation). On the one hand a roadmap towards the exploitation of the individual key exploitable results of each partner is being developed while on the other hand a joint business model for the exploitation of the AGRICORE suite will be explored. Accordingly, the IPR management follows the same path. The means of protection for the individual key exploitable results may be different from the protection means chosen for the AGRICORE suite.

Additionally, an IPR questionnaire was developed and distributed to the partners with the target to define the background which they are bringing to the project (in order to identify any possible dependencies) as well as the foreground generated within AGRICORE and the IPR actions desired.

The screenshot shows the first section of the questionnaire. The title is 'Section 1 of 6: Questionnaire related to IPR Management within AGRICORE Project'. Below the title is a 'Form description' field. There is a required 'Email address' field with a red asterisk and a validation message 'Valid email address'. A note at the bottom of this section says 'This form is collecting email addresses. Change settings'. Below this is a navigation bar with 'After section 1' and 'Continue to next section'. The next section, 'Section 2 of 6: Partners Data', is partially visible, showing a 'Description (optional)' field and two 'Short answer text' fields for 'Name of your organisation' and 'Who is the leading person of this activity'.

Figure 2 IPR Questionnaire

The screenshot shows the third section of the questionnaire. The title is 'Section 3 of 6: Pre-existing Knowledge'. The goal is 'the identification of pre-existing knowledge to support the definition of the Background if it exists in relation to individual Key Exploitable Results and/or Joint Exploitation'. A text box defines background: 'According to the EC Background is defined as "any data, know-how or information - whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights that: (a) is held by the beneficiaries before the acceded to GA (b) it is needed to implement the action or exploit the results"'. Below this is a question: 'Does your entity bring to the AGRICORE project any kind of pre-existing knowledge?' with three radio button options: 'Yes', 'No', and 'Maybe'.

Figure 3 IPR Questionnaire

2. If yes, please indicate the type of this background

- Data
- Ontology structure
- Mathematical model
- Know-how
- Data analysis methodology
- Other...

3. Please provide further details about the pre-existing knowledge that your entity brings to the AGRICORE project

Long answer text

4. Are you your owner of the background?

- Yes
- No
- I own the background partially

Figure 4 IPR Questionnaire

5. In case a co-ownership exists (if not move to the next question), is there any contractual or legal limitation on the use of the background by your entity?

- Yes
- No
- Other...

6. Is this background related to:

- The achievement of project objectives
- The exploitation of my entities Key Exploitable Results
- The achievement of the joint exploitation goals
- Other...

7. For the implementation phase of the project, does the access to your entity's background require any legal restriction?

- Yes
- No
- Other...

Figure 5 IPR Questionnaire

8. For the exploitation phase of the project, is there any specific limitation or condition regarding the access rights of the background?

- Yes
- No
- Other...

After section 3 Continue to next section

Section 4 of 6

Results (Foreground)

Within this section the main goal is to provide some insights related to the joint exploitation of AGRICORE results. The questions are dedicated to ownership, protection of the results and IP rights attached to it.

9. The GA states (Section 2.2.4) that "the partners will explore a joint business model to provide services to policy impact assessment analysis". Towards this direction can you specify what type of consultancy/ service, derived from the project, will be provided by your entity?

Long answer text

10. Do you claim any IP protection to your specific contribution?

- Yes
- No

Figure 6 IPR Questionnaire

11. If yes please specify

Long answer text

12. The overall software development will be hosted on an open-source platform. In Open Source Software (OSS) there is still intellectual property to be claimed. Is any type of IP related to your contribution to the common exploitable results? If yes, please indicate

Long answer text

13. Many cases of OSS incorporate licensing that contains the permission and the certain conditions that the software can be modified. Please rate your knowledge - experience on the related licenses in the area of OSS.

1 2 3 4 5

Low ○ ○ ○ ○ ○ High

Figure 7 IPR Questionnaire

14. Open source licenses are standardized and easy to use. You can copy-paste an existing license directly into your project. The project very likely will have dependencies. For example, you'll probably use some data libraries. Each of those libraries you depend on will have its own open source license. All these aspects have to be considered before selecting the appropriate license. Below some indicative questions can be used as a guide to the selection of the most appropriate license.

	YES	NO	MAYBE
Do you want your project...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you want your project...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you want your project...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does your project will ha...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

After section 4 Continue to next section

Section 5 of 6

Related Reading

In this section, you may find some related references that might be useful to support the work that will be done in Task 8.4

- <https://opensource.guide/legal/>
- <https://www.industryweek.com/leadership/strategic-planning-execution/article/21957488/open-source-software-key-steps-to-avoid-ip-and-licensing-risks>
- <https://www.ipwatchdog.com/2017/05/13/how-to-participate-in-open-source-while-maintaining-ip-integrity/id-87858/>
- <https://blogs.dropbox.com/tech/2017/12/balancing-open-source-and-proprietary-ip-they-can-co-exist/>

Figure 8 IPR Questionnaire

5.1 1st IPR Workshop/seminar

The 1st IPR seminar was held in January 2020 (M05) in the form of a webinar hosted by the [European IPR Helpdesk](#) in order to build a common base of Intellectual Property Rights understanding within the AGRICORE consortium. The choice to have the first workshop covered by a professional organization was on purpose since the intention was to have this first contact/touch of the consortium with this sensitive issue of IP to be implemented by the EC experts. The webinar named “Introduction to IP” covered the most important aspects when it comes to intellectual property rights and the different means of protection available.

Summary:

The workshop started with the definition of intellectual property (“Results of creative efforts from the human intellect. Such creations have an intangible nature”) and the concept of Intellectual Property rights, indicating the different categories of IPR (copyrights & related rights, industrial property and “soft IP”). In this workshop the need for protection of intellectual property was explained since the ownership of IP itself does not automatically imply protection. Therefore, it is vital that any Intellectual Property asset is being protected, managed, and enforced. On this matter, the various IP protection tools were described which are:

- Patents and utility models: inventions
- Industrial designs: innovative designs
- Trademarks: brands
- And other rights (such as Geographical Indications)

Basic information regarding the general principles of IPR processes was analysed explaining:

1. The principle of Territoriality underlining that the exclusive rights are only applicable in the country or region in which a patent has been filed and granted, in accordance with the law of that country or region.
2. Rights Conferred: An IP right grants to its owner a monopoly on the product of the mind protected. Nobody without their authorization may use, commercialise etc. the protected item.
3. Duration of the Protection: Intellectual Property rights grant a monopoly on the intellect creation for a limited amount of time depending on the type of right that is protected e.g., copyrights 70 years after the death of the author, patents 20 years after the application, industrial designs 25 five years after the registration and trademarks indefinitely as long as renewal fees are paid.

The webinar also covered in detail the different individual IP rights (Patents, utility models, industrial design, trademarks, copyrights, and soft IP) along with their specific prerequisites for the registration processes as well as the accompanied costs (see pdf included below). In conclusion, the need for continuous monitoring of IP in relevant databases was encouraged in order to have a clear overview of the IP landscape and to avoid any infringements.

The presentation was shared with the consortium through the platform of Confluence which is used by the AGRICORE consortium for internal communication and file sharing.

5.2 2nd IPR workshop/ seminar

The second IPR workshop/seminar was scheduled for November 2020 and was held by AXIA Innovation for the whole AGRICORE consortium. The target of this workshop was to take one step ahead and dive into more details regarding IPR and the specific connection to the individual exploitation goals of AGRICORE's partners.

Summary:

The workshop was divided into five sections starting with general information and then analysing more AGRICORE-related matters. Specifically, the following topics were covered:

1. Introduction- IPR Management within collaborative research projects where the IPR agreements used in collaborative research project were presented focusing mainly on the consortium agreement as the most important document to be considered when it comes to the definition of the IPR Management strategy of a project.
2. General IPR Enforcement measures. This section basically provided partners with useful information on the importance of IP enforcement and listed all the existing mechanisms available to owners of an IP in order to avoid or restore the effects of IPR infringements.
3. Open-source software concept. In this section of the workshop, the basic idea of open source software was presented together with explanations of how redistribution works and the criteria to be considered for the choice of the appropriate license
4. AGRICORE's contractual obligations. Here the obligations to which the AGRICORE consortium committed were summarized based on the Grant Agreement and the Consortium Agreement since these 2 documents serve as a base for the IPR Management of the project. Additionally, the implementation of the twofold (individual & joint) exploitation strategy of the project was described indicating that attention, at this stage of the project and for this specific task of T8.1- IPR Management, should be given at the individual part.
5. Interesting answers to the IPR questionnaire. Finally, the last section of the workshop was dedicated to the IPR questionnaire and specifically to the most interesting answers provided by the consortium. The target was to present the conclusions that could be drawn from these answers as well as how they are directly connected to the license selection criteria.

The recorded presentation was shared with the consortium through the platform of Confluence which is used by the AGRICORE consortium for internal communication and file sharing.

5.3 3rd IPR Workshop/ seminar

The 3rd IPR workshop was held in February 2021 by AXIA Innovation in collaboration with Exelisis in the form of an online meeting with all the consortium partners present. This workshop was the last IPR workshop foreseen to be held within the task of IPR Management and thereby completes the series of seminars & workshops dedicated to the proper handling of the individual intellectual property generated by the partners. However, if the need arises, more meetings and discussions will be held among the consortium in order to clarify and solve all IP-related issues which may come up.

Summary

The 3rd IPR workshop was dedicated to the establishment of a roadmap towards the exploitation of the individual key exploitable results of the partners in connection with the IP protection means available for each specific situation/partner. The exploitation and IPR strategy for the individual KERs intended to be followed by each beneficiary are interconnected since the desired IP protection means directly affect the exploitation plans and vice versa. In general, the workshop focused on presenting the work done and planned related to IPR management and exploitation, the interconnection of those two and the purpose of this work. The workflow, that was followed, was explained while key aspects of AGRICORE IPR management were discussed. Finally the analysis of the exploitation roadmap of AGRICORE's results that will also be included in deliverable 8.1 was illustrated.

In particular, in the first part of the Workshop, the exploitation strategy of AGRICORE was quickly explained by distinguishing the joint and individual exploitation approaches foreseen. Partners were informed that within the IPR workshops the focus was on the individual exploitation routes of each KER but also about the necessity of the characterization of each KER in order to implement other tasks within WP8, mainly *Task 8.2 Roadmap towards exploitation of project results and Task 8.4 Open sourcing AGRICORE*. Moreover, AXIA & Exelisis presented the work accomplished in order to characterize each key exploitable result focusing on the dependencies to be considered and the connection with the open-source license choice and the overall AGRICORE suite. Finally, the detailed KER analysis per partner was explained to the consortium, which is the main outcome of all the IPR Workshops and 1-1 IPR meetings held in the first 18 months of the project.

The workshop was recorded and uploaded in the platform of Confluence which is used by the AGRICORE consortium for internal communication and file sharing.

6 Exploitation routes identified

6.1 Individual Exploitation

As a part of the individual exploitation strategy, AXIA has been working on a systematic exploitation audit for characterizing and analysing AGRICORE’s individual exploitable results. As a first step towards this, the exploitable results identified in the DoA have been confirmed by the partners in the PEDR questionnaire developed and distributed by AXIA. In order to define the protection means of the KERs identified, AXIA distributed the IPR questionnaire (see figures xxx) asking the partners to define their background and foreground as well as their intentions regarding the protection of the foreground. Supplementarily, it was decided to arrange individual 1-1 meetings with each partner of the consortium in order to update and enrich the initial information provided in the PEDR and IPR questionnaire.

Using the valuable output of these 1-1 meetings, the characterisation of the individual key exploitable results was possible following a template which includes 3 main sections: a) a clear definition of each key exploitable result, b) the intentions for protection of this key exploitable result by each partner and c) the exploitation routes desired. This template was used for each partner participating in the AGRICORE project and the results can be found in the next sections.

6.1.1 IDENER

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> Agent based modelling and mathematical optimisation expertise. Experience in the development of agent-based models and optimisation systems. IDENER is the owner of the background and, therefore, there are no limitations in the use of the background neither for the implementation nor exploitation phase of the project. 	Dependencies of IDENER’s IP have been identified and are to be taken into account in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> Large businesses - Yes Open-source community - Maybe

Table 11 IDENER’s Background

KER1 – Agent based modelling and agent-based simulation engines

KER Description	This key exploitable result constitutes a program or set of programs that allow the creation, modification, and operation of virtual representations (agents) of real elements, also enabling the autonomous establishment of interactions between them. Within AGRICORE the target is to simulate the operations and interactions of farms as autonomous decision-making entities (agent) who make decisions based on their current situation and expectations. This KER started at TRL 4 and aims to reach TRL 6 by the end of the project.
Keywords	<ul style="list-style-type: none"> Agent-modelling Agent-based simulation, Virtual representations, Microscopic modelling.
Ownership	100% IDENER

Table 12 KER1- Description

Exploitation routes:

IDENER decided to follow a market-oriented exploitation route, commercializing this KER by a) providing services to potential customers and b) exploiting it internally in terms of integrating the agent-based simulation engine in other suites developed by IDENER or third parties for other types of applications that need to detect emergent behaviours resulting from direct interactions between real persons, companies, or entities.

The expected time to market of this KER is estimated based on the progress of the work implemented in the relevant work packages of the project. Accordingly, IDENER estimates a) for the agent-based modelling 12 months after the completion time of the relevant WP (Month31) and b) for the agent-based simulation module 12 months after the completion time of the relevant WP (Month 39).

IP protection

IDENER stated that they are interested in an open-source license as a mean for IP protection of KER1. Specifically, the exploration of different types of open-source licenses (more permissive/ less permissive) for different parts of the code is desired in order to cover properly the necessity of compatibility with the AGRICORE suite as well as to serve the individual preferences of the company regarding the commercialization of KER1.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER2 – Synthetic population generation from probability distribution

KER Description	This key exploitable result is a set of algorithms and/or programs allowing the construction of an anonymized population of individuals according to a set of given probability density functions of the corresponding real individuals. This KER started at TRL 3 and aims to reach TRL 5 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Synthetic Populations • Anonymization, • Privacy-preserving agent-based modelling
Ownership	100% IDENER

Table 13 KER2- Description

Exploitation routes:

For KER2, IDENER targets scientific exploitation through subsequent research activities and through further involvement in research. In detail, the creation of synthetic populations for the subsequent construction of agents representing each of the members of the synthetic population may be of interest in other cases of public policy simulation or for the simulation of advertising/marketing activities, or for simulating labour relations in business environments while maintaining the anonymity of employees, for example.

The expected time to market is estimated based on the progress of the work implemented in the relevant work packages of the project. Accordingly, IDENER estimates 12 months after the completion of the synthetic population generator (M39). Note that “expected time to market” refers here as the time this result can be further exploited scientifically.

IP protection

Since the exploitation route desired for KER2 is exclusively scientific and research-oriented towards the further development of the KER, IDENER does not claim any IP protection at this stage.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER9: Software integration services

KER Description	This key exploitable result basically covers all the skills and knowledge derived from the functional integration of KER1 and KER2. The KER started at TRL 3 and aims to reach TRL 7 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Agent-based Modelling Suite • Privacy-preserving scenario generator, • Anonymized simulator
Ownership	100% IDENER

Table 14 KER9- Description

Exploitation routes

IDENER indicated their interest in exploiting this result based on a market-oriented approach by providing extension, customization, installation, and training services for the use of the AGRICORE suite, as well as for its use with other databases for the generation of other types of synthetic populations and therefore other applications based on non-agricultural agents.

The expected time to market is 6 months after the completion of the project (M48).

IP protection

IDENER did not indicate any need for special IP protection for KER9 since this result just adds one more revenue stream for the company by providing services for specific applications.

Correlation to the AGRICORE suite: This KER will not constitute a dependency of the AGRICORE suite.

6.1.2 Aristotle University of Thessaloniki (AUTH)

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> • Access to Greek FADN Data and data for the Greek case study • Non-linear dynamic modelling (in agriculture) • Econometric and mathematical programming, informatics • Big data (extraction/fusion) 	Dependencies of AUTH’s IP have been identified and are to be taken into account in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> • Large businesses - Yes • Open-source community - Maybe

Table 15 AUTH’s Background

KER3 – Database combination and fusion modules

KER Description	This key exploitable result refers to the development of a specific methodology for data analysis for the generation of the synthetic population for each country/ use-case of AGRICORE. In detail, AUTH will use the data provided from the FADN of the three use cases of AGRICORE (Spain, Poland, Greece) in order to generate a synthetic population for each country. Accordingly, this KER is a methodology – know-how, used in the future for the assessment of agricultural policy-making measures (e.g., CAP). The KER started at TRL 4 and aims to reach TRL 7 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Data fusion module, • Synthetic population, • Database
Ownership	100% AUTH

Table 16 KER3- Description

Exploitation routes

AUTH indicated that KER3 will be exploited following exclusively a scientific- oriented approach. This will be implemented by publications of scientific papers, PhD thesis, presentations of the methodology in scientific conferences, further research activities in the field and teaching.

IP protection

AUTH indicated that they are interested in exploring the possibilities of an open-source license as a form for IP protection of this KER.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

6.1.3 AXIA Innovation

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> Specialized experienced in Project Management, Innovation Management, Knowledge Transfer, and Communication and Design. Expertise in exploitation and dissemination planning for collaborative EU-funded projects. Experience in IPR management, in particular related to software licensing. 	Dependencies of AXIA’s IP have not been identified; therefore, no limitation is carried on in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> Large businesses - Yes Open-source community - Yes

Table 17 AXIA’s Background

KER10 – Consultancy services in the agricultural area

KER Description	This Key Exploitable Result relates to the specialization of consulting service provision for open-source software in the agricultural sector. In particular, AXIA aims to capitalize on the experience to be gained in exploitation and innovation management of the AGRICORE tool, focusing on its application as a policy impact assessment software tool aiming at policymakers and legislators on European as well as national/regional level. The KER started at TRL 4 and aims to reach TRL 8 or 9 by the end of the project
Keywords	<ul style="list-style-type: none"> Agricultural policy change Agricultural innovation consulting Policy assessment software exploitation Open-source software innovation
Ownership	100% AXIA

Table 18 KER10- Description

Exploitation routes

AXIA's desired exploitation route for this KER would be through market-oriented exploitation.

In detail, the market-oriented exploitation includes the following activities:

- Provision of services in the agricultural sector/ to agricultural policymakers
- Relevant software license-related consulting

AXIA is aiming to exploit this result of AGRICORE by providing its services in the agricultural sector. Such services can include technology transfer and innovation management services to targeted stakeholders in agriculture as well as to relevant policymakers. Provision of IPR and innovation management services in future research projects is also included within this scope. Additionally, the experience gained in this result can be directly exploitable in the provision of specialized consulting services regarding the development of software (and in particular open-source software) and the selection of appropriate licenses for it. Potential provision of services in any derivative works of the AGRICORE Suite is also considered.

The expected time to market is the end of the project's duration.

IP protection

This KER is essentially know-how and experience in service provision for which AXIA does not plan to claim any IP protection.

The KER has also no direct connection to the development of the AGRICORE suite (it will not constitute a dependency itself).

6.1.4 University of Parma (UNIPR)

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> • Access to Data and, specifically, access to the Italian FADN. Note that, UNIPR is not the owner of the background but access is facilitated by a long term relationship with the data provider. Specifically, data may be released only to UNIPR and access may not be extended to other partners of the project for the implementation phase of the project. However, there are no restrictions in the exploitation phase. • Mathematical model. Although it could be characterised also as know-how, work done by Michele Donati and Filippo Arfini may be translated to be used in the AGRICORE Project. UNIPR is the owner of this background so there are no legal restrictions either in the implementation phase or the exploitation phase. • Know-how: All the UNIPR researchers involved in the AGRICORE Project bring to the consortium and to the activities their unique and distinctive know-how of both how research is carried out and in the respective research areas, based on their varying levels of experience. UNIPR is the owner of this background so there are no legal restrictions for the implementation or the exploitation phase. • Data analysis methodology. Marco Riani and his team have done extensive work on data analysis, which is actually their area of research. This background is mainly associated with the work to be undertaken in WP2-Synthetic population generator. UNIPR is the owner of this background so there are no legal restrictions for the implementation or the exploitation phase. 	<p>Dependencies of UNIPR’s IP might be identified and, in that case, will have to be taken into account in IP protection within AGRICORE suite licensing and derivative works.</p>	<p>Intentions for the following KER(s) to be appealing for future exploitation and derivative works to:</p> <ul style="list-style-type: none"> • Large businesses - Maybe • Open-source community - Yes

Table 19 UNIPR’s Background

KER4 – Socio-economic impact assessment module

KER Description	This key exploitable result relates to the mathematical formulation of the equations necessary to describe the effects of policy changes in the economic, environmental, and bureaucratic domains of agricultural policy on the socio-economic characteristics of farms and rural territories. The KER started at TRL 1 and aims to reach TRL 7 or 8 by the end of the project
Keywords	<ul style="list-style-type: none"> • Impact assessment module
Ownership	100% UNIPR

Table 20 KER4- Description

Exploitation routes

UNIPR indicated that their desired exploitation route for this KER would be two-folded: a) market-oriented exploitation as well as b) scientific exploitation. UNIPR is also interested in other types of exploitation such as policy briefing.

In detail, the market-oriented exploitation includes the following activities:

- Provision of services
- Patent
- Copyright licenses
- Open or copyleft licenses

Specifically, UNIPR considers the provision of analyses of the socio-economic impacts of changes in the agricultural policy as a service to institutions/policymakers/concerned parties, upon which this service is paid for in the form of a grant or a salary. Supplementarily, UNIPR is also examining the possibility to include in their exploitation intention the a) theoretical construction of additional existing and forthcoming policy scenarios and b) providing consultancy services on the technical extension to the model, demonstrating how to work in potential use cases and benchmarking (i. e., providing an initial estimate of the results) based on the outcomes of existing use cases.

The scientific-oriented exploitation mainly constitutes teaching and teaching-related activities since UNIPR is a teaching, research, and public engagement institution.

Other Types of Exploitation: Since KER 4 is directly related to policymakers and researchers, the field of policy development and reform would be of high interest. Here, UNIPR could exploit the outcomes of this KER to inform policy-making and/or policy reform.

The expected time to market is at the end of the project or based on the availability of a suitable remuneration of labour.

IP protection

UNIPR indicated their interest in exploring various options for IP protection, especially, patent, Copyright licenses or Open or copyleft licenses.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER11- Experience on data sources for agricultural analysis

KER Description	This key exploitable result consists of the possibility to exploit the knowledge acquired during the project in identifying, sourcing, and securing relevant data for (agricultural) policy analysis. The KER started at TRL 2 and aims to reach TRL 6 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Impact assessment module
Ownership	100% UNIPR

Table 21 KER11- Description

Exploitation routes

UNIPR indicated that their desired exploitation route for this KER would be two-folded: a) market-oriented exploitation as well as b) scientific exploitation. UNIPR is also interested in other types of exploitation such as policy briefing.

Specifically, for the market-oriented exploitation, UNIPR foresees the provision of services as the main option. In detail, the knowledge of datasets acquired and improved during the project will be instrumental in providing consultancy services to institutions or entities willing to develop their own research projects or improve their data collection processes.

For scientific exploitation UNIPR indicated the following activities:

- Publication Conferences
- Subsequent research activities
- Teaching
- PhD thesis
- Further involvement in research. This knowledge will be quite readily exploitable in new research endeavours, allowing research contributions to be innovative and possibly, easily publishable.

Other types of exploitation include:

- Policy brief or roadmap
- Societal activity
- Policy change

The expected time to market (for all types of exploitation) is estimated to be at the end of the first year of the project.

IP protection

This KER is basically a methodology-development result for which UNIPR does not plan to claim any IP protection.

The KER has also no direct connection to the development of the AGRICORE suite (it will not constitute a dependency itself).

6.1.5 STAM srl

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> Data analysis methodology. Stam brings, as an engineering company, skills related to IT services development and data analysis to the project. STAM is the owner of the background so there is no limitation in the use of the background for the implementation nor the exploitation phase. However, there are some legal restrictions. 	Dependencies of STAM’s IP have been identified and are to be taken into account in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> Large businesses - Yes Open-source community - Maybe

Table 22 STAM’s Background

KER5- Semantic APIs and ontologies

KER Description	This key exploitable result has as an overall goal to develop a semantic engine. The process includes the definition of the required ontologies (data model framework to sort datasets) for the characterisation of data sources that are useful for conducting policy impact assessment in the field of agriculture. The definition of the required ontologies will enable the use of semantic technologies. The KER is directly related to the ARDIT Tool since the semantic APIs are code that will be used to retrieve information from this tool. This code is directly related to data indexing and will guide the browsing through the datasets represented within ARDIT. The KER started at TRL 6 and aims to reach TRL 8 by the end of the project.
Keywords	<ul style="list-style-type: none"> Ontologies, Agriculture, Semantic,
Ownership	100% STAM

Table 23 KER5- Description

Exploitation routes:

STAM, being an SME, targets market-oriented exploitation by commercializing KER5 by providing the knowledge gained for the creation of the project ontologies as a service to potential customers but also through an internal exploitation approach, using the KER within the company to develop new ICT tools.

The expected time to market is estimated to be at the end of the project.

IP protection

STAM is open to exploring all the options available and suitable for the protection of KER5. At this stage, it is not possible to indicate a specific form of IP protection.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER6 – Georeferenced information display libraries

KER Description	This key exploitable result constitutes of visualisation tools used for displaying the georeferenced information resulting from the AGRICORE analysis execution. It is basically a georeferenced information system that will display and take into account location data such as soil quality data, land use, water quality and emissions/pollution measurements. The KER started at TRL 6 and aims to reach TRL 8 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Geospatial, • sources, • upscaling, • downscaling, • georeferenced
Ownership	100% STAM

Table 24 KER6- Description

Exploitation route:

STAM, being an SME, targets towards a market-oriented exploitation by commercializing KER6 by providing the knowledge gained for the creation of the project ontologies as a service to potential customers but also through an internal exploitation approach, using the KER within the company to develop new ICT tools.

The expected time to market is estimated to be at the end of the project.

IP protection

STAM is open to exploring all the options available and suitable for the protection of KER6. At this stage, it is not possible to indicate a specific form of IP protection.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

6.1.6 IAPAS

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> • Database on mineral nitrogen content in Poland. However, these data can be used only if National Chemical/Agricultural Station gives permission. Accordingly, there are restrictions on the use of these data. 	Dependencies of IAPAS’s IP have been identified and are to be taken into account in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> • Large businesses - Maybe • Open-source community - Maybe

Table 25 IAPAS’s Background

KER7 – Connection modules for biophysical model interconnection

KER Description	The connection of the AGRICORE tool with the BioMa platform will be established through the development of a dedicated model interaction module that enables the use of the extensive library of biophysical models contained in BioMa. An additional model interaction module will be developed for connecting BioMa (and potentially, any biophysical model) with the ARPEGE model. In addition, extensive testing activities will be done to ensure the future straightforward connection to other biophysical models. The KER started at TRL 1 and aims to reach TRL 6 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Connection modules, • BioMa platform, • ARPEGE, wrapper, • biophysical models, • crop modelling
Ownership	100% IAPAS

Table 26 KER7- Description

Exploitation route

IAPAS will exploit KER7 both, with a market-oriented as well as scientific- oriented, approach.

The market-oriented exploitation relates mainly to the connection modules of the AGRICORE suite and will be implemented by using an open/ or copyleft license. Specifically, the software serving as a connection module for biophysical model interconnection will be implemented into AGRICORE Suite and used as one of its core parts further on. Therefore, connection modules will be exploited for market purposes in the same way as the whole AGRICORE Suite.

For the scientific exploitation, IAPAS plans to use the developed software in subsequent research activities related to the connection of various crop growth models to compare their results and create a robust ensemble for producing consistent results. The developed software solution will be also used in further stages of research as a core part of AGRICORE suite to assess impacts in the planned use case while the results of those studies will be scientifically published.

The expected time to market is in M34 when the tested and validated software solution will be delivered.

IP protection:

IAPAS indicated that they are interested in protecting KER7 through licensing. The exact type of the license will be defined in a later stage of the project once dependencies are clear and compatibility issues solved.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER8 – Environmental and climate impact assessment

KER Description	The goal of this KER is the development of an impact assessment module (IAM) for the purpose of evaluating 1) the impacts of agriculture on the environment and the climate and 2) the impact of climate change on how much food can be produced and where. To do so, the proposed IAM will provide two main functionalities: providing regional climatic patterns as an input to the agent-based models and computing main Key Performance Indicators (KPIs) related to the environmental and climatic impact assessment of policies. The list of KPIs to be provided by the module includes land conversion and habitat loss, wasteful water consumption, soil erosion and degradation, pollution, genetic erosion, and climate change. The KER started at TRL 1 and aims to reach TRL 6 by the end of the project.
Keywords	<ul style="list-style-type: none"> • Impact assessment, • Agriculture, • Environment, • Climate change, • Food security, • Assessment of policies, • Impacts of farming
Ownership	100% IAPAS

Table 27 KER8- Description

Exploitation route

IAPAS will exploit KER8 both, with a market-oriented as well as scientific- oriented, approach.

Regarding the market-oriented exploitation, software serving as an impact assessment module will be integrated into the AGRICORE suite and used as one of its core parts further on. Therefore, impact assessment modules will be exploited for market purposes in the same way as the whole AGRICORE Suite.

As for scientific exploitation IAPAS plan to use the developed software in further stages of research as a core part of AGRICORE suite in order to assess impacts in the planned use case and the results of those studies will be scientifically published.

The expected time to market is in M36 of the project when the tested and validated software solution will be delivered.

IP protection:

As in KER7, IAPAS indicated that they are interested in protecting KER8 through licensing as they will use the same code for both KERs. The exact type of the license will be defined in a later stage of the project once dependencies are clear and compatibility issues solved.

Correlation to the AGRICORE suite This KER will constitute a dependency of the AGRICORE suite.

6.1.7 Ayesa Advanced Technologies

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> Knowledge on software development Access to GridPilot. GridPilot is Ayesa's tool which could be used as a base where the layer of visualization generated within AGRICORE can be integrated. For the implementation phase of the project access rights for use of GridPilot by Ayesa Advanced Technologies will be granted solely for the AGRICORE project partners within the frame of the project. For the exploitation phase access rights are not granted. Therefore, an agreement should be done. 	Dependencies of Ayesa’s IP have been identified and are to be taken into account in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> Large businesses - Maybe Open-source community - Maybe

Table 28 Ayesa’s Background

KER13 – Data Warehouse design providing advanced data analytics capabilities

KER Description	The goal of this key exploitable result is to design and implement a data warehouse suitable for supporting the analyses examined within AGRICORE. Specifically, KER13 refers to a back-end platform that gathers data for future storage in the data warehouse. The data structure allows analysis using machine learning advanced techniques with the main target of enabling data exploitation. The data warehouse will include easy-to-manage access permissions and its design will support both private and public cloud infrastructure deployment.
Keywords	<ul style="list-style-type: none"> Big Data, Data, Data Warehouse, Assessment
Ownership	100% AAT

Table 29 KER13- Description

Exploitation route

Ayesa targets market-oriented exploitation for KER13 implemented by the provision of services as well as exploiting it internally within the company. This exploitation can be followed by integrating this visualization tool in the current existing proprietary platform of Grid Pilot (which is a result of another H2020 project). The gained knowledge and the created tool can be an input for this existing platform.

The expected time to market is estimated at around 5 years since Grid Pilot is already being partially exploited and the inclusion of the new results generated within AGRICORE can be reached within the next 5 years.

IP protection

Ayesa indicated their interest in assessing how their software could be protected considering this specific situation of Grid Pilot usage and protection.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER14 – Interface tailored design and implementation for data analysis purposes

KER Description	This key exploitable result refers to a front-end platform that allows the visualization of big data in order to let the user obtain conclusions and provide assessment thanks to the structure developed on any other existing back-end.
Keywords	<ul style="list-style-type: none"> • Big Data • Visualization • Interface • Data • Data Warehouse, • Assessment
Ownership	100% AAT

Table 30 KER14- Description

Exploitation route

Ayesa targets market-oriented exploitation for KER14 implemented by the provision of services as well as exploiting it internally within the company. This exploitation can be followed by integrating this visualization tool in the current existing proprietary platform of Grid Pilot (which is a result of another H2020 project). The gained knowledge and the created tool can be an input for this existing platform.

The expected time to market is estimated at around 5 years since Grid Pilot is already being partially exploited and the inclusion of the new results generated within AGRICORE can be reached within the next 5 years.

IP protection

Ayesa indicated their interest in assessing how their software could be protected considering this specific situation of Grid Pilot usage and protection.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

KER18 – Big data visualization for analysis and assessment

KER Description	Provide a central data storage system for all the information compiled to allow data management assessment along with its visualization. Data visualization is a key factor to let end users have a clear understanding of the assessment and conclusions provided. This Exploitation result would combine both back-end and front-end and will provide a fully working platform to make the most of data storage and visualization synergy. Notes regarding this point: Ayesa is going to provide an architecture for information storage, but it is not centralized. There will be a centralized directory of links to the source repositories that are distributed and then there will be local architectures that directory and they download the information they need locally. This has been a requirement that has been requested by the rest of the partners.
Keywords	<ul style="list-style-type: none"> • Big Data • Visualization • Interface • Data • Data Warehouse • Storage
Ownership	100% AAT

Table 31 KER18- Description

Exploitation routes

Pending to Ayesa Tech Team.

IP protection

Ayesa indicated their interest in assessing how their software could be protected considering this specific situation of Grid Pilot usage and protection.

Correlation to the AGRICORE suite: This KER will constitute a dependency of the AGRICORE suite.

6.1.8 Cooperativas Agro-alimentarias de Andalucía (CAAND)

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> Access to data from official authorities (Regional Ministry of Agriculture, Livestock, Fisheries and Rural Development of Andalucía). Restrictions apply in the use of personal data. CAAND has around 650 partner-cooperatives from different agricultural sectors, 390 of which belong to the olive sector in Andalusia. This high number of cooperatives allows CAAND to have a representative sample of the Andalusian olive sector, allowing the AGRICORE project to develop the Spanish use case, both for participatory research and for the implementation of the AGRICORE tool "in situ". 	<p>Dependencies of CAAND's IP might be identified and, in that case, will have to be taken into account in IP protection within derivative works.</p>	<p>Intentions for the following KER(s) to be appealing for future exploitation and derivative works to:</p> <ul style="list-style-type: none"> Large businesses - Yes Open-source community - Yes

Table 32 CAAND's Background

KER15 – Participatory research activities design for the agricultural sector

KER Description	This key exploitable result refers to the development of the strategy in order to implement the participatory research activities as part of the use case studies of AGRICORE. This includes the identification of the gaps, the selection of the stakeholders (policymakers, farmers, associations, policy executioners, national/regional governments) that have the knowledge required for filling such gaps and the selection of the appropriate participatory research action (e.g., surveys, interviews).
Keywords	<ul style="list-style-type: none"> Participatory research, agriculture, interviews
Ownership	100% CAAND

Table 33 KER15- Description

Exploitation routes

CAAND, as a regional farmer association, is interested in exploiting this KER by offering their knowledge and methodology acquired through the AGRICORE project as consultancy services for policy briefing and changes in the development of agricultural policies to public administration institutes.

IP protection

CAAND indicated that their main role is to implement the participatory research activities design based on the work plan defined as well as to facilitate access to various datasets required for the development of the Spanish use case foreseen in AGRICORE. Therefore, IP protection is not needed nor desired in their specific case.

Correlation to the AGRICORE suite: the data generated by the participatory research will “feed” the AGRICORE suite. However, there are no dependencies to consider regarding coding and software programming.

6.1.9 Akdeniz University (AKD)

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> Data analysis methodology. No restrictions for the implementation or the exploitation phase of AGRICORE. Agricultural policy analysis using partial and general equilibrium models. No restrictions for the implementation or the exploitation phase of AGRICORE. 	Dependencies of AKD’s IP have not been identified; therefore, no limitation is carried on in IP protection within AGRICORE suite licensing and derivative works.	Intentions for the following KER(s) to be appealing for future exploitation and derivative works to: <ul style="list-style-type: none"> Large businesses - Maybe Open-source community - Yes

Table 34 AKD’s Background

KER 17 – Models of agricultural products and land market

KER Description	This key exploitable result refers to the methodology developed in order to define optimized models for land markets at crop-basis and agricultural products based on an extensive analysis of scientific literature. The goal is to develop modules that will properly consider the interaction of the agents regarding the use and transfer of land, as well as modules that enable the modelling of market interlinkages and are simulating the dynamics of production market prices. These models will be adapted to AGRICORE tool.
Keywords	<ul style="list-style-type: none"> Industry 4.0, agricultural policy analysis, agricultural policy impact assessment using advanced modelling, agricultural policy analysis using Industry 4.0 technology
Ownership	100% AKD

Table 35 KER17- Description

Exploitation route:

AKD desires an exclusively scientific- and research-oriented exploitation strategy following the below activities:

- Subsequent research activities
- Teaching
- PhD thesis
- Further involvement in research

AKD is also highly interested in the further extension of the land and market model for Turkey after the completion of the project and in the provision of consultancy for agricultural policy

impact assessment to national public authorities and institutions. The post-project exploitation of this KER for national applications (extending the work of AGRICORE to a Turkish case study) is desired.

The expected time to market is estimated around the third year of the project.

IP protection

AKD indicated that their main outcome is a research methodology for the optimized development of modules and, therefore, will not intend to protect KER17 in any form.

Correlation to the AGRICORE suite: The modules which will be generated by the methodology developed by AKD will be used in the AGRICORE suite. However, there are no dependencies to consider regarding coding and software programming.

6.1.10 University of Science and Technology (UTP)

Background	Dependencies	Exploitation intentions/ Derivative works
<ul style="list-style-type: none"> • Access to data through the polish FADN. Restrictions apply to the use of private/ personal data. • Data analysis methodology, domain knowledge on agriculture, climate, and environment. Furthermore, the application of ICT to solve agribusiness and rural areas problems. UTP is the owner of the background. Therefore, no restrictions either for the implementation nor the exploitation phase of the project. 	<p>Dependencies of UTP’s IP have not been identified; therefore, no limitation is carried on in IP protection within AGRICORE suite licensing and derivative works.</p>	<p>Intentions for the following KER(s) to be appealing for future exploitation and derivative works to:</p> <ul style="list-style-type: none"> • Large businesses - Maybe • Open-source community - Maybe

Table 36 UTP’s Background

KER16 – Consulting and modelling services in the agricultural area

KER Description	This key exploitable result refers to the utilization of the biophysical and ecosystem services modules by offering professional consultancy reports, training, and agricultural advisory services to stakeholders in the agricultural area such as The Agency for Restructuring and Modernisation of Agriculture (ARMA), farmers and farmers' organisations.
Keywords	<ul style="list-style-type: none"> • Environmental and eco-services modelling, • Indicators of climate change, Determination of irrigation needs, • Assessment of increase in extreme natural phenomena, • Indicators of environmental pollution,
Ownership	100% UTP

Table 37 KER16- Description

Exploitation route:

The exploitation route desired by UTP is twofold and includes both, market-oriented and scientific exploitation.

The Market-oriented exploitation will be implemented by offering consultancy services to various stakeholders in the agricultural area.

The scientific exploitation consists mainly of teaching implemented by teaching relevant subjects within the Management and Manufacturing Engineering study program. Part of the scientific

exploitation are also publications in conferences. The following have been already identified by UTP:

- IBIMA Conference - International Business Information Management Association 2020/2021
- NATIONAL CONGRESS of AGROMETEOROLOGISTS AND CLIMATOLOGISTS entitled "CLIMATE, ENVIRONMENT, ECONOMY, SOCIETY 2020/2021

Additionally, UTP plans to organize a common (by IAPAS & UTP) scientific and business conference, preferably in September 2021 (traditional, remote or hybrid form) for stakeholders including representatives of public administration institutions responsible for agro-climate-environmental policies, farmers' organizations, and agricultural advisory centres. There UTP will be present the main goals and ideas of the AGRICORE project and inter alia partial findings from participatory research and/or AGRICORE suit application results based on Agent-Based Modelling and the synthetic population of farms.

IP protection

UTP indicated that their main outcome is research methodology and, therefore, they might not intend to seek explicit IP protection for KER16, but they would like to maintain the prospect of exploring such a possibility (including maintaining copyrights of the IP referring to their KER outside the joint exploitation business model of AGRICORE). However, UTP indicated that the IPR strategy to be followed will be further clarified at later project stages.

Correlation to the AGRICORE suite: The modules which will be generated by the methodology developed by UTP will be used in the AGRICORE suite. However, there are no dependencies to consider regarding coding and software programming.

The above information is also summarized in the below table providing a quick and clear overview:

Partner	KER	IP Protection	Exploitation routes
	KER1: Agent based modelling and agent-based simulation engines	Open source license	Market-oriented exploitation
IDENER	KER 2: Synthetic population generation from probability distribution	N/A	Scientific-oriented
	KER9: Software integration services	N/A	Market-oriented
AUTH	KER3: Database combination and fusion modules	Open source license	Scientific-oriented
AXIA Innovation	KER10: Consultancy services in the agricultural area	N/A	Market-oriented
	KER4- Socio-economic impact assessment module	Patent, Copyright licenses, or Permissive/copyleft licenses.	Market- and scientific oriented
UNIPR	KER11- Experience on data sources for agricultural analysis	N/A	Market-oriented, scientific oriented and policy briefing
	KER5- Semantic APIs and ontologies	TBD	Market-oriented
STAM	KER6- Georeferenced information display libraries	TBD	Market-oriented
IAPAS	KER7- Connection modules for biophysical model interconnection	License	Market- and scientific oriented
	KER8 – Environmental and climate impact assessment	License	Market- and scientific oriented
	KER13- Data Warehouse design providing advanced data analytics capabilities	TBD	Market-oriented
Ayesa	KER14 – Interface tailored design and implementation for data analysis purposes	TBD	Market-oriented
	KER18- Big data visualization for analysis and assessment	TBD	TBD
CAAND	KER15 – Participatory research activities design for the agricultural sector	N/A	Policy briefing
AKD	KER 17 – Models of agricultural products and land market	N/A	Scientific- oriented
UTP	KER16- Consulting and modelling services in the agricultural area	TBD	Market- and scientific oriented

Table 38 Summary of KERs

7 Conclusions

AGRICORE is a promising high-impact EU-funded research project with certain particularities that need to be given special consideration. The project is aiming to create an open-source tool that will use state-of-the-art agent-based modeling techniques to assess the socio-economic impact of agricultural policy. The open-source nature of the AGRICORE Suite's exploitation is one of those particularities that requires special attention in the project's IPR management and exploitation planning. Therefore, together with traditional analysis of the project's IPR and their exploitation roadmap, a lot of focus has been placed on a more general understanding of the open-source software concept, how this concept is related to AGRICORE's implementation and any issues that may arise therein.

Furthermore, AGRICORE's exploitation plan makes a meaningful and explicit categorization of the exploitation related activities to individual and joint exploitation. The plan regarding the joint exploitation of the AGRICORE Suite will be analyzed within the projects' Plan for Exploitation and Dissemination of Results deliverables. Here the work associated with the individual exploitation of the Key Exploitable Results has been presented.


The IPR management-related activities kicked-off with the circulation of exploitation and IPR questionnaires. Those questionnaires provided valuable information for the IPR identification, ownership, and analysis, as well as the exploitation intentions and goals, the foreseen exploitation paths to be followed and any intentions regarding IP protection. The IPR workshops were exploited in order to both give input, training and support to the consortium regarding IPR management aspects as well as present the results of the aforementioned analyses and open a dialogue within the consortium. Finally, individual meetings were held between the team working on the IPR management and each of the AGRICORE partners. These meetings had a dual purpose, aiming to establish a clear IPR-KER characterization through a direct interview with the IP owner, but also to support the project partners providing them with any clarification and consulting that was needed and helping them optimally shape their individual exploitation plans of AGRICORE.

To sum up, a draft IPR exploitation plan for the individual key exploitable results is presented in this report. This deliverable should serve as the basis for further analysis in D8.2 where the final and complete plan will be presented as well as for the complimentary analysis included in the project's PEDR deliverables that will also focus on the joint exploitation of AGRICORE. As the project progresses, partners will be able to have more accurate planning and eliminate much of the uncertainty surrounding technical details of the implementation of the project associated with their resulting IP. The selection of an appropriate open-source license for the AGRICORE Suite, carried out by Task 8.4 will be an activity of major importance and will depend much on the selection criteria analyzed here, as well as the IPR-related information included in this analysis.

8 Annexes

In the next sections the material used for the implementation of the three IPR exploitation seminars/ workshops is presented. Specifically:

- Annex I: Presentation of the 1st IPR exploitation seminar/workshop
- Annex II: Presentation of the 2nd IPR exploitation seminar/workshop
- Annex III: Presentation of the 3rd IPR exploitation seminar/workshop



**AGENT-BASED
SUPPORT TOOL FOR
THE DEVELOPMENT
OF AGRICULTURE POLICIES**

Annex I



Deliverable Number	D8.1
Lead Beneficiary	AXIA Innovation
Authors	AXIA Innovation
Work package	WP8
Delivery Date	M18
Dissemination Level	Public

www.agricore-project.eu



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European IP Helpdesk

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Introduction to Intellectual Property and
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Michele Dubbini, 15 01 2020





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- Service initiative of the European Commission providing free-of-charge first-line support on IP-related issues
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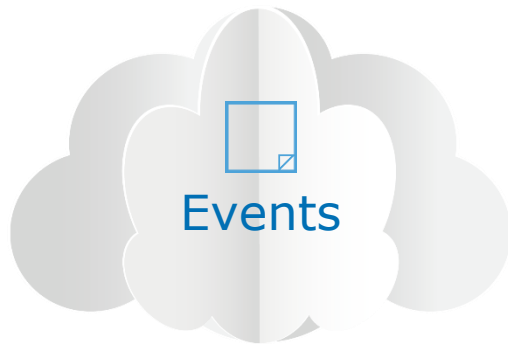


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Services





Upcoming Webinars

- 05 Feb: IP Commercialization and Licensing
- 19 Feb: Geographical Indications
- 11 Mar: Technology Transfer
- 25 Mar: IP in EU-funded Projects
- 08 Apr: Consortium Agreements
- 15 Apr: The importance of IP for SMEs
- 22 Apr: IP management with a special focus on MSCA



2019



Publications

- **Online library:** fact sheets, case studies, IP guides and charts, infographics, templates, FAQs
- **IP Specials:** information packages on “hot” IP & innovation topics
- **Bulletin:** thematic online magazine published twice a year
- **Newsletter:** Sent via email bi-weekly





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Roadmap

- Intellectual Property & Intellectual Property Rights
- Unlocking the IP asset value
- IP protection tools
- Soft IP
- Costs of IPR
- IP monitoring & searches





Intellectual Property & Intellectual Property Rights





Intellectual Property



Results of creative efforts
from the human intellect

Such creations have an
intangible nature

Intellectual Property



Intellectual Property vs. Intellectual Property Rights

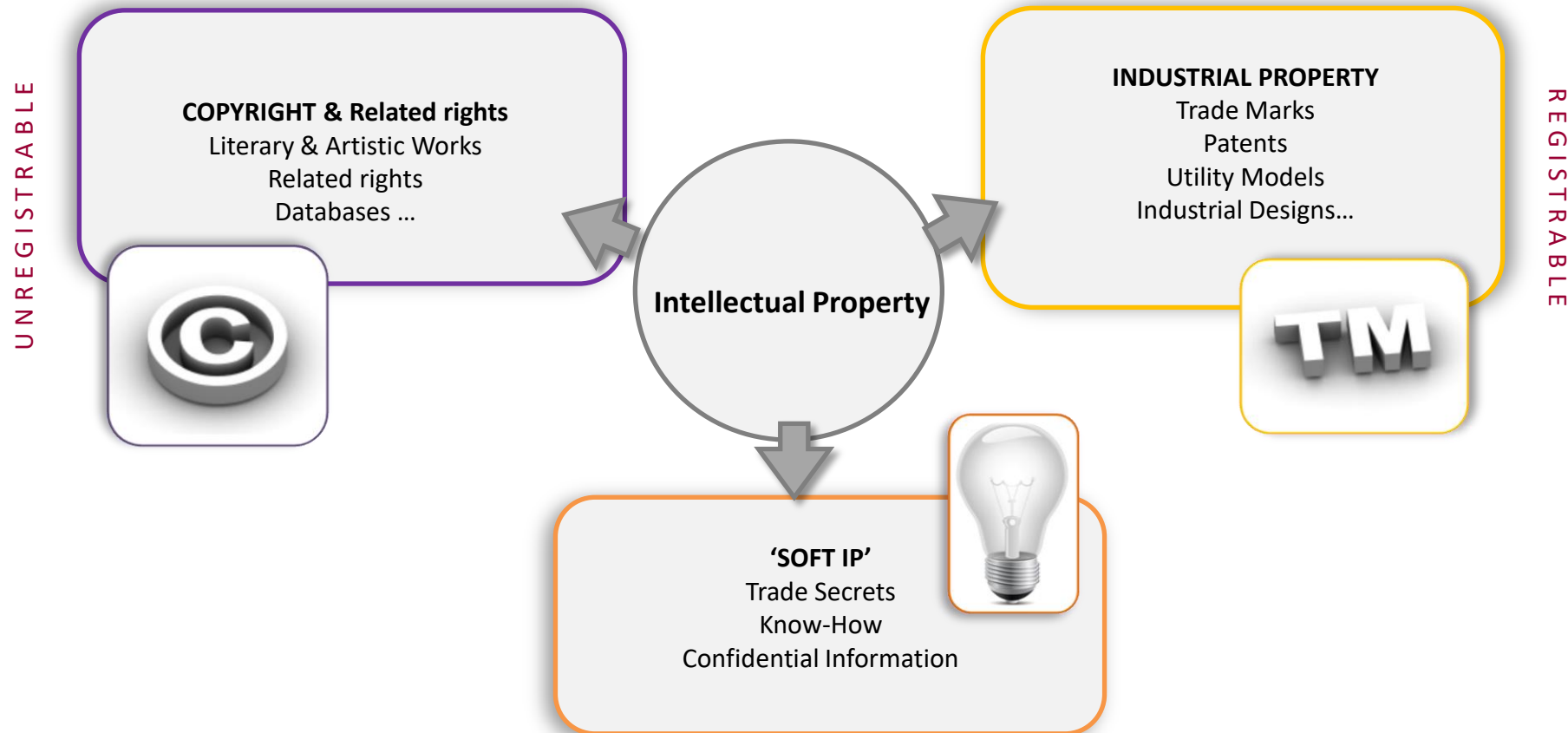


vs.





Intellectual Property Rights





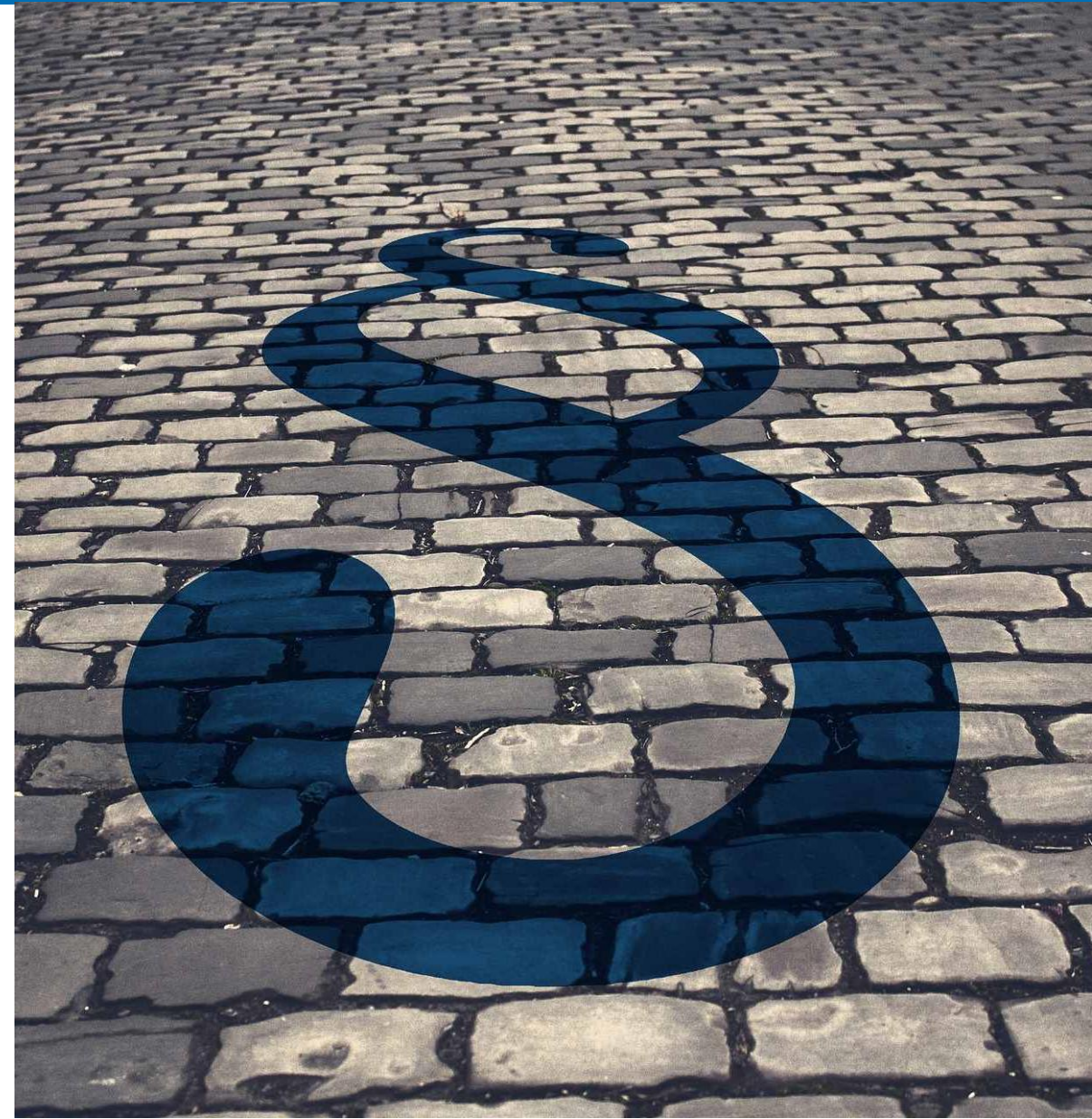
Why should I care about IP?

Intellectual Property Rights, as **exclusive rights**, allow your organisation to prevent competitors from using your intangible assets.

BUT Intellectual Property Rights require **action**:
ownership \neq protection!

Therefore it is vital that your **Intellectual Property asset** be:

- ✓ *Protected*
- ✓ *Managed*
- ✓ *Enforced*





IP Protection Tools





Industrial Property

- Patents and utility models: inventions
- Industrial designs: innovative designs
- Trade Marks: brands
- And other rights (such as Geographical Indications), but not covered on this module



General Principles





Principle of Territoriality

IP rights are territorial rights. In general, the exclusive rights are only applicable in the country or region in which a patent has been filed and granted, in accordance with the law of that country or region.





Rights Conferred

An IP right grants to its owner a monopoly on the product of the mind protected. Nobody without his authorization may use, commercialise etc. the protected item.





Duration of the Protection

- Intellectual Property rights grant a monopoly on the intellect creation for a limited amount of time depending on the type of right that is protected.
 - Copyrights 70 years after the death of the author
 - Patents 20 years after the application
 - Industrial designs 25 five years after the registration
 - Trademarks indefinitely as long as renewal fees are payed





Individual Rights





Patents

- **What is a patent?**

- It is a title providing the *inventor* and/or the *applicant* with the exclusive right to prevent others from possessing, using, selling, manufacturing and importing the patented invention or offering to do any of these things within a territory.

- **What can be patented?**

- Patents maybe granted for any invention concerned with the functional and technical aspects of products and processes. To qualify for patent protection the invention must fulfil the so-called conditions of patentability:
 - Patentable subject matter
 - Novelty
 - Inventive step (non-obviousness)
 - Industrial Applicability (utility)

European Patent Convention



Patentable Subject Matter

Inventions are patentable, with the following exclusions (Art. 52 EPC):

- Discoveries, scientific theories and mathematical methods;
- Aesthetic creations;
- Schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
- Presentations of information.



Additional Exceptions

- Art. 53 EPC:
 - contrary to "order public" or morality
 - plant or animal varieties or essentially biological processes for the production of plants or animals
 - methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practiced on the human or animal body



Novelty

Art. 54: European Patent Convention:

- An invention shall be considered to be new if it does not form part of the state of the art.
- State of the art : Everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.

→ Evaluate any potential disclosure or dissemination activity carefully!



Industrial Applicability

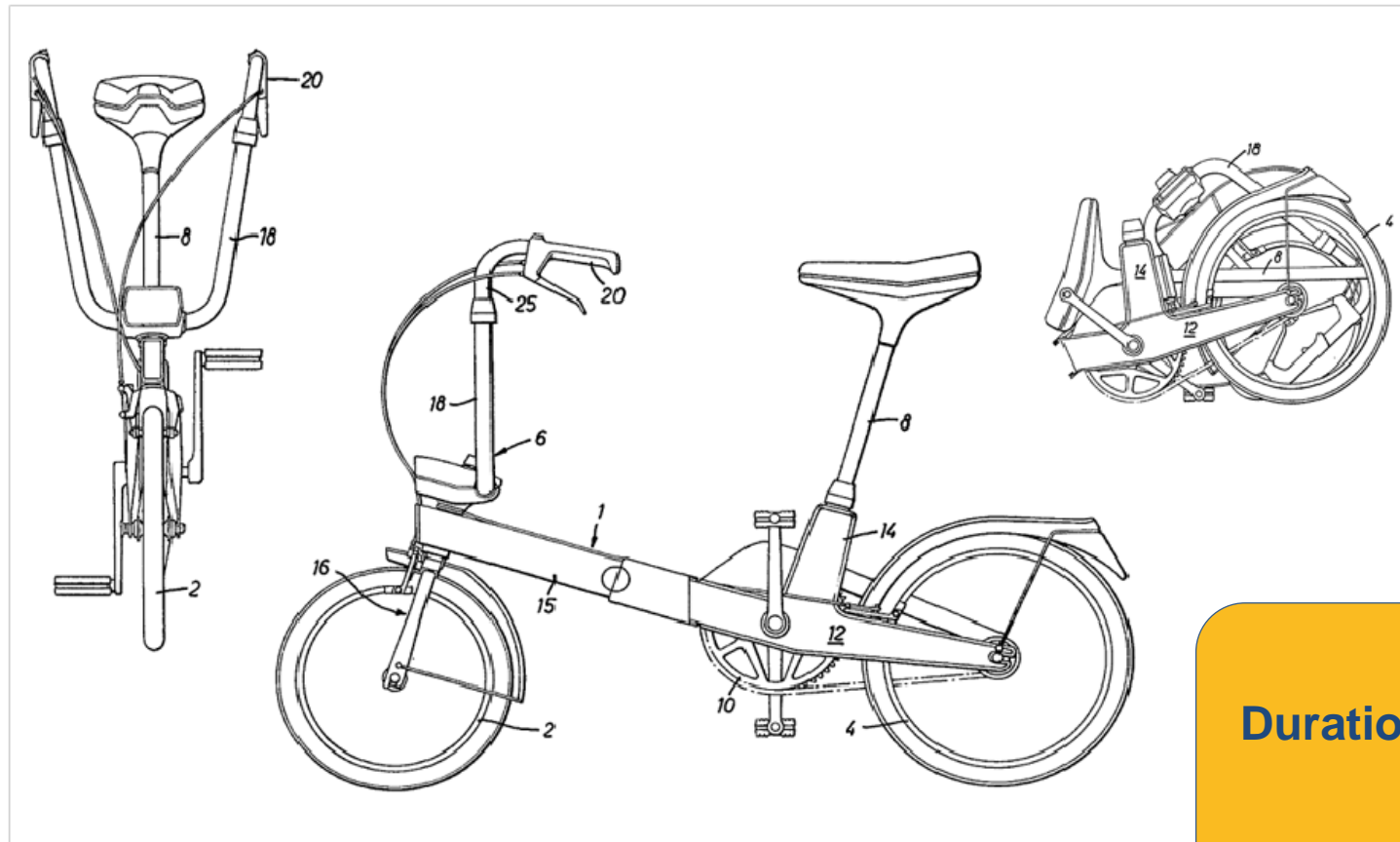
Art. 57 European Patent Convention:

- An invention shall be considered as susceptible of industrial application if it can be made or used in any kind of industry, including agriculture.





Patents



Duration of protection: up to 20 years



Patent Registration I

NATIONAL PATENT

In general, an application filed before your National Patent Office (NPO) must be accompanied by:

- a specification containing a detailed description of the invention,
- one or more claims,
- any drawings referred to in the description or claims and an abstract
- the required filing fee.

INTERNATIONAL REGISTRATION

By filing an international application, patent protection can be obtained in each designated states amongst 148 worldwide. PCT applications may be submitted:

- to your NPO,
- to the EPO, or
- to the WIPO.



Patent Registration II

EUROPEAN PATENT

- One single application, in one official language may be filed:
- at your NPO, or
- At the EPO
- The EPO grants patents having the effect of a **national patent in designated countries (currently max. 38)**. You may decide to maintain it in force in some or all of them.

EUROPEAN PATENT

with unitary effect

- One single application, written in French, English or German will grant a title that is going to be valid throughout the 26 european countries. (Turkey Norway etc... are excluded)
- It will be active when the [Unified Patent Court Agreement](#) will be ratified



Unified Patent Court

- Will be competent for all European patents, including also those with Unitary effect
- Established by the Unified Patent Court Agreement
- Website: <https://www.unified-patent-court.org/>

→ **Affected by BREXIT?**

The screenshot shows the homepage of the Unified Patent Court website. The header features the logo 'unified patent court' and a navigation menu with links for 'home', 'news', 'faq', and 'about the upc'. A search bar is located in the top right corner. The main content area is divided into three columns. The left column, titled 'About the UPC', provides an overview of the court's role and jurisdiction. The middle column, titled 'The preparatory committee', details the committee's composition and work streams. The right column, titled 'Cases', lists recent news items, including interviews and meeting reports. A 'Chair' section at the bottom left of the main content area features a portrait of Alexander Ramsay, the Chair of the Preparatory Committee.

unified patent court A single patent court covering 25 countries

home news faq about the upc

About the UPC

The Unified Patent Court (UPC) will be a court common to the Contracting Member States and thus part of their judicial system. It will have exclusive competence in respect of European patents and European patents with unitary effect. The exclusive competence is however subject to exceptions during the transitional period. The UPC's rulings will have effect in the territory of those Contracting Member States having ratified the UPC Agreement at the given time. The UPC will not have any competence with regard to national patents.

The UPC Agreement is open to accession by any Member State of the European Union. The Agreement is not open to states outside of the European Union. Up to date, all European Union Member States except Spain and Poland have signed the

The preparatory committee

The Preparatory Committee is composed of all the Signatory States to the Unified Patent Court Agreement (1635/1/12) (see also Regulations 1257/2012^{en} and 1260/2012^{en}). All these states undertook to establish the new court and the Preparatory Committee's function is to oversee the various work streams. There are five major work streams which will constitute the work which needs to be completed. These are:

- Legal framework
- Financial aspects
- Information technology
- Facilities, and
- Human resources & Training

The Preparatory Committee will exist until the Court is established. Currently this is expected to last two years and during this time it will have its own Rules by which it is governed. Its work programme is set out in a Roadmap. Its external communication plan outlines how it will update users and stakeholders, by what means and the type of documents that will appear on this website.

The Committee has endorsed the brochure titled 'An Enhanced European Patent System' which provides a useful overview.

Chair
Alexander Ramsay
Sweden

Cases

[Click here to log into the UPC Case Management System](#)

Latest News

[Alexander Ramsay's interview with EUROFORUM on the Unitary Patent and the Unified Patent Court](#)
15 December 2015

[13th meeting of the Preparatory Committee – 7 & 8 December 2015](#)
09 December 2015

[Unified Patent Court – Rules of procedure](#)
27 October 2015

[12th meeting of the Preparatory Committee – 19 October 2015](#)
20 October 2015

[Protocol to the UPC Agreement](#)
01 October 2015

[more »](#)



Update

- EPO published a Unitary Patent Guide: August 2017

Unitary Patent guide


Obtaining, maintaining and managing Unitary Patents



1st edition, August 2017

The "Unitary Patent Guide" aims to provide companies, inventors and their representatives with an outline of the procedure involved in obtaining a Unitary Patent from the European Patent Office (EPO) once it has granted a European patent on the basis of the provisions laid down in the European Patent Convention (EPC).

Download

 [Unitary Patent guide \(PDF, 823 KB\)](#)

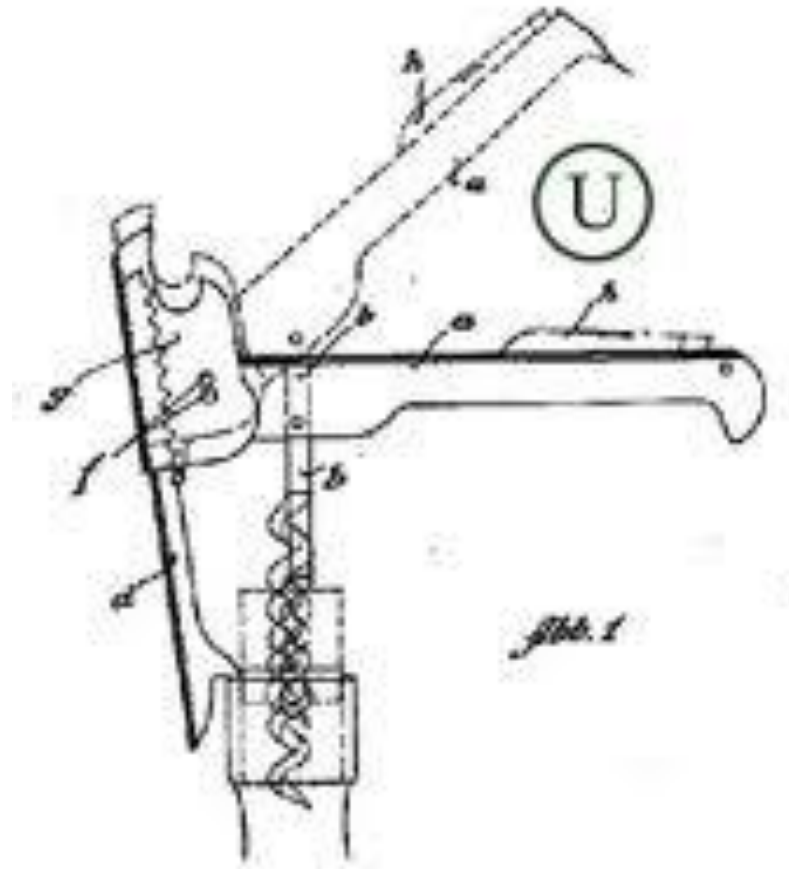


Utility Models

- **What is a utility model?**
 - It is a title of protection for certain inventions, such as inventions in the mechanical field. Utility models are usually sought for technically less complex inventions or for inventions that have a short commercial life.
 - In the EU only 17 countries provide a registration process for utility models. The latter is significantly simpler and faster than the patent application process, taking - on average - six months. Finally, utility models are much cheaper to obtain and to maintain.



Utility Models



**Duration of protection: up to
between 6 to 10 years**



Industrial Design

- **What is an industrial design?**

- It refers to the right granted to protect the original, ornamental and non-functional features of a product that result from design activity. The right concerns merely the appearance (the 'design') of a product, not the product itself.

- **What can be protected?**

- An industrial design may be granted in relation to the visual features of a product (i.e. shape, ornamentation, pattern, configuration, etc.). Designs that are dictated solely by the article's function are excluded from protection.
- To qualify for protection the design must show:
 - Novelty
 - Individual character



Industrial Design



**Duration of protection: up to
between 25 years without
renewal**



Design Registration

NATIONAL DESIGN

An application must be filed before your National Intellectual Property Office (NIPO), accompanied by any representation of the design suitable for reproduction.

COMMUNITY DESIGN

One single application, in one official language may be filed at the EUIPO in Alicante – Spain.

INTERNATIONAL REGISTRATION

By filing a single international application to WIPO in Geneva, you may be able to obtain design protection in several states that are members of The Hague system.



Trade Marks

- **What is a trade mark (TM)?**
 - It is a sign, or a combination of signs, used in trade to identify and distinguish the goods or services of one enterprise from those of another. A trade mark owner is granted exclusive rights to:
 - use the mark in relation to the goods or services with respect to which it is registered
 - prevent others from using a substantially identical or deceptively similar mark in relation to identical or similar goods or services.
- **What can be protected as trade mark?**
 - Words, letters, numerals, pictures, shapes and colours, as well as any combination of the above. The registration of less traditional forms of trade marks is now allowed, such as three-dimensional signs (like the Coca-Cola bottle), audible signs (sounds, Nokia jingle), or olfactory signs (smells).



Trade Mark Requirement

- In order for a sign to be eligible for trade mark protection, it must:
 - Be distinctive
 - Not be deceptive
 - Not be descriptive
 - Not belong to the exclusions provided by the law
 - Be in conformity with public order and morality

**Duration of protection: up to
10 years, renewal indefinitely**



Trade Mark Registration

NATIONAL TM

Applications must be filed before your National TM Office accompanied by:

- a clear reproduction of the mark including any colours, forms, or three-dimensional features,
- list of goods or services to which the mark would apply.

Registrations can be cancelled in case of non-use.

COMMUNITY TM

One single application, in one official language may be filed at the Office for the Harmonisation of the EUIPO in Alicante – Spain.

INTERNATIONAL

By filing an international application, TM protection can be obtained in each states member of the Madrid system, designated by the applicant.

Applications may be submitted:

- to your National trademark Office
- to the EUIPO
- to the WIPO.



Copyright

- Does not protect the ideas themselves but only the concrete form of expression of ideas
- The creativity protected is the originality of the authored work!
- No formal registration process is required
- Copyright protection arises automatically upon creation of the work, provided that it is original

→ Generally, protection lasts for 70 years after the death of the creator.





Copyright

- **What are copyright and related rights?**
 - Copyright protects literary and artistic works, such as poems, novels, music and paintings, but also cinematographic works, architectural works and many others. Related rights are related to the protection of works of authorship under copyright. Their purpose is to protect the legal interests of certain persons and legal entities who contribute to making works available to the public such as performing artists, producers of phonograms, broadcasters, etc.
- **What are the rights granted?**
 - Copyright owners can prohibit or authorise that their works be:
 - copied or reproduced (e.g. printed publications or sound recordings)
 - distributed to the public
 - performed in public
 - translated into other languages
 - adapted, such as novel into screenplay...



Soft IP





Confidential Business Information

- **There is no specific definition**
 - The terms “Soft IP” can be used to describe the intellectual assets which are not included in industrial property or in literary and artistic works, but have an important value for organisations. Usually, this refers to know-how, trade secrets, confidential information.
- Protection of “Soft IP”
 - Is not achieved by registration
 - Falls under the category of intangible rights – associated with other IPR
 - Free of charge
 - Does not involve long or complex registration processes , BUT requires appropriate internal management



Costs of IPR





Costs of IPR

- **Patent:**

- National: estimated examination and delivery between 20 € (Estonia) and 900 € (Finland)
- European: estimated examination and delivery 5.600 €
(7 countries or more) (Cost reduction foreseen with unitary patent protection)
- Unitary Patent? Not yet clear. Translation costs should be much lower (only three official languages), as well as litigation cost (regulated all over Europe by the European Patent court)

- **Trade mark:**

- National: estimated examination and delivery between 11 € (Estonia) and 440 € (Italy)
- European: estimated examination and delivery 900 €



Costs of IPR

- **Industrial design:**
 - National: estimated examination and delivery between 6.50 € (Estonia) and 430 € (Finland)
 - European: estimated examination and delivery 350 €



IP Monitoring & Searches





IP Monitoring & Searches

- Regularly searching IP databases and other resources is important in order to:
 - check novelty
 - check availability of a trade mark or design
 - check priority of competing products and services
 - have a look at your competitors' products and services
 - check expiration date of other IPRs
 - carry on a market study
 - make sure you do not infringe third parties' rights
 - detect third parties' alleged infringements



Contact:

- www.iprhelpdesk.eu
- training@iprhelpdesk.eu
- Twitter [@iprhelpdesk](https://twitter.com/iprhelpdesk)
- LinkedIn [/european-ipr-helpdesk](https://www.linkedin.com/company/european-ipr-helpdesk)





Thank You!


DISCLAIMER

The European IP Helpdesk provides free-of-charge first-line support on IP-related issues aiming to help current and potential beneficiaries of EU-funded projects, as well as EU SMEs, manage their Intellectual Property assets.

The European IP Helpdesk is managed by the European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME), with policy guidance provided by the European Commission's Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG Grow).

The information provided by the European Union IP Helpdesk is not of a legal or advisory nature and no responsibility is accepted for the results of any actions made on its basis. Moreover, it cannot be considered as the official position of EASME or the European Commission. Neither EASME nor the European Commission nor any person acting on behalf of EASME or of the European Commission is responsible for the use which might be made of this information.

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**AGENT-BASED
SUPPORT TOOL FOR
THE DEVELOPMENT
OF AGRICULTURE POLICIES**

Annex II



Deliverable Number	D8.1
Lead Beneficiary	AXIA Innovation
Authors	AXIA Innovation
Work package	WP8
Delivery Date	M18
Dissemination Level	Public

www.agricore-project.eu



The Agricore project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No. 816078





agricore

AGENT-BASED SUPPORT TOOL FOR THE DEVELOPMENT OF AGRICULTURE POLICIES



The Agricore project has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement No. 816078

IPR workshop 2

19/10/2020

Myrto Pelopida, Eirini Karantzopoulou



AXIA INNOVATION

OUTLINE

1. Introduction
2. IPR Enforcement
3. Open Source Software
4. AGRICORE's contractual obligations
5. IPR questionnaire – interesting answers

Introduction

IPR Management within collaborative research projects



1. IPR Agreements

In the frame of IPR agreements among partners, the importance of the **Consortium Agreement (CA)** is worth mentioning. In the CA partners can address IP issues.

The **CA** includes:

- Identification of the intellectual property.
- Allocation of the ownership of IP.
- Access rights to the above for project execution or exploitation purposes.



IPR Management within collaborative research projects



2. Identification of IP Issues

It is important that the partners pay attention to essential IP issues in an early stage and try to set up a framework for:

1. Conditions of use
2. Conditions of exploitation
3. IP protection & maintenance
4. IP monitoring
5. Law, jurisdiction & Alternative dispute resolution Systems



IPR Enforcement

Definition of IPR Enforcement

- Ip enforcement refers to all existing mechanisms available to owners to avoid and restore the effects of infringement.
- This means that the IP owner has a legitimate right to profits derived from the exploitation of the IP. Without IP enforcement, right holders have no mechanisms to prevent infringements and they cannot recover the economic losses.
- The holders should be aware of the intangibles, which they own, and take the necessary steps to protect and manage their rights.



Enforcement Actions

The IP owners have on their hands different types of enforcement actions against the unauthorised use of their IPR by infringing third parties, which are:

1. Initial enforcement measures
2. Civil enforcement
3. Criminal enforcement
4. Customs actions
5. Online enforcement

More Information:

<http://iprhelphdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-IP-Enforcement.pdf>





Open Source Software (OSS)



OSS – idea / use

Basic idea:
publicly accessible
software developed,
adapted, improved,
distributed as
“**freely**” as possible

Source
code
always
available

Users
modify
and
customize
code
freely

Many collaborators
/ users / experts /
contributors



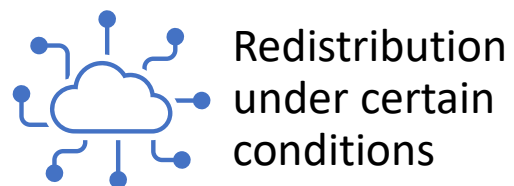
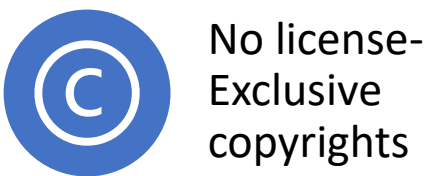
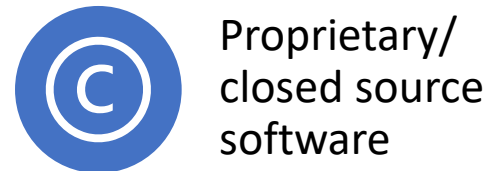
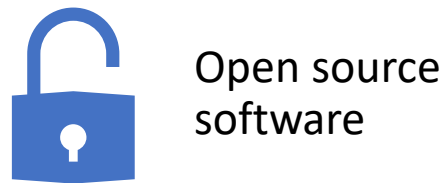
Open community



Ongoing –
continuous
development



OSS - redistribution



OSS - redistribution



- ✓ No good or bad licenses, no one better than another → choice should depend on the desired exploitation route
- ✓ Anyone can write one → there are numerous licenses out there to chose from
- ✓ Two basic categories of licenses:

Copyleft licenses	Permissive licenses
<ul style="list-style-type: none">• Granting right to use, modify, and share creative works without the permission of the copyright holder• Any derivative work must maintain the <u>reciprocity of the obligation</u>	<ul style="list-style-type: none">• Granting right to use, modify, and share creative works without the permission of the copyright holder• <u>Permitting proprietary</u> derivative works



OSS – criteria for license choice

Go-to-market strategy
Target market
Desired exploitation routes

Existing dependencies will have their own open source licenses
Licenses need to be compatible

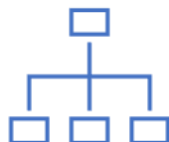
Who will be able to modify and/or contribute?
Will it be used by others as a dependency?

Will it be used in proprietary work?
Will it be used by large businesses?
Will it be used by open sourcing community?

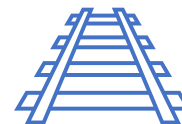
Intentions for exploitation



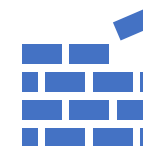
Dependencies



Further development



Derivative works



OSS – popular license examples



MIT License	Permissive	Do whatever you want with this software if you add a copy of the original MIT license and copyright notice to it.
Apache License	Permissive	Freely use, modify, and distribute. Explicitly grants non-exclusive rights to users that can be applied to both copyrights and patents . Must include a copy of the license and add modification notices to all the files that you modify. The unmodified parts of the software must retain the Apache License. The modified parts can be released under different licenses.
GNU General Public License (GPL)	Copyleft	Not allowed to claim patents or copyright on the software. Moreover, you are obligated to display a copyright notice, disclaimer of warranty, intact GPL notices, and a copy of the GPL . Not allowed to change the license or introduce additional terms and conditions. Reciprocity obligation , which means you are obligated to release the source code and all the rights to modify and distribute the entire code.



AGRICORE's contractual obligations

Obligations – AGRICORE Grant Agreement

✓ “the results generated within the project will be released as **open source**” (Part B - 36 of 84)

→ *to “facilitate the further development of the proposed tools and technologies after the project”* (Part B - 36 of 84)

✓ “The public distribution of the project developments as open source **does not preclude** the partners from commercially exploiting the project results.” (Part B - 36 of 84)



Implementation in WP8



Joint
Exploitation
of results



Individual
exploitation
routes



Joint exploitation of results

Policy impact assessment services:

- Supporting the setup and use of AGRICORE suite.
- Setting up the EDAP team for post-project exploitation.
- Organizing a form of collaborative ecosystem evolving around AGRICORE suite.



Individual exploitation routes

- Consultancy and support to potential AGRICORE suite users
 - Service provision as expert
 - Capitalizing on the project's promotion
- Exploiting AGRICORE knowhow and results in other domains/application/projects/products
 - Building on it
 - Choice of AGRICORE license is critical



Individual exploitation routes - KERs



Projected KERs in AGRICORE as described in GA

- (a) Group A: Software Application
- (b) Group B: Result/ Products

	KERs	Partners	Routes of Exploitation	Potential clients Market segment
GROUP A	K1: Agent-based modelling and agent-based simulation engines	IDE	License	Policy making, ABM applications
	K2: Synthetic population generation from probability distributions			ABM simulations, statistic analysts
	K3: Database combination and fusion modules	AUTH		Policy making, other applications
	K4: Socio-economic impact assessment module	UNIPR		Policy making, impact assessment
	K5: Semantic APIs and ontologies	STAM		Other applications
	K6: Georeferenced information display libraries			Geographic Information Systems
	K7: Connection modules for biophysical model interconnection	IAPAS		
	K8: Environmental and climate impact assessment			Policy making, impact assessment

	KERs	Partners	Routes of Exploitation	Potential clients Market segment
GROUP B	K9: Software integration services	IDE	Results	Systems integration
	K10: Consultancy services in the agricultural area	AXIA		Policy making, market analysis
	K11: Experience on data sources for agricultural analyses	UNIPR		Policy making in agriculture
	K12: Semantic APIs and ontologies	STAM		Other applications
	K13: Data Warehouse design providing advanced data analytics capabilities.	AAT		Business software and services
	K14: Interface tailored design and implementation for data analysis purposes			
	K15: Participatory research activities design for the agricultural sector	CAAND		Policy making, market analysis
	K16: Consultancy and modelling services in the agricultural area	UTP		Policy making, market analysis
	K17: Models of agricultural products and land market	AKD	Product	Business software and services



Implementation in WP8

Task 8.1 IPR management (AXIA, M1-M48)

- Foreground determination
 - IPR questionnaires
- Connection with IPR exploitation

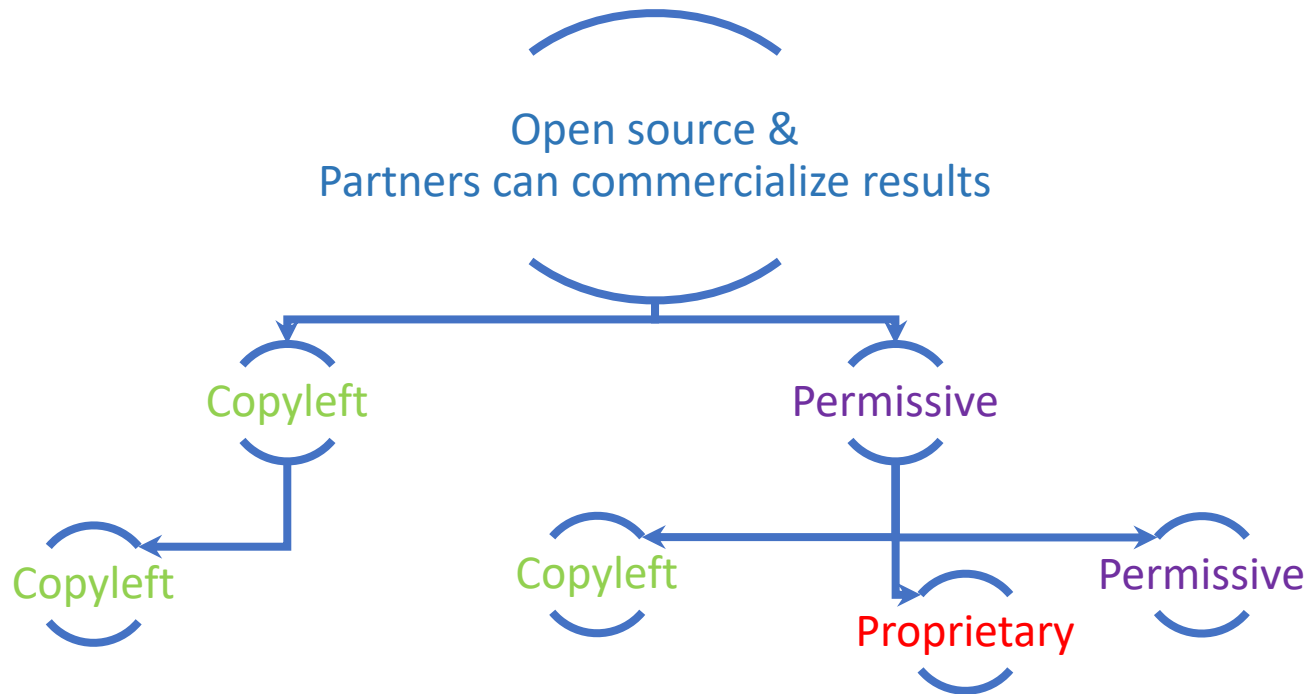


Task 8.4 Open sourcing AGRICORE (Ayesa M13-M48)

- Open source platform
- Choice of OSS license
- Handling of license compatibility
- Handling of external contributors



Possible decisions on licences



Copyleft licenses

- Granting right to use, modify, and share creative works without the permission of the copyright holder
- Any derivative work must maintain the **reciprocity of the obligation**

Permissive licenses

- Granting right to use, modify, and share creative works without the permission of the copyright holder
- **Permitting proprietary** derivative works



IPR questionnaire – interesting answers

OSS – criteria for license choice

Go-to-market strategy
Target market
Desired exploitation routes

Existing dependencies will have their own open source licenses
Licenses need to be compatible

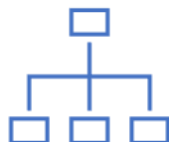
Who will be able to modify and/or contribute?
Will it be used by others as a dependency?

Will it be used in proprietary work?
Will it be used by large businesses?
Will it be used by open sourcing community?

Intentions for exploitation



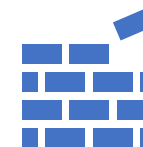
Dependencies



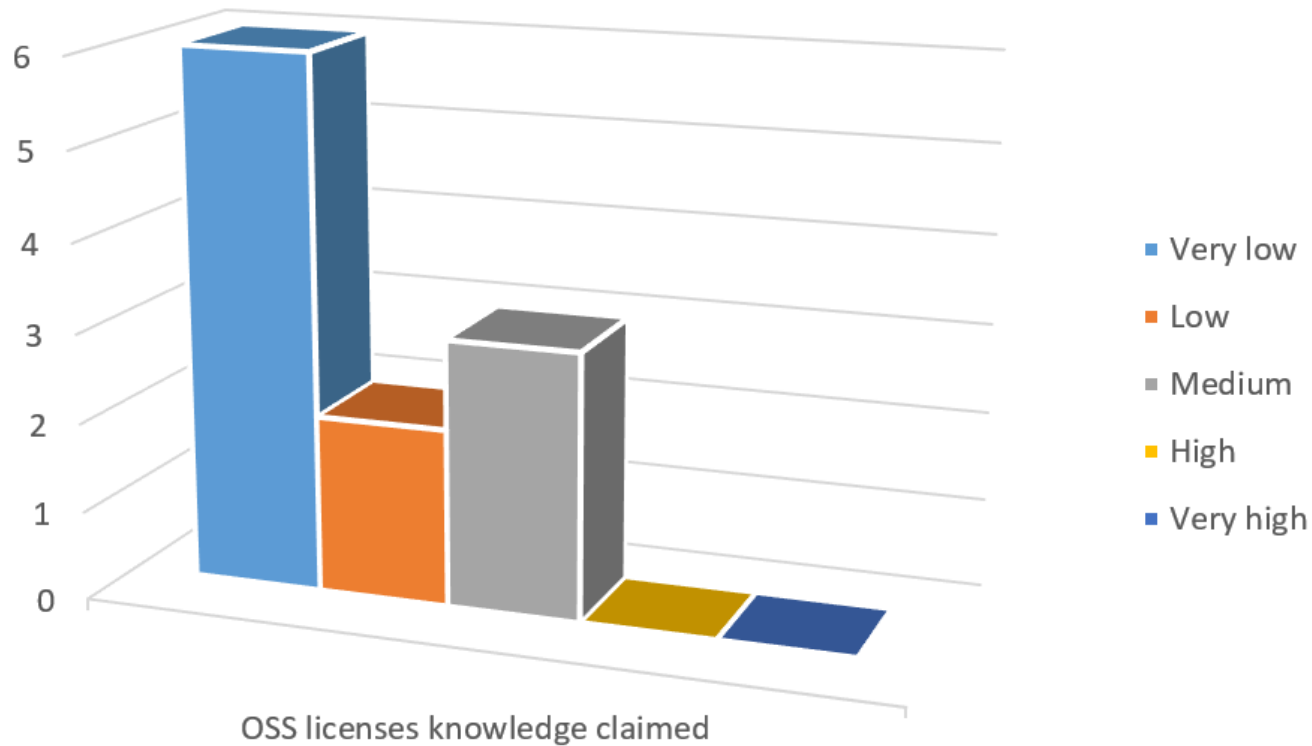
Further development



Derivative works



Why is it important?



Q13: Many cases of OSS incorporate licensing that contains the permission and the certain conditions that the software can be modified. Please rate your knowledge - experience on the related licenses in the area of OSS.



Post-project services to be offered

- Advisory services to farmers
- Business consultancy
- Consultancy to policy-makers (CAP)
- Technical consultancy to AGRICORE's further development
- Know-how for tool development

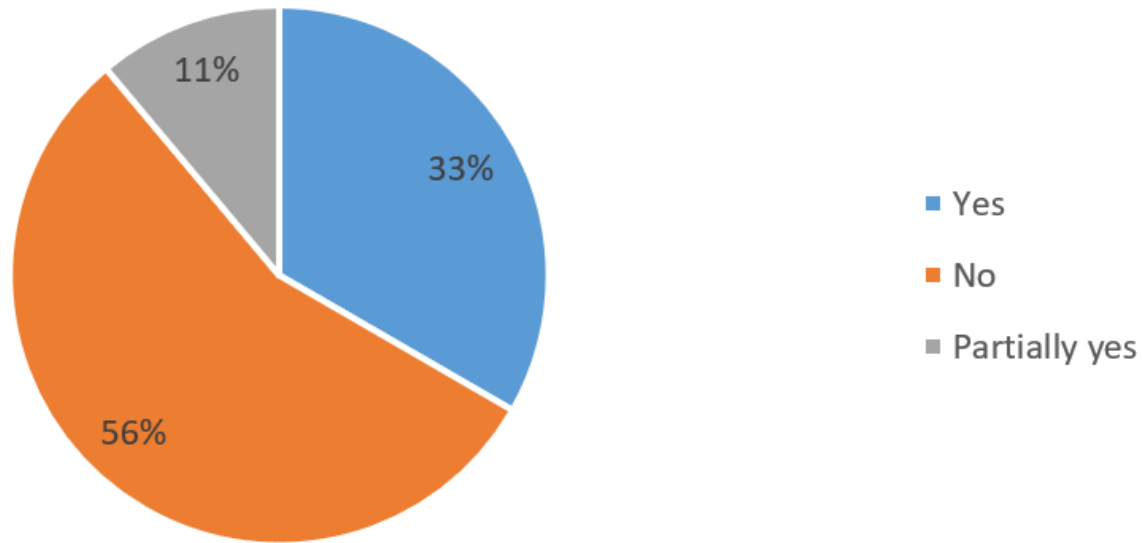


- **Intentions for exploitation**



Background brought to the project

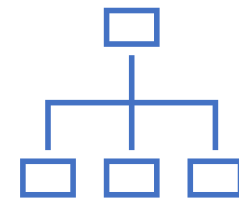
Limitations in the use of background in case of co-ownership



Q5: In case a co-ownership exists (if not move to the next question), is there any contractual or legal limitation on the use of the background by your entity?

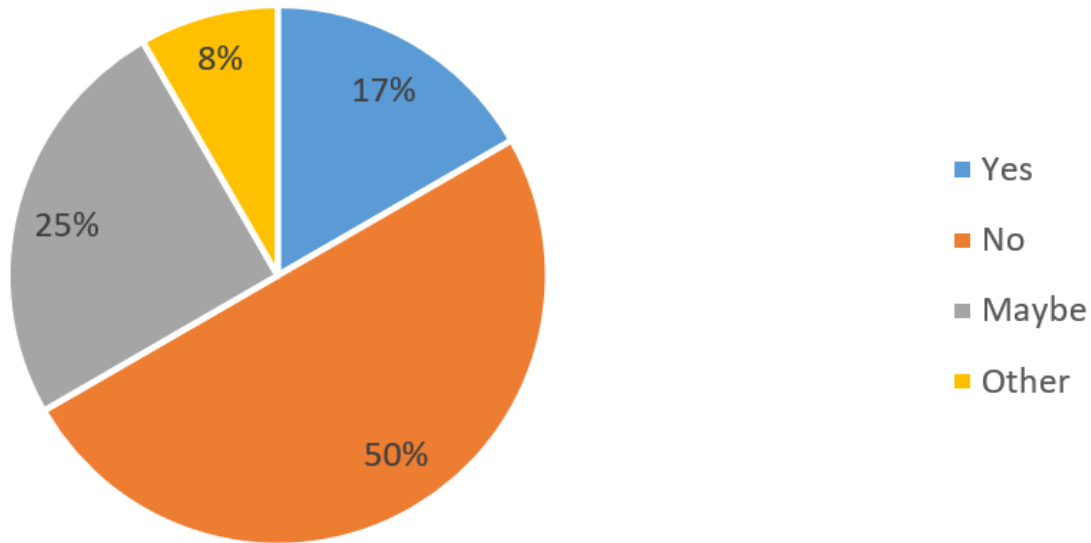


- **Dependencies**



IP protection intentions

Any IP protection claim to your contribution in AGRICORE?



Q10: Do you claim any IP protection to your specific contribution?



- Intentions for exploitation



Open source licenses

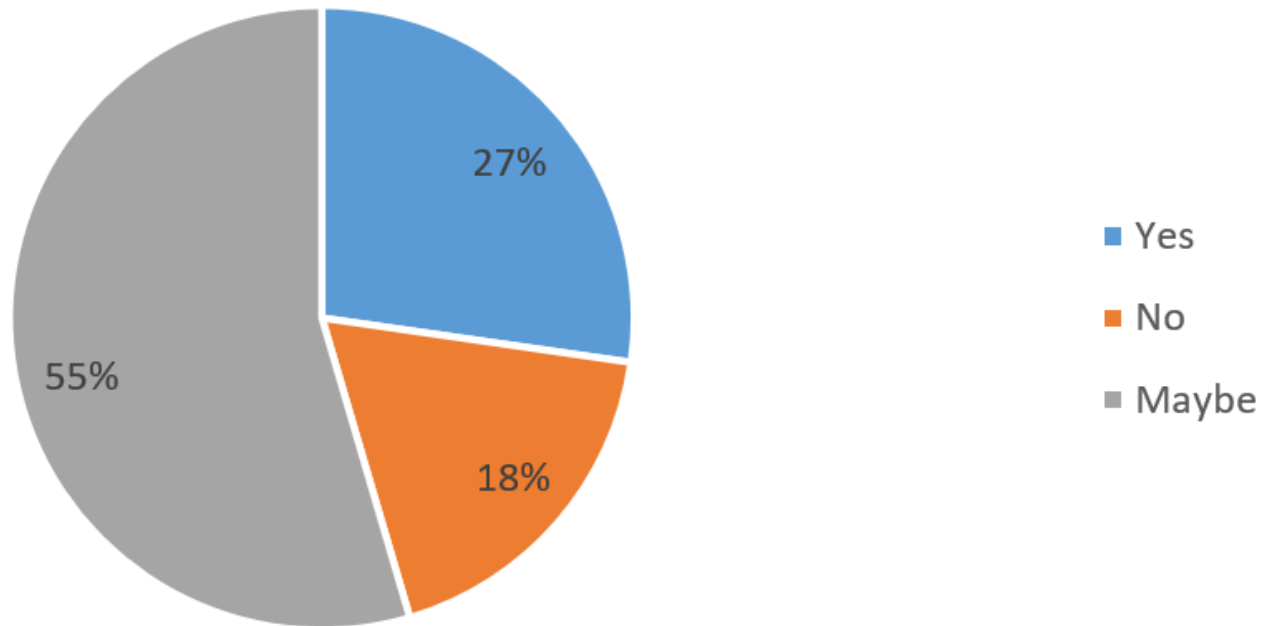
Q14: Open source licenses are standardized and easy to use. You can copy-paste an existing license directly into your project. The project very likely will have dependencies. For example, you'll probably use some data libraries. Each of those libraries you depend on will have its own open source license. All these aspects have to be considered before selecting the appropriate license.

- In the next slides some indicative questions accompanied with your answers are presented in order to be used as a guide to the selection of the most appropriate license.

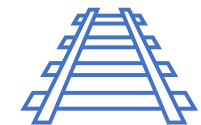


Derivative work consideration

Do you want your project to be used as a dependency by other projects?

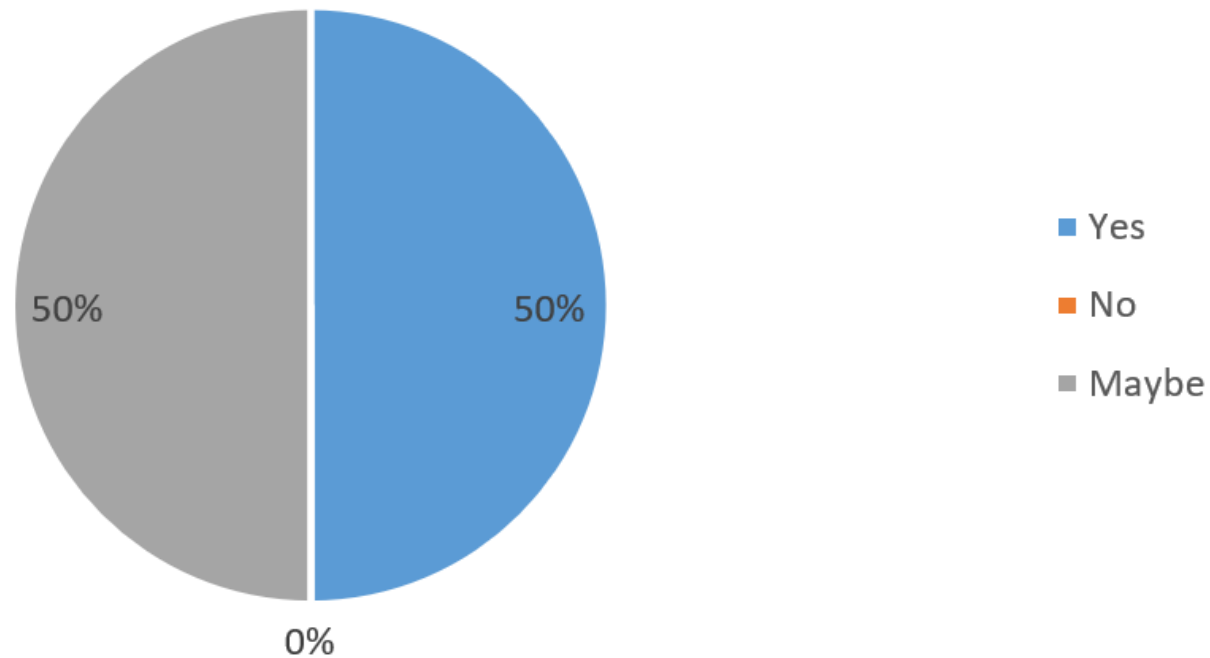


• **Further development**

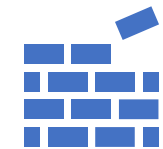


Who do we want to use it?

Do you want your project to appeal to large businesses?

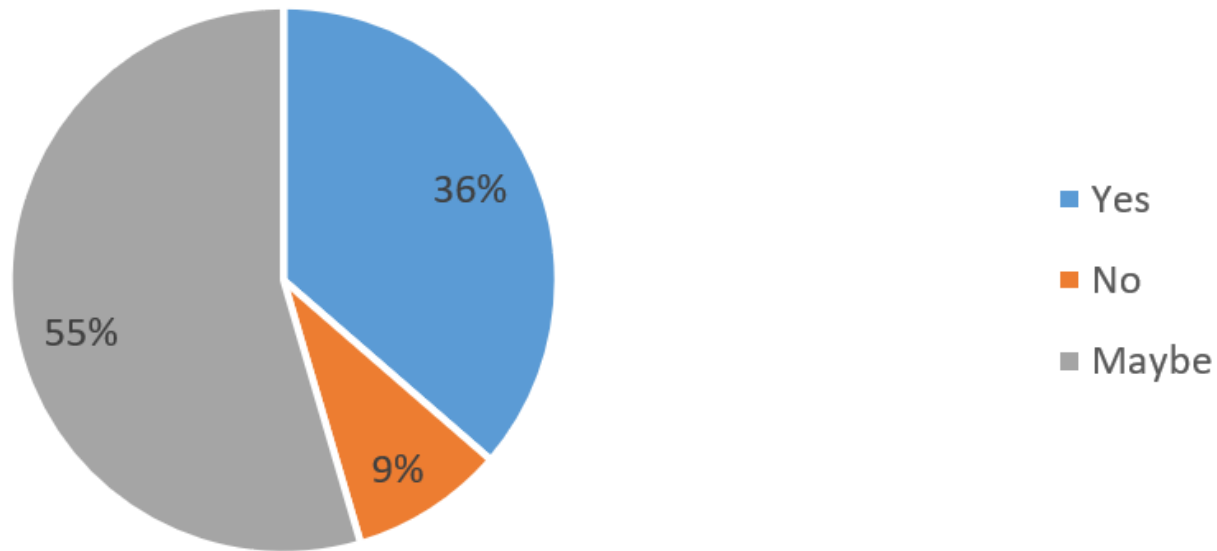


- **Derivative works**

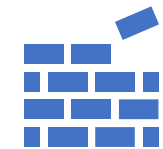


Open source community

Do you want your project to appear to contributors who do not want their contributions to be used in closed source software?

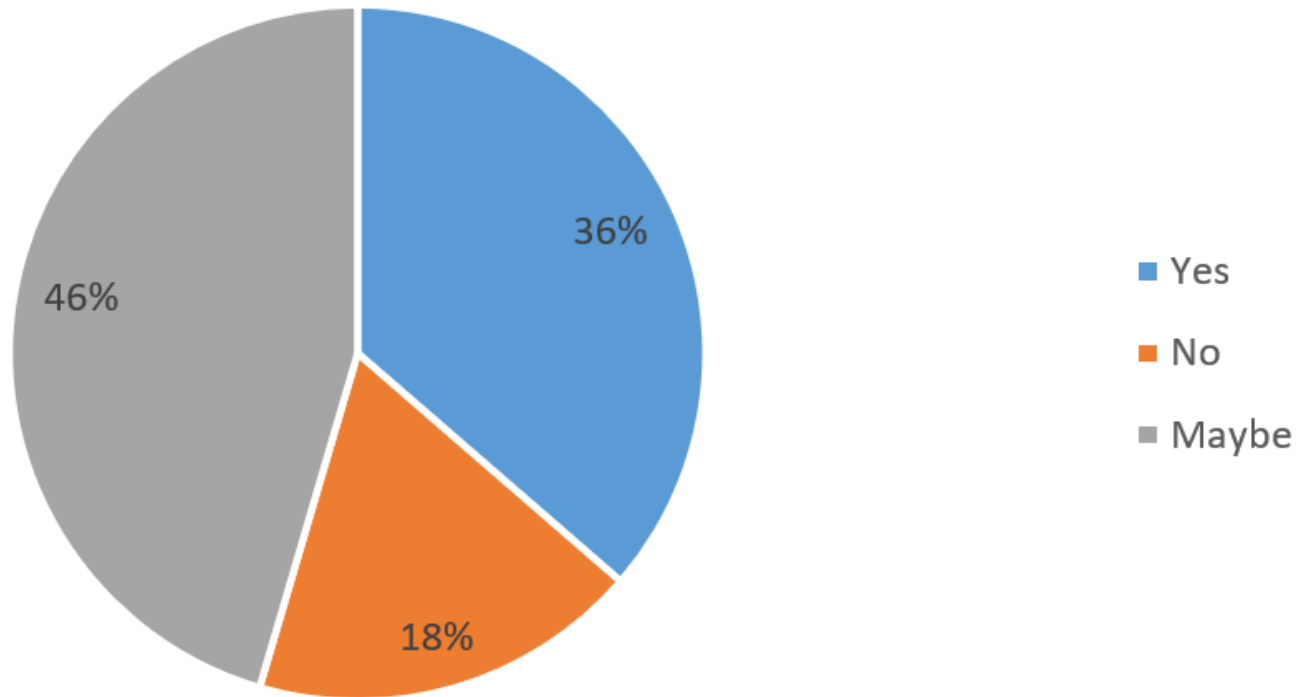


• **Derivative works**

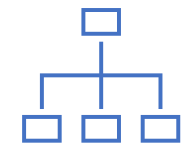


What are we building on? License compatibility

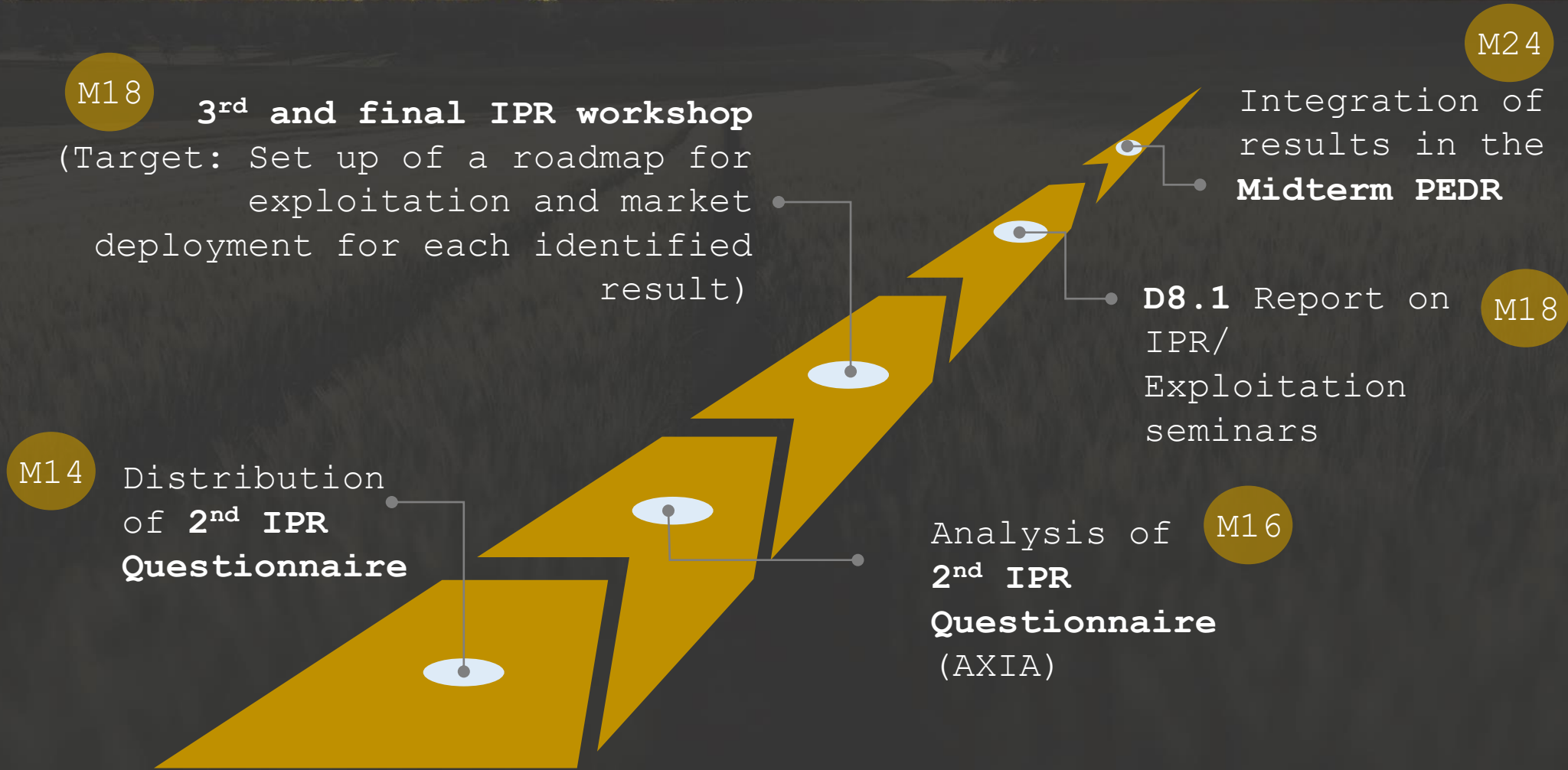
Will your project have dependencies?



• Dependencies



Timeline





agricore


Thank You!

Myrto Pelopida,
Eirini
Karantzopoulou
AXIA Innovation
[myp@axia-
innovation.com](mailto:myp@axia-innovation.com)

info@agricore-project.eu

The Agricore project has received funding from
the European Union's Horizon 2020 research and
innovation programme under the Grant Agreement
No. 816078





**AGENT-BASED
SUPPORT TOOL FOR
THE DEVELOPMENT
OF AGRICULTURE POLICIES**

Annex III



Deliverable Number	D8.1
Lead Beneficiary	AXIA Innovation
Authors	AXIA Innovation
Work package	WP8
Delivery Date	M18
Dissemination Level	Public

www.agricore-project.eu



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agricore

AGENT-BASED SUPPORT TOOL FOR THE DEVELOPMENT OF AGRICULTURE POLICIES



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IPR workshop 3

17/02/2021

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OUTLINE



1. AGRICORE exploitation
2. Open-Source Software
3. AGRICORE Suite
4. KER analysis per partner



AGRICORE exploitation

Exploitation planning



Joint
Exploitation
of results



Individual
exploitation
routes



AGRICORE exploitation

Difference between Individual and Joint Exploitation

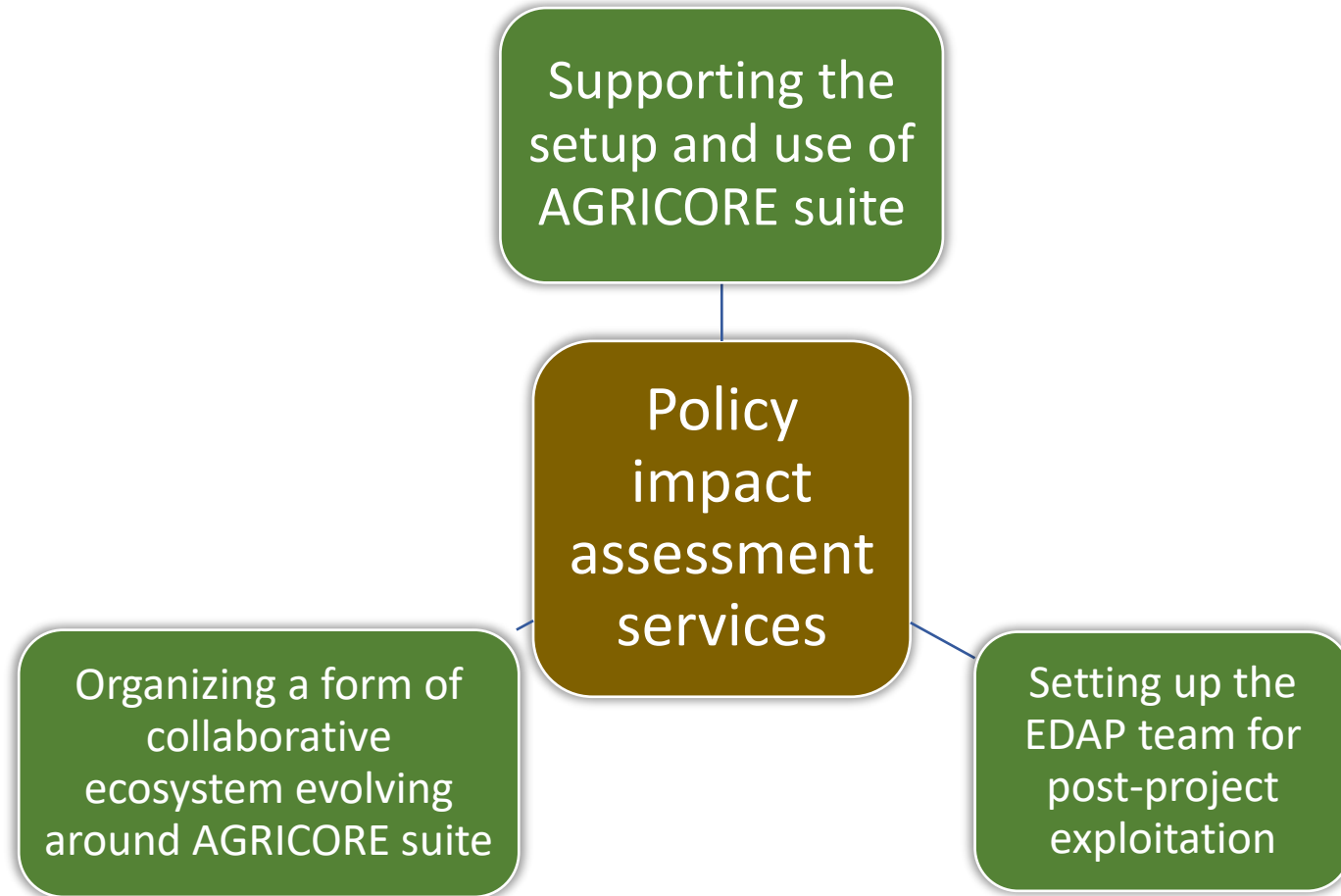
Individual Exploitation

- ✓ Commercial or scientific exploitation of the individual results by each partner based on expertise
- ✓ Individual IPR strategy

Joint Exploitation

- ✓ Joint Business Model: Provide services for policy impact assessment analysis
- ✓ Common IPR strategy (OSS)

Joint Exploitation of results



Individual exploitation routes

- ✓ Service provision as expert
- ✓ Capitalizing on the project's promotion



Consultancy and support to potential AGRICORE suite users



Exploiting AGRICORE knowhow and results in other domains/application/projects/products

- ✓ Building on it
- ✓ Choice of AGRICORE license is critical



Obligations – AGRICORE Grant Agreement



✓ “the results generated within the project will be released as **open source**” (Part B - 36 of 84)

→ *to “facilitate the further development of the proposed tools and technologies after the project”* (Part B - 36 of 84)

✓ “The public distribution of the project developments as open source **does not preclude** the partners from commercially exploiting the project results.” (Part B - 36 of 84)



AGRICORE exploitation

IPR-KER characterization process:

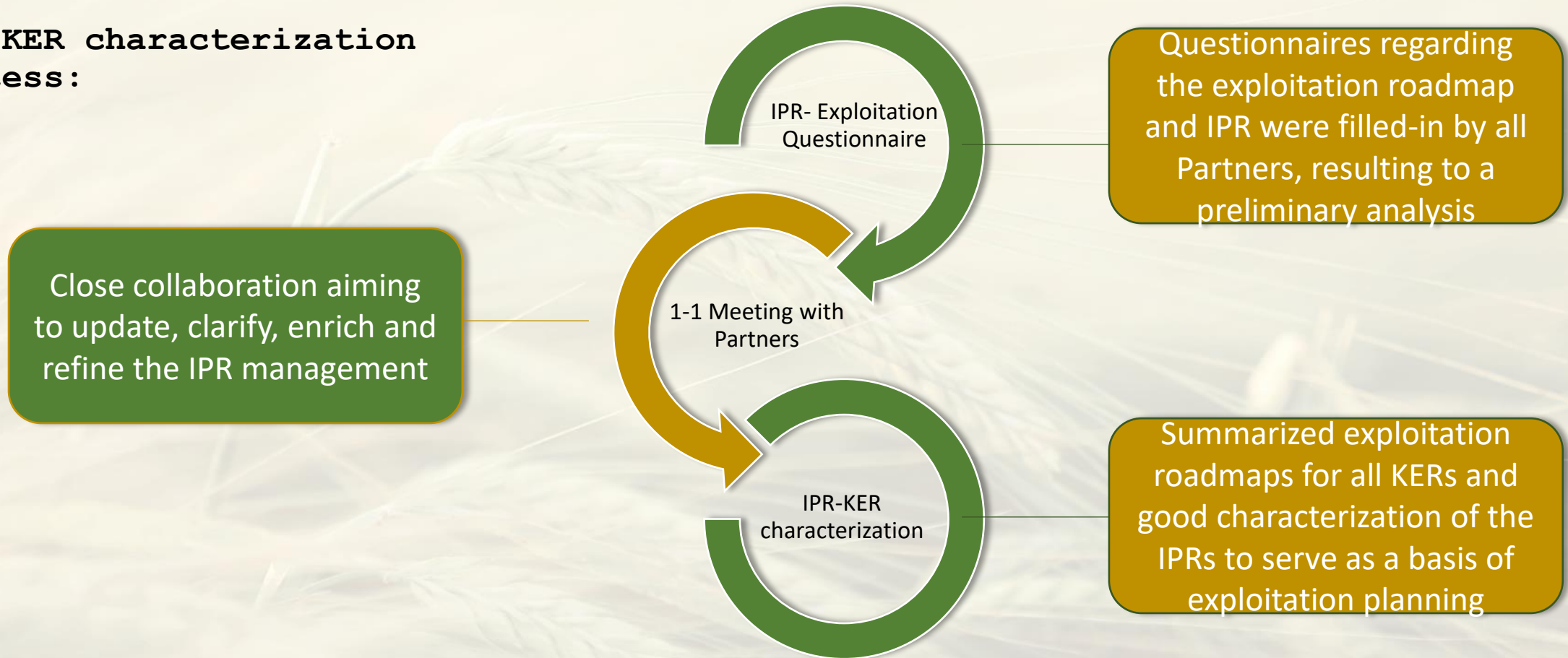


Table of Key Exploitable Results



No.	KERs	IP owner
1	Agent-based modeling and agent-based simulation engines	IDE
2	Synthetic population generation from probability distributions	IDE
3	Database combination and fusion modules	AUTH
4	Socio-economic impact assessment module	UNIPR
5	Semantic APIs and ontologies	STAM
6	Georeferenced information display libraries	STAM
7	Connection modules for biophysical model interconnection	IAPAS
8	Environmental and climate impact assessment	IAPAS
9	Software integration services	IDE
10	Consultancy services in the agricultural area	AXIA
11	Experience on data sources for agricultural analysis	UNIPR
13	Data warehouse design providing advanced data analytics capabilities	AAT
14	Interface tailored design and implementation for data analysis purposes	AAT
15	Participatory research activities design for the agricultural sector	CAAND
16	Consultancy and modeling services in the agricultural area	UTP
17	Models of agricultural products and land market	AKD
18	Big data visualization for analysis and assessment	AAT



Open-Source Software

Open Source Software

Based on the desired exploitation route

Appropriate License

Copyleft licenses

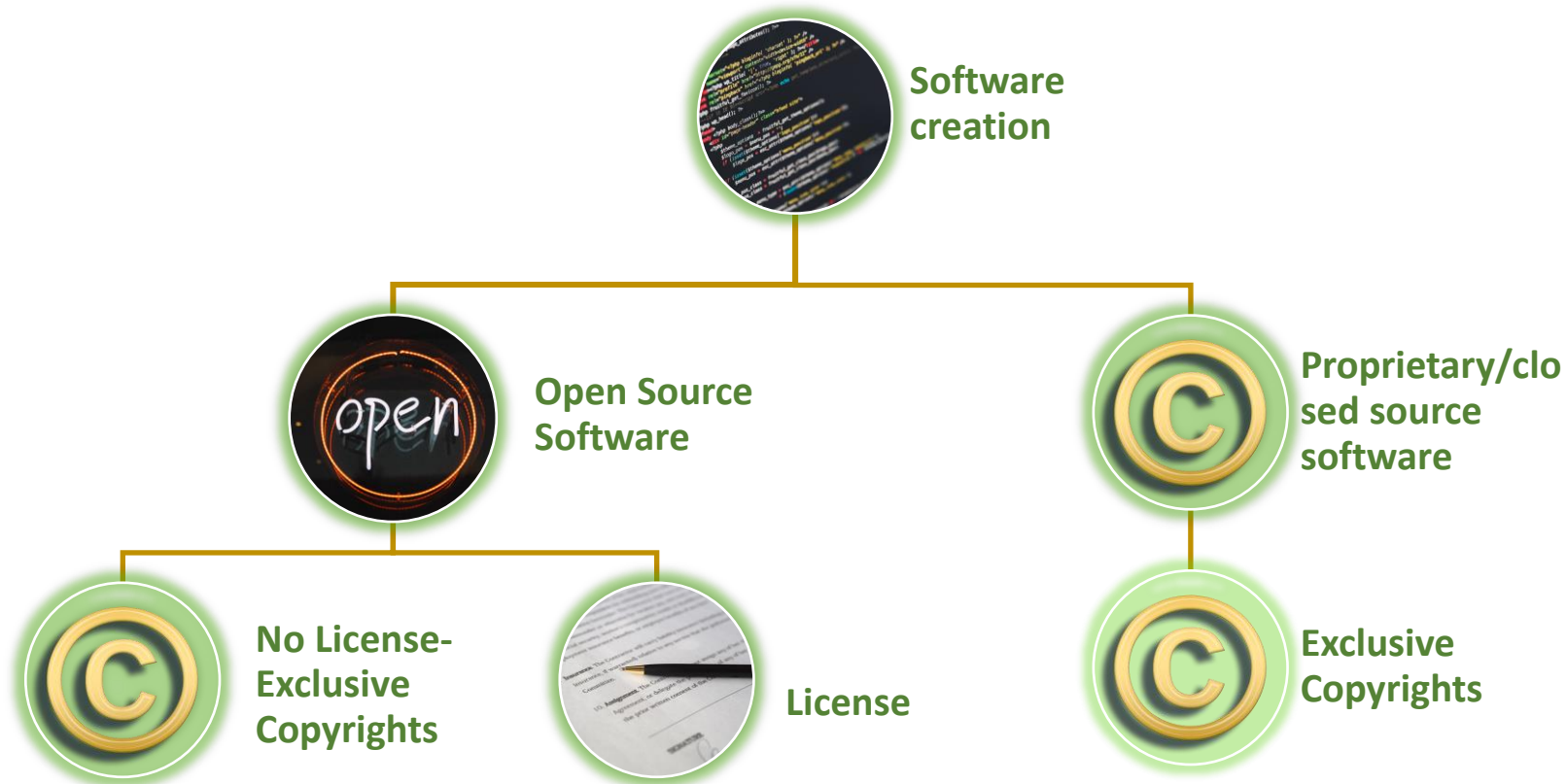
- Granting right to use, modify, and share creative works without the permission of the copyright holder
- Any derivative work must maintain the **reciprocity of the obligation**

Permissive licenses

- Granting right to use, modify, and share creative works without the permission of the copyright holder
- **Permitting proprietary** derivative works

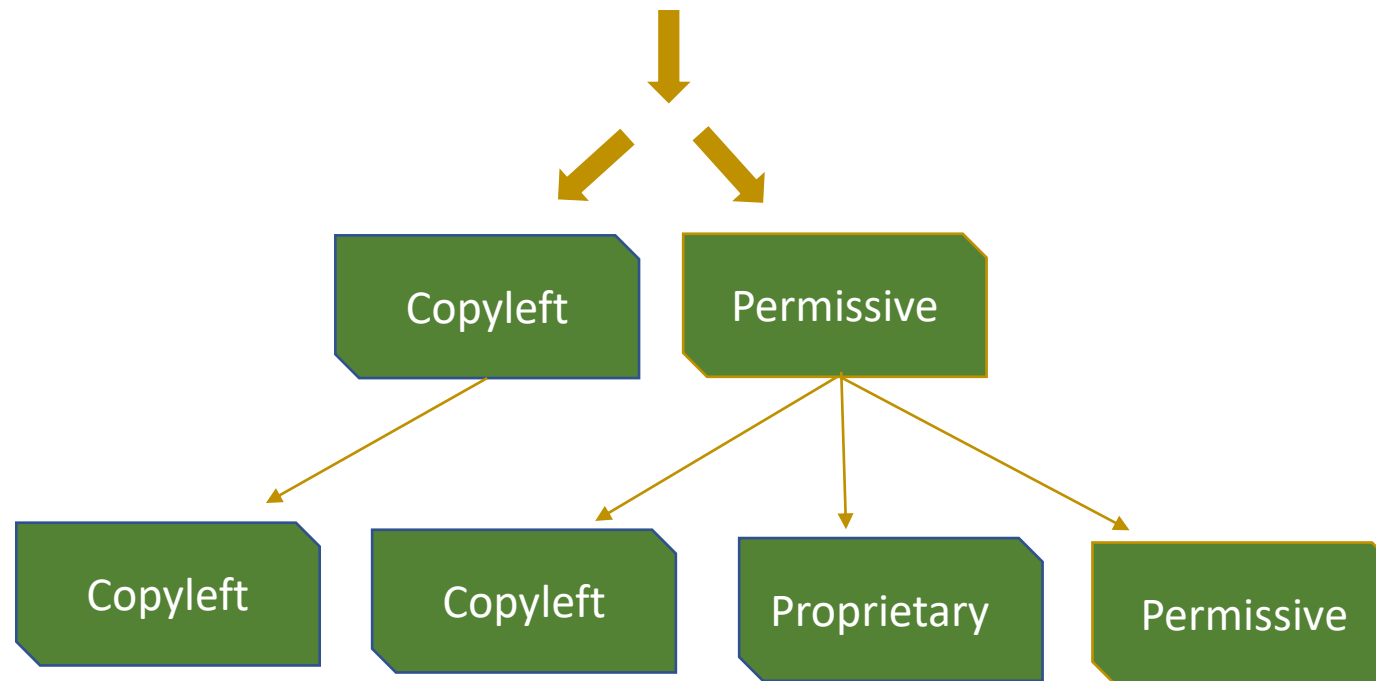


Open Source Software



OSS - decisions and future licensing

Open Source & Partners can commercialize results



Copyleft licenses

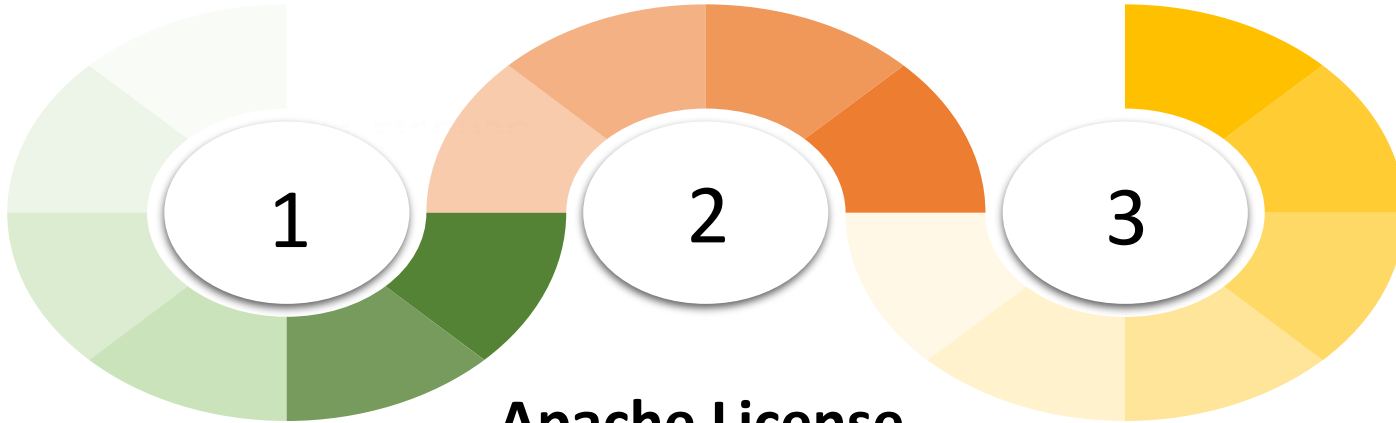
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Permissive licenses

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- **Permitting proprietary** derivative works



Open Source Software



MIT License

- **Permissive**
- Must add a license copy and copyright notice to it.

Apache License

- **Permissive**
- Includes clause for **copyrights** and **patents**.
- Must include a copy of the license and add file modification notices.

GPL License

- **Copyleft**
- Obligated to display a **copyright notice**, disclaimer of warranty, intact GPL notices, and a copy of the GPL.
- **Reciprocity obligation**



Open Source Software



Name	Type	Key characteristic
GNU General Public Licence	Strong copyleft	One of the strongest and most uncompromising copyleft clauses.
GNU Affero General Public Licence	Strong copyleft	Modification of GPL, aiming to applications of software as a service (SaaS) distribution
European Union Public Licence	Flexible copyleft	Flexibility clause aiming to tackle some issues that may arise with cross-compatibility of copyleft licenses (list is included in the license)
GNU Lesser General Public Licence	Weak copyleft	Achieves a limitation of the consequences of the copyleft clause for certain integration types (e.g. dynamic linking)
Mozilla Public Licence	File-level copyleft	Weak copyleft clause included in the MPL license applies at file-level (for each file)
Apache Licence	Permissive	It can grant a license for copyrights but also for patents
Massachusetts Institute of Technology Licence	Permissive	The most well-known permissive license, due to its simplicity and permissiveness
Berkeley Software Distribution Licence	Permissive	Bare minimum license conditions





AGRICORE Suite



OSS – Criteria for license choice

Go-to-market strategy
Target market
Desired exploitation routes

Existing dependencies will have their own open source licenses
Licenses need to be compatible

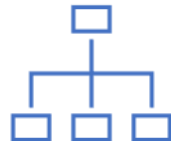
Who will be able to modify and/or contribute?
Will it be used by others as a dependency?

Will it be used in proprietary work?
Will it be used by large businesses?
Will it be used by open sourcing community?

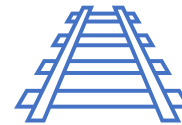
Intentions for exploitation



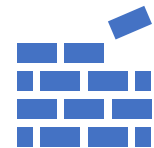
Dependencies



Further development



Derivative works

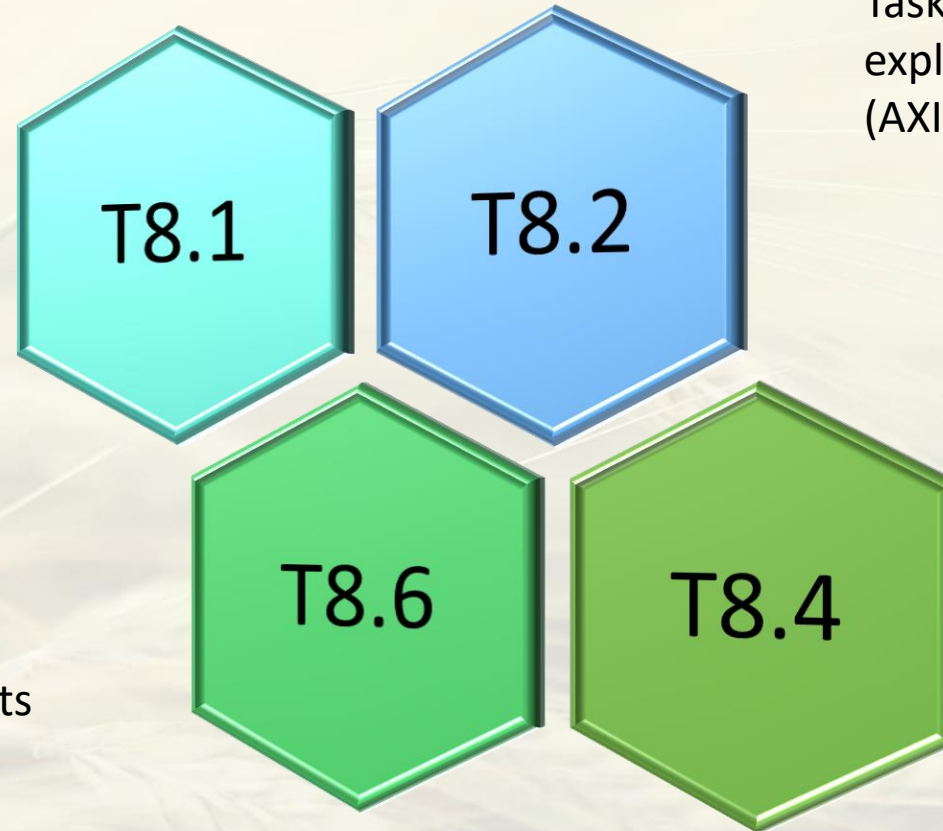


Connection to WP8

Task 8.1: IPR management (AXIA, M1-M48)

- Background/Results determination
- IPR characterization
- Connection with exploitation

Task 8.2: Roadmap towards exploitation of the results
(AXIA, M19-M45)



Task 8.6: Transferability analysis of the project results
(UNPIR, M22-M48)

Task 8.4: Open sourcing AGRICORE (Ayesa M13-M48)

- Open-source platform
- Choice of OSS license
- Handling of license compatibility
- Handling of external contributors

KER characterization

General information

- Keywords
- Ownership
- Description

Connection to the AGRICORE tool

- Type of IP
- Establishment of future dependency

Identification of KER's dependencies

- Background IP
- AGRICORE KER IP



KER characterization



KER Exploitation

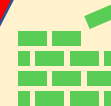
- Exploitation routes
- Exploitation planning

IP protection

- Intended actions

Each
KER

- Individually
- As part of the AGRICORE project



This is a
live process



KER analysis

KER analysis- IDENER



KER: 1

Agent based modelling and agent-based simulation engines

Keywords

- ❖ Agent-based modelling,
- ❖ Agent-based simulation
- ❖ Virtual representations
- ❖ Microscopic modelling

Exploitation routes

- Market-oriented by providing services to potential customers
- Internal exploitation by integrating the agent-based simulation engine in other suites

IP protection

- Open-source license
- Dependency for AGRICORE Suite

KER Description

This key exploitable result constitutes of a programme or set of programmes that allow the creation, modification, and operation of virtual representations (agents) of real elements, also enabling the autonomous establishment of interactions between them. Within AGRICORE the target is to simulate the operations and interactions of farms as autonomous decision-making entities (agent) who make decisions based on their current situation and expectations. This KER started at TRL 4 and aims to reach TRL 6 by the end of the project.



Aiming for

- Large businesses - Yes
- Open-source community - Maybe



KER analysis- IDENER



KER: 2

Synthetic population generation from probability distribution

Keywords

- ❖ Synthetic Populations,
- ❖ Anonymization,
- ❖ Privacy-preserving agent-based modelling

Exploitation routes

- Scientific exploitation
- Creation of synthetic populations for:
 - other cases of public policy simulation
 - simulation of advertising/marketing activities,
 - simulating labour relations in business environments

IP protection

- No IP protection foreseen
- Dependency for AGRICORE Suite

KER Description

This key exploitable result is a set of algorithms and/or programs allowing the construction of an anonymized population of individuals according to a set of given probability density functions of the corresponding real individuals. This KER started at TRL 3 and aims to reach TRL 5 by the end of the project.



Aiming for

- Large businesses - Yes
- Open-source community - Maybe



KER analysis- IDENER



KER: 9

Software integration services

Keywords

- ❖ Agent-based Modelling Suite,
- ❖ Privacy-preserving scenario generator,
- ❖ Anonymized simulator

Exploitation route

- Market-oriented through extension, customization, installation & training services for the use of the AGRICORE suite and
- other databases for the generation of other types of synthetic populations.

IP protection

- No IP protection foreseen
- No dependency for AGRICORE Suite

KER Description

This key exploitable result covers all the skills and knowledge derived from the functional integration of KER1 and KER2. The KER started at TRL 3 and aims to reach TRL 7 by the end of the project.



Aiming for

- Large businesses - Yes
- Open-source community - Maybe



KER analysis- AUTH



KER: 3

Database combination and fusion modules

Keywords

- ❖ Data fusion module,
- ❖ Synthetic population,
- ❖ Database

Exploitation routes

Scientific-oriented

- Papers,
- PhD theses,
- Conferences,
- Further research

IP protection

- Open-source license
- Dependency for AGRICORE Suite

KER Description

This key exploitable result refers to the development of a specific methodology for data analysis for the generation of the synthetic population for each country/ use-case of AGRICORE. In detail, AUTH will use the data provided from the FADN of the three use cases of AGRICORE (Spain, Poland, Greece) in order to generate a synthetic population for each country. Accordingly, this KER is a methodology – know how, used in the future for the assessment of agricultural policy-making measures (e.g., CAP). The KER started at TRL 4 and aims to reach TRL 7 by the end of the project.



Aiming for

- Large businesses - Yes
- Open-source community - Maybe



KER analysis- AXIA



KER: 10

Consultancy services in the agricultural area

Keywords

- ❖ Agricultural policy change
- ❖ Agricultural innovation consulting
- ❖ Policy assessment software exploitation
- ❖ Open-source software innovation

Exploitation routes

Market-oriented through

- Provision of services in the agricultural sector/ to agricultural policymakers
- Relevant software license-related consulting

IP protection

- Not IP protection foreseen.
- No dependency for AGRICORE Suite

KER Description

This Key Exploitable Result relates to the specialization of consulting service provision for open-source software in the agricultural sector. In particular, AXIA aims to capitalize on the experience to be gained in exploitation and innovation management of the AGRICORE tool, focusing on its application as a policy impact assessment software tool aiming at policymakers and legislators on European as well as national/regional level. The KER started at TRL 4 and aims to reach TRL 8 or 9 by the end of the project.

Aiming for

- Large businesses - Yes
- Open-source community - Yes



KER analysis- UNIPR



KER: 4

Socio-economic impact assessment module

Keywords

- ❖ Impact assessment module
- ❖ Mathematical formulations

Exploitation route

- Market-oriented through provision services for analyses of the socio-economic impacts of changes in the agricultural policy
- Scientific oriented
- Policy development and reform

IP protection

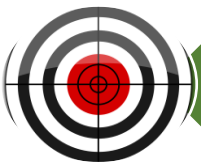
- Patent
- Copyright licenses
- Open or copyleft licenses
- Dependency for AGRICORE Suite

KER Description

This key exploitable result relates to the mathematical formulation of the equations necessary to describe the effects of policy changes in the economic, environmental, and bureaucratic domains of agricultural policy on the socio-economic characteristics of farms and rural territories. The KER started at TRL 1 and aims to reach TRL 7 or 8 by the end of the project.

Aiming for

- Large businesses - Maybe
- Open-source community - Yes



KER analysis- UNIPR



KER: 11

Experience on data sources for agricultural analysis

Keywords

- ❖ Data sources
- ❖ Data security
- ❖ Agricultural policy analysis

Exploitation route

- Market-oriented by providing consultancy services on data sources to institutions willing to develop their own research projects or improve data collection processes
- Scientific- oriented
- Policy briefing

IP protection

- Not IP protection foreseen.
- No dependency for AGRICORE Suite

KER Description

This key exploitable result consists of the possibility to exploit the knowledge acquired during the project in identifying, sourcing, and securing relevant data for (agricultural) policy analysis. The KER started at TRL 2 and aims to reach TRL 6 by the end of the project.

Aiming for

- Large businesses - Maybe
- Open-source community - Yes



KER analysis- STAM



KER: 5

Semantic APIs and ontologies

Keywords

- ❖ Ontologies
- ❖ Agriculture
- ❖ Semantic
- ❖ Web

Exploitation route

- Market- oriented by providing the knowledge gained for the creation of the project ontologies as a service to potential customers
- Internal exploitation by developing new ICT tools.

IP protection

- No specific form of IP protection foreseen at this stage .
- Dependency for AGRICORE suite.

KER Description

This key exploitable result has as an overall goal to develop a semantic engine. The process includes the definition of the required ontologies (data model framework to sort datasets) for the characterisation of data sources that are useful for conducting policy impact assessment in the field of agriculture. The definition of the required ontologies will enable the use of semantic technologies. The KER is directly related to the ARDIT Tool since the semantic APIs are code which will be used to retrieve information from this tool. This code is directly related to data indexing and will guide the browsing through the datasets represented within ARDIT. The KER started at TRL 6 and aims to reach TRL 8 by the end of the project



Aiming for

- Large businesses - Yes
- Open-source community - Maybe



KER analysis- STAM



KER: 6

Georeferenced information display libraries

Keywords

- ❖ Geospatial,
- ❖ Sources,
- ❖ Upscaling,
- ❖ Downscaling,
- ❖ Georeferenced

Exploitation route

- Market- oriented by providing the knowledge gained for the creation of the project ontologies as a service to potential customers
- Internal exploitation by developing new ICT tools.

IP protection

- No specific form of IP protection foreseen at this stage .
- Dependency for AGRICORE suite.

KER Description

This key exploitable result constitutes of visualisation tools used for displaying the geo-referenced information resulting from the AGRICORE analysis execution. It is basically a georeferenced information system that will display and take into account location data such as soil quality data, land use, water quality and emissions/pollution measurements. The KER started at TRL 6 and aims to reach TRL 8 by the end of the project.



Aiming for

- Large businesses - Yes
- Open-source community - Maybe



KER analysis- IAPAS

KER: 7

Connection modules for biophysical model interconnection

Keywords

- ❖ Connection modules,
- ❖ BioMa platform,
- ❖ ARPEGE,
- ❖ Wrapper,
- ❖ Biophysical models,
- ❖ Crop modelling,
- ❖ Integration of modules

Exploitation route

- Market- oriented
- Scientific-oriented

IP protection

- Interested for IP protection through licensing.
- Dependency for AGRICORE suite

Aiming for

- Large businesses - Maybe
- Open-source community - Maybe



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IPR Workshop



KER Description

The connection of the AGRICORE tool with the BioMa platform will be established through the development of a dedicated model interaction module that enables the use of the extensive library of biophysical models contained in BioMa. An additional model interaction module will be developed for connecting BioMa (and potentially, any biophysical model) with the ARPEGE model. In addition, extensive testing activities will be done to ensure the future straightforward connection to other biophysical models. The KER started at TRL 1 and aims to reach TRL 6 by the end of the project.

KER analysis- IAPAS



KER: 8

Environmental and climate impact assessment

Keywords

- ❖ Impact assessment,
- ❖ Agriculture,
- ❖ Environment,
- ❖ Climate change,
- ❖ Food security,
- ❖ Assessment of policies,
- ❖ Impacts of farming

Exploitation route

- Market- oriented
- Scientific-oriented

IP protection

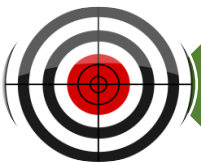
- IP protection through licensing. The type of the license will be defined in a later stage of the project once dependencies are clear and compatibility issues solved.
- Dependency for AGRICORE suite.

Aiming for

- Large businesses - Maybe
- Open-source community - Maybe

KER Description

The goal of this KER is the development of an impact assessment module (IAM) for the purpose of evaluating 1) the impacts of the agriculture on the environment and the climate and 2) the impact of the climate change on how much food can be produced and where. To do so, the proposed IAM will provide two main functionalities: providing regional climatic patterns as an input to the agent-based models and computing main Key Performance Indicators (KPIs) related to the environmental and climatic impact assessment of policies. The list of KPIs to be provided by the module includes land conversion and habitat loss, wasteful water consumption, soil erosion and degradation, pollution, genetic erosion, and climate change. The KER started at TRL 1 and aims to reach TRL 6 by the end of the project.



KER analysis- Ayesa



KER: 13

Data Warehouse design providing advanced data analytics capabilities

Keywords

- ❖ Big Data
- ❖ Data
- ❖ Data Warehouse assessment

Exploitation route

- Market- oriented
- Internal exploitation by integrating this visualization tool in the current existing proprietary platform of Grid Pilot.

IP protection

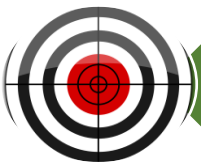
- Software protection desired depending on the Grid Pilot usage and protection.
- Dependency for AGRICORE suite.

KER Description

The goal of this this key exploitable result is to design and implement a data warehouse suitable for supporting the analyses examined within AGRICORE. Specifically, KER13 refers to a back-end platform that gathers data for future storage in the data warehouse. The data structure allows analysis using machine learning advanced techniques with the main target of enabling data exploitation. The data warehouse will include easy-to-manage access permissions and its design will support both private and public cloud infrastructure deployment.

Aiming for

- Large businesses - Maybe
- Open-source community - Maybe



KER analysis- Ayesa



KER: 14

Interface tailored design and implementation for data analysis purposes

Keywords

- ❖ Big Data,
- ❖ Visualization,
- ❖ Interface, Data,
- ❖ Data
- ❖ Warehouse
- ❖ Assessment

Exploitation route

- Market- oriented
- Internal exploitation by integrating this visualization tool in the current existing proprietary platform of Grid Pilot.

IP protection

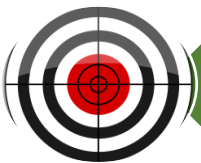
- Software protection desired depending on the Grid Pilot usage and protection.
- Dependency for AGRICORE suite.

KER Description

This key exploitable result refers to a front-end platform that allows the visualization of big data in order to let the user obtain conclusions and provide assessment thanks to the structure developed on any other existing back-end.

Aiming for

- Large businesses - Maybe
- Open-source community - Maybe



KER analysis- CAAND

KER: 15

Participatory research activities design for the agricultural sector

Keywords

- ❖ Participatory research,
- ❖ Agriculture,
- ❖ Interviews,
- ❖ Questionnaires

Exploitation route

- Market- oriented by providing consultancy services for policy briefing and changes in the development of agricultural policies to public administration institutes

IP protection

- IP protection is not needed or desired in this specific case
- The data generated by the participatory research will “feed” the AGRICORE suite



Aiming for

- Large businesses – Yes
- Open-source community – Yes



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KER Description

This key exploitable result refers to the development of the strategy in order to implement the participatory research activities as part of the use case studies of AGRICORE. This includes the identification of the gaps, the selection of the stakeholders (policy makers, farmers, associations, policy executioners, national/regional governments) that have the knowledge required for filling such gaps and the selection of the appropriate participatory research action (e.g., surveys, interviews).

KER analysis- AKD

KER 17

Models of agricultural products and land market

Keywords

- ❖ Industry 4.0
- ❖ Agricultural policy analysis
- ❖ Agricultural policy impact assessment using advanced modelling,
- ❖ Agricultural policy analysis using Industry 4.0 technology

Exploitation route

Scientific- and research- oriented through:

- Subsequent research activities
- Teaching
- PhD thesis

IP protection

- No IP protection foreseen
- No dependencies to consider regarding coding and software programming.

Aiming for

- Large businesses - Maybe
- Open-source community - Yes



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IPR Workshop



KER Description

This key exploitable result refers to the methodology developed in order to define optimized models for land markets at crop- basis and agricultural products based on an extensive analysis of scientific literature. The goal of is to develop modules which will properly consider the interaction of the agents regarding the use and transfer of land, as well as modules which enable the modelling of market interlinkages and are simulating the dynamics of production market prices. These models will be adapted to AGRICORE tool.

KER analysis- UTP

KER 16

Consulting and modelling services in the agricultural area

Keywords

- ❖ Environmental and ecoservices modelling,
- ❖ Indicators of climate change,
- ❖ Determination of irrigation needs,
- ❖ Assessment of increase in extreme natural phenomena, Indicators of environmental pollution,
- ❖ Other agriculture policy measures

Exploitation routes

- Market- oriented e by offering consultancy services to various stakeholders
- Scientific- oriented by teaching relevant subjects and publications in conferences

IP protection

- No specific form of IP protection foreseen at this stage .
- No dependencies to consider regarding coding and software programming.

Aiming for

- Large businesses - Maybe
- Open-source community - Maybe



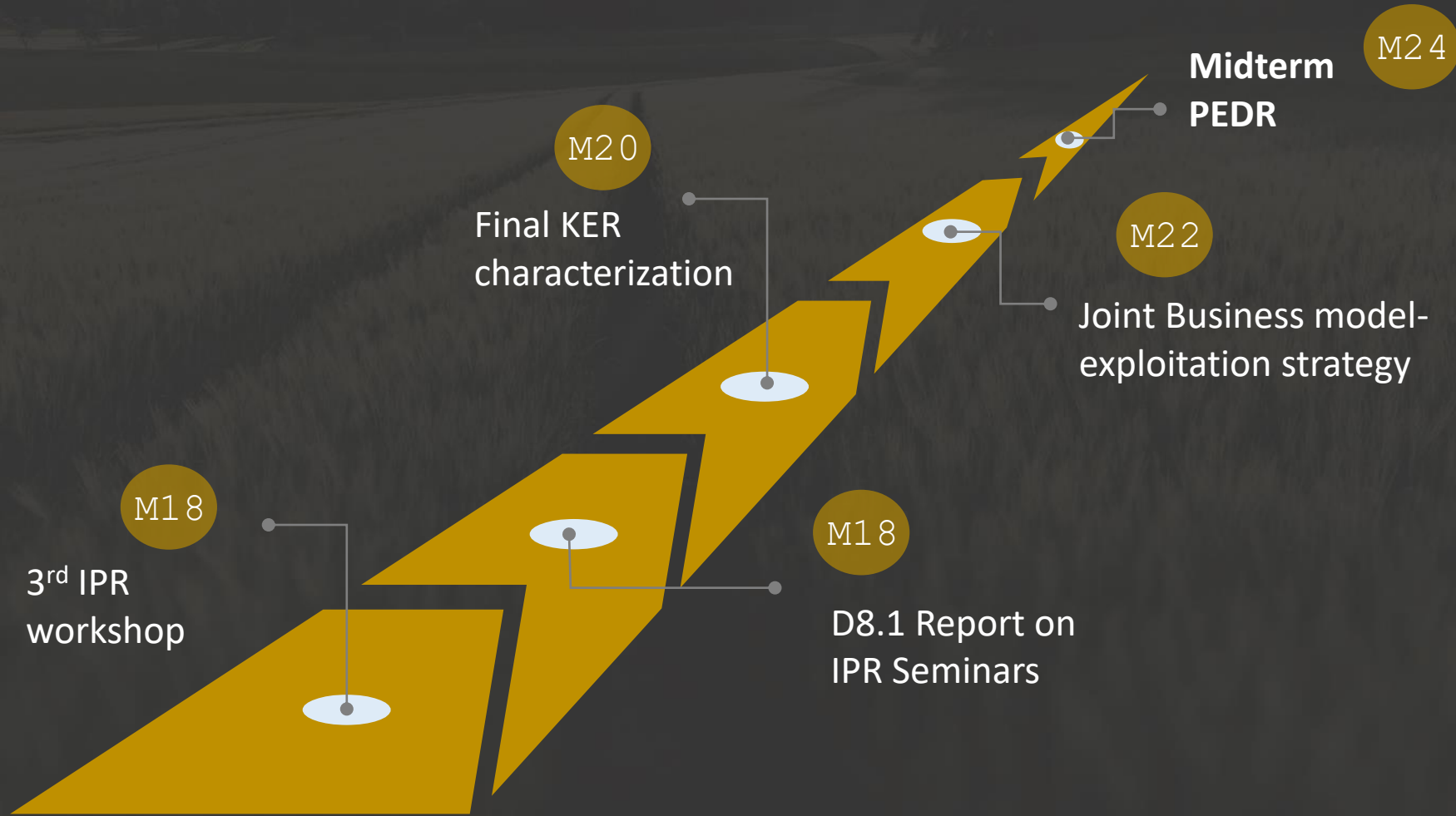
KER Description

This key exploitable result refers to the utilization of the biophysical and ecosystem services modules by offering professional consultancy reports, trainings, and agricultural advisory services to stakeholders in the agricultural area such as The Agency for Restructuring and Modernisation of Agriculture (ARMA), farmers and farmers' organisations.



2/19/2021

Timeline





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Thank You!

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