D6.3

Exploitation, IPR Management and Sustainability Plan

skillbill

SKILL TO BOOST INNOVATION & PROFESSIONAL FULFILLMENT IN A SUSTAINABLE ECONOMY

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DISCLAIMER

This disclaimer serves to clarify that our calculations and planning were strategic and based on our previous experience, ensuring optimal resource allocation and adherence to project requirements.

SKILLBILL's methodology (GA No. 101075587) for the project's Exploitation, IPR Management and Sustainability Plan builds on existing expertise, tools and templates developed internally by White Research while also taking into account European Commission guidelines and best practises available in literature. Part of the standard methodology adopted has already been developed and employed in previous research projects where White Research was a beneficiary, such as the INCISIVE (GA No. 952179). Ad hoc and tailored modifications were integrated to the methodology used by SKILLBILL to comply with GA conditions, EU recommendations and project specificities. This report presents the adjusted methodology as it was further developed and applied within SKILLBILL.

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ABBREVIATIONS

A0	AZZERO CO2 SRL (AzzeroCO2)
AB	Advisory Board
AR	Augmented Reality
BG	Background
BP	Business Plan
CA	Consortium Agreement
EC	European Commission
EM	Exploitation Manager

ER	Exploitable Results
EREF	EUROPEAN RENEWABLE ENERGIES FEDERATION-FEDERATION EUROPEENNE DES ENERGIES RENOUVELABLES
EU	European Union
FG	Foreground
GA	Grant Agreement
IP	Intellectual Property
IPR	Intellectual Property Rights
LoA	Letter of Agreement
LoSs	Letters of Support
MET	METROPOLIA AMMATTIKORKEAKOULU OY (METROPOLIA)
MML	Mobilisation and Mutual Learning
PC	Project Coordinator
PC	PEDAL CONSULTING SRO
Q-PLAN	Q-PLAN INTERNATIONAL ADVISORS PC (Q-PLAN)
SINERGIE	SINERGIE SOC CONS ARL
UNITUS	UNIVERSITA DEGLI STUDI DELLA TUSCIA
USE	UNIVERSIDAD DE SEVILLA
UU	UNIVERSITEIT UTRECHT
VET	Vocational Education Training
WIPO	World Intellectual Property Rights Organization
WP	Work Package
WR	WHITE RESEARCH SRL

Executive Summary

Exploitation and Intellectual Property Rights (IPR) management is critical in order to enable the successful exploitation and market deployment for all SKILLBILL assets. Therefore, the consortium of SKILLBILL has placed great emphasis in managing IPR in the framework of the project since the very beginning of it, with a view to effectively pave the way for the smooth exploitation and sustainability of its results following its completion.

Along these lines, the current report presents the final version of the Exploitation, IPR Management and Sustainability Plan of the SKILLBILL Project. It sheds light on the key terms pertaining to the management and protection of intellectual property and lays down the main components of the relevant methodology to be applied throughout the project.

The description of the project results, along with initial identification of the contributing partners, protection types and access rights are provided within the report. An overview of SKILLBILL's assets is also presented, as well as the final considerations of Background and Foreground IP Knowledge, as currently perceived by the project partners. The methodology applied is supported by the IPR Matrix that facilitates registration of all background and foreground IPR and helps the timely identification and resolution of any potential conflict in this respect.

In addition, this report outlines a preliminary Business Plan for both the AR platform and the VET Program, as well as a separate plan for the continuation of the Specialisation School. It also includes signed Letters of Agreement (LoAs) from the participating universities, confirming their interest in participating in the School beyond the project's lifetime. To that end, the final version (M36) of the IPR Strategy also serves as a roadmap for the post-project exploitation of SKILLBILL's outcomes. The report builds on the initial version of the Exploitation Plan submitted at M6, which has been regularly updated throughout the project.

1. Introduction

The SKILLBILL partners focus on producing results that are sustainable after the project's completion and ensuring that innovative ideas, methodologies, and results of the project has been fully identified, preserved and considered in terms of wider availability to all relevant stakeholders and, where applicable, commercialization potential (e.g. of the Specialisation School and VET). Thus, the consortium defined basic principles, from the early stages of the project, that will yield a solid management framework for the Background (BG), as well as the Foreground (FG) Intellectual Property Rights of SKILLBILL. The final SKILLBILL Exploitation, IPR Management and Sustainability Plan sets the ground for monitoring the protection of IP and IPR within the consortium, which eventually will support the creation of value as regards the exploitable results of the project and facilitate successful innovation and deployment. The current report presents the **final version of the SKILLBILL Exploitation, IPR Management and Sustainability Plan** which aims to identify the project's key assets, set the premises for the determination of their underlying IPR, as well as for the development of a common understanding regarding their exploitation framework after the end of the project.

Document structure

The final version of the Exploitation and Sustainability Plan is comprised of 6 distinct chapters, as follows:

- **Chapter 1** provides introductory information about the context in which this report has been elaborated as well as its targets and structure.
- **Chapter 2** clarifies the purpose of the Exploitation Plan, describing the objective of it; the general aim and ambition.
- **Chapter 3** includes the overview of key Exploitation Management concepts (e.g., IP & IPR; ownership; background; access rights; ER & KERs etc.)
- **Chapter 4** introduces the main definitions of the IP protections measures (e.g., patents; trademarks; copyrights etc.)
- **Chapter 5** offers a preliminary overview of the project's strategy throughout SKILLBILL's lifecycle
- **Chapter 6** describes the methodology followed for developing SKILLBILL's final Exploitation & IPR Management Plan
- **Chapter 7-10** presents SKILLBILL's final Exploitation & IPR Management Results, including the background and exploitable results; the common Exploitation Strategy for SKILLBILL's KERs and the Individual Post-project Exploitation and Valorisation Plan
- **Chapter 11-12** introduce preliminary business plans for the continuation of the VET Program; the AR software and the Specialisation School

The SKILLBILL final Exploitation and Sustainability Plan includes the description of project's final assets, as well as the consortium's plans regarding their IPR protection and their main exploitation routes that will facilitate their exploitation after the end of the project. A Business Plan for VR platform Master and VET development maintenance is also included in the final version, along with signed LoAs of the involved universities expressing their interest to go on with the Specialisation School.

2. Purpose

Objective of SKILLBILL's Exploitation, IPR Management and Sustainability Plan

A main objective of the project's Exploitation, IPR Management and Sustainability Plan is to carefully list and protect all SKILLBILL's assets - with a view of managing efficiently all the outcomes that stemmed from project's activities and ensuring the wider availability to all relevant stakeholders and, where relevant, the commercial rollout of SKILLBILL's exploitable results after the project's completion.

Therefore, the Exploitation Strategy sets the ground for monitoring the protection of IP and Intellectual Property Rights (IPR) within the consortium, which eventually supported the creation of value from the exploitation and use of the project results and facilitate further innovation from the technologies developed during the project, in addition to their successful deployment.

Besides the protection of exploitable results (ERs), the objectives of the Exploitation Strategy also reflect the intention to ensure and support the exploitation and sustainability of project outcomes and their wider availability to all relevant stakeholders. Importantly, when relevant for each result, exploitation of results will rely on commercial and scientific activities that will take place after the project's completion.

Following a structured strategy that relies on best practices and official EC guidelines ensures that all the innovative ideas, methodologies, and results stemming from SKILLBILL are exhaustively identified and pertinently protected, thus helping maximise their impact by being made widely available to other stakeholders through commercialisation or, when applicable, scientific or other type of use.

To this end, the specific objectives of the SKILLBILL Exploitation, IPR Management and Sustainability Plan are the following:

- Define the iterative approach that will yield a comprehensive identification of Background (BG) and the results that emerged from all the activities within the lifecycle of the project.
- Define the methodological framework for the management of all BG and (exploitable) results, including the definition of rights for access and reuse within the project and the potential IPR protection avenues.
- Develop a common understanding among the consortium partners concerning IP-related concepts, as well as a risk mitigation approach, in order to prevent – or, if not possible, eventually resolve – potential IP conflicts.
- Deliver an exhaustive identification of IPR management strategies for all exploitable results of the project as well as from each partner's perspective.
- Relatedly, define ownership for each exploitable result, thus also serving as guidance for partners when they draft their own joint ownership agreements by not only identifying ownership shares but also other underlying usage conditions and responsibilities.
- Help define the more detailed exploitation strategies for the project's key exploitable results (KERs) in the relevant project tasks by not only identifying the relevant types of exploitation for each KER but also discussing how the KERs cover the needs of and add value to the main relevant stakeholders.

- Define the main outcomes of interest and the overall post-project valorisation plans for each consortium partner.
- Define the roles and responsibilities of each project partner to contribute to the project's exploitation management. Successfully fulfilling most of the previous objectives is contingent upon collecting timely input provided and, where relevant, agreed upon by all relevant partners, hence the (pro)active involvement of the consortium in this task is crucial.

General aim and ambition of Innovation Management activities

In the context of international CSA projects, it is crucial to understand how to manage IPR as their improper handling could cause real problems concerning the validity of the rights granted, or the risks of legal disputes between partners[1].

Ensuring that IP is timely identified and that the ownership and protection of the generated IP are adequately allocated helps with the smooth reuse and exploitation of the project results. To record all the relevant activities linked to the conception and development of an invention, it is advisable to keep a proper track of the innovation process, providing crucial evidence regarding the date of the invention, its authorship and ownership. A timely disclosure and accurate description of the invention also helped in the choice of whether to pursue further IPR protection and what means or type of protection to use (e.g., patent, utility model, design, trade secrets). Thanks to these records, partner organisations and consortium partners were able to monitor the creation of results with exploitable potential within the frame of the project and to have a clear understanding of the ownership of each IP asset and result, their rights to access/use them, and the pertinent ways to protect them.

Ultimately, creating value for partners, relevant stakeholders and society as a whole is the main objective of publicly funded research and innovation projects. Innovation management efforts are essential to support project partners in boosting the value and impact generated by their efforts beyond the consortium.

Defining a tailored and appropriate innovation management strategy is also important to support consortium partners with the necessary balance to both comply with Open Science requirements while at the same time ensuring the protection of IP to support the commercial exploitation of the project results.

In general, IPR promote economic, social, and cultural progress by stimulating creative work and technological innovation. For small and medium-sized enterprises (SMEs), particularly, a proper IP strategy and protection can help enhance market growth and support competitiveness, prevent loss of market share, prevent reputational damages, and give prospective investors the incentive to finance their activities[2].

Obligations under the Horizon Europe

A main objective of the SKILLBILL project's Exploitation Management strategy is to comply with the explicit obligations that beneficiaries of Horizon Europe (HE) programmes must fulfil. In general,

[1] European IP Helpdesk (2022a).

[2] European IP Helpdesk & Enterprise Europe Network (2024).

these rules aim to ensure that partners in a collaborative R&I project made good use of all the knowledge, IP and results from the project to maximise its impact and added value.

Building upon a clear understanding of the obligations discussed below, the updated version of project's Exploitation Management strategy has been formulated in a way that ensures that following it provided such compliance. To this end, this section reviews EC guidelines and summarises the most relevant obligations under Horizon Europe related to Exploitation Management.

HE rules establish guiding principles for Exploitation Management concerning aspects such as ownership, IP protection, access rights, exploitation of project results, etc. Most of these rules are delineated in the Grant Agreement (GA) and the Consortium Agreement (CA). While the GA contains 'default' overarching rules, the CA specifies certain rules further according to what is agreed upon by the project's consortium.

Obligation to protect: A key obligation for HE beneficiaries is that the project's results must always be adequately protected if (a) they can reasonably be expected to be commercially exploited and (b) protecting them is possible, reasonable and justified. Such 'adequate' protection of results implies that protection shall be attained for an appropriate period of time and with an appropriate territorial coverage.

Exploitation management activities must therefore ensure that exploitable results (ERs) were captured, assessed and appropriately protected, in order to support their commercial exploitation. This includes the obligation to define concrete measures for Key Exploitable Results (KERs)[3].

Mandatory Results Ownership List (ROL): Under Horizon Europe, beneficiaries must include a list of KERs in their final reporting, where the following information pertaining to each KER must be present[4]: (i) description, (ii) ownership status, (iii) sector of application, and (iv) protection measures - geographical coverage (if applicable). As a minimum, the ownership status information must include whether the ownership is single or joint, the name of the owner(s), the country of establishment of the owner(s) and whether the results will be exploited by the owner(s)[5]. Failure to present this ROL will block both the submission of the final periodic report and the final payment.

Obligation to exploit: Another crucial obligation is the responsibility of beneficiaries to do their best to exploit the project's KERs owned: consortium partners must, up to four years after the end of the project, take measures to exploit their results either directly or indirectly[6]. Particularly, indirect exploitation refers to the exploitation by another legal entity through the transfer or licensing of the IPR pertaining to the KER.

A subsequent obligation is formalised in HE' Model GA as follows: "If, despite a beneficiary's best efforts, the results are not exploited within one year after the end of the action, the beneficiaries must (unless otherwise agreed in writing with the granting authority) use the Horizon Results

[3] European IP Helpdesk (2022c).

[4] European Commission, European IP Helpdesk Service (2021).

[5] European IP Helpdesk (2022c).

[6] See p. 87 of European Commission (2024).

Platform (HRP) to find interested parties to exploit the results[7]. The HRP can also provide a commonly used platform to help making results visible[8].

In addition, regulations in Horizon Europe state that any exploitation taking place in non-associated third countries must be accompanied by a justification of how this exploitation is still in the EU's interest[9].

Obligation to disseminate: The beneficiaries must disseminate their results as soon as feasible, in a publicly available format, although subject to any restrictions arising from concerns regarding the adequate protection of intellectual property, security rules or legitimate interests. Nevertheless, a partner that intends to disseminate its results must inform and give appropriate notice for objection to other consortium partners before disseminating project results (45 days in advance [SKILLBILL CA; section 8; par. 8.2], unless agreed otherwise in the CA).

Beneficiaries are requested to make their scientific publications available as Open Access publications, and grant access to their data as open as possible and only as closed as necessary. Project partners must ensure open access to peer-reviewed scientific publications relating to their results, in particular ensuring that publications are available through scientific publications and repositories that provide immediate open access under Creative Commons or equivalent licenses. Partners (or authors) must retain sufficient intellectual property rights to comply with the open access requirements[10].

Pathways to impact and reporting: Horizon Europe guidelines introduced the following new methods to monitor and assess a consortium's plan and efforts to valorise the knowledge and results from the project in the long run[11].

- "Pathways to Impact" is a way to monitor impact pathways for KERs and plan concrete steps towards exploitation. It consists of steps towards the achievement of the expected impacts of the project over time, after its end. From the definition of the project's KERs, such steps comprise communication, dissemination, and exploitation activities, leading to the expected outcomes and ultimately to wider scientific, economic, and societal impacts.
- Continuous dissemination and exploitation (D&E) reporting templates. While beneficiaries are no longer mandated to fill in part B for D&E, the adapted templates for HE are designed to capture a clear picture of KERs and their ownership, the number of patents projects apply to, etc.
- Post-grant surveys. Two years after the end of the grant, beneficiaries will need to report on their progress, needs and obstacles on their path towards exploitation. At the time of writing this report, the guidelines regarding this questionnaire were still in the process of being drafted by the EC.

[7] See p. 87 of European Commission (2024).

[8] See the relevant section, 'Seeking support beyond the project', for an explanation of the HRP and related support tools.

[9] European IP Helpdesk (2022c).

[10] See article 17 of the Horizon Europe's Model GA in European Commission (2024).

[11] European IP Helpdesk (2022c).

(Joint) ownership: Particular emphasis should be given to the management of ownership of key project results. While the GA states that results are owned by the beneficiary that generates them, in the collaborative environment of a HE research's project two or more partners may jointly contribute to an individual result. In these cases, the IP is jointly owned by different partners, who should therefore agree on the ownership terms through a Joint Ownership Agreement. In addition, they must agree on appropriate and shared strategies for the management, protection, and exploitation of the jointly owned results[12].

Granting of access rights: HE rules also mandate the obligation of beneficiaries to grant access to other consortium partners to the knowledge they bring to the project or the generated results whenever such access is necessary to implement project activities or to exploit the project's collaborative results. This is discussed in more detail in the relevant section titled 'Access Rights'.

[12] European IP Helpdesk (2022c).

3. Overview of key Exploitation Management concepts

IP and IPR

To start, it is important to make a distinction between Intellectual Property (IP) and IP rights (IPR). While Intellectual Property (IP) refers to assets, IP rights (IPR) refer to legal tools to support commercial exploitation.

More specifically, IP refers to intangible creations of the human intellect that may be protected by law. In contrast, IP rights provide the legal framework by granting exclusive rights for a specified period, allowing creators to safeguard their ideas and creations from unauthorized use or reproduction. IPRs are territorial rights, meaning that they are valid only in the jurisdictions where they have been registered[13]. There are several types of IPR, a description of which can be found in the respective sections of this document.

Ownership, Inventorship and Authorship[14]

A second distinction must be made between the concepts of ownership, inventorship and authorship. The inventor of an innovation does not always correspond to the owner and vice versa. Moreover, the inventor is not necessarily the author.

While inventorship identifies the creator of an invention, ownership recognises the proprietary right to possess an invention. Thus, ownership gives the right to prevent others from using the IP. Authorship is used in the copyright domain, more precisely in a publication environment, in which a person – the author – has produced a piece of writing or any other specific publication.

While inventors and authors are always natural persons, owners can also be legal persons (organisations), for instance the employer of an inventor/author. It is important to note that assigning ownership to an employer does not affect inventorship or authorship.

The factors that determine whether someone is a (co-)inventor include (i) conception of the idea, (ii) material contribution to the development of the invention, and (iii) implementation of the idea into practice.

The common default regime in most national legal frameworks of EU member states that copyright from inventions and the IP created by employees belong to the organisation/employer. However, in order to avoid later disputes, it is strongly recommended that employment contracts and assignment agreements contain explicit provisions and rules on the allocation of ownership for IP rights to inventions.

[13] European IP Helpdesk & Enterprise Europe Network (2024).

[14] European IP Helpdesk (2022a).

Background

Background IP (BG) can be defined as data, know-how or information – including any rights – owned or licensed to a project partner prior to the start of the agreement and needed to implement the action or exploit the project's results.

The implementation of any collaborative research project requires the use of pre-existing IP (i.e., background) resulting from work carried out prior to the project and belonging to one of the partners. Partners shall outline the respective background that each of them will bring to the project. In the CA, project partners need to create a list of background IP, as well as specific IP they wish to exclude access to[15].

All project partners were asked to identify the background that they brought to the project to carry out its activities. The background can be identified and agreed upon (i) within the consortium agreement, after the internal evaluation of pre-existing knowledge, (ii) in a separate agreement ("agreement on the background"), and/or (iii) in the Exploitation Management deliverables. In any case, the consortium must identify the background that each project partner provides and that is imperative for successful implementation and exploitation of the project. This list of background can also be part of joint ownership agreements and shall be kept updated during the project's implementation phase in the respective versions of the Innovation Management deliverables.

Besides this identification, it is important to define the access rights associated to the project's background. This is discussed in the next section.

Furthermore, it is important to define what is considered modifications/improvements to the background. The distinction between derivative and new work is not always obvious. Therefore, ownership of the background modifications needs to be defined contractually[16].

Regarding ownership, examples of common IPR ownership arrangements related to background include the following:

- That each contributing party retains the sole ownership of its background.
- Relatedly, that any modifications to such BG or derivative works based on it remain the property of the BG's original owner (i.e., the partner that brought the BG to the project).

Furthermore, since most of the joint results contain partner-contributed IP, the background constitutes the object of future contracts and influence the conditions for the use of the results. Therefore, it is advisable to provide contractual clauses about the use of the individually owned background IP, besides discussing the use of the joint IP[17].

Access Rights

Access rights refer to a given project partner's right to request access to another project partner's IP (be it BG or project results) to implement its project activities or exploit its own results. The rules

[15] European IP Helpdesk (2022c).

[16] European IP Helpdesk (2022b).

[17] European IP Helpdesk (2022b).

and provisions governing access rights within the project are pre-defined in the Consortium Agreement (CA) and article 16 of the Grant Agreement (GA) of SKILLBILL.

Irrespective of ownership provisions, the background that is strictly needed for carrying out the project activities or exploiting the results must be accessible to the other project partners on a royalty-free basis. Partners have the right to request access rights to the other project partners' background and results as long as they need them to carry out the project work or to exploit the project results[18]. More specifically, each party should grant access rights to the respective partners that need certain background, allowing them to use it in accordance with the project's scope (usually royalty-free), and within their business activities during and after the project (usually royalties-bearing)[19].

In line with this, SKILLBILL CA specifies that consortium partners have access to the background/results of other partners in case they need this knowledge (IP) to implement their own project tasks or to exploit their own results.

In addition, these access rights could be requested throughout the duration of the project and up to one year after its completion when needed to carry out the exploitation of results that incorporate such BG (unless agreed otherwise in the CA). Once requested, access rights may be exercised if they are needed for exploiting the results (e.g. until the background patent expires).

The following table provides an overview on the access rights regime under Horizon Europe, differentiating on the type of IP and the purpose for its use[20]:

Table 1. Access rights regime in Horizon Europe projects

Purpose of Access	Access to Background	Purpose of Access
Implementation of the project	Royalty-free, unless otherwise agreed by participants before their accession to the GA	Royalty-free
Exploitation of project results	Subject to agreement, access rights shall be granted under fair and reasonable conditions (which can be royalty-free)	

Examples of access rights clauses within the scope of collaborative research projects include the following:

- Each party grants the other parties the non-exclusive right to use its background free of charge, as long as such access is strictly necessary to implement the project actions;
- Each party grants the other parties a non-exclusive, royalty-bearing, non-transferrable right to use its background, as long as such access is strictly necessary for the other party to make, sell or otherwise exploit the project result.

[18] European Commission, European IP Helpdesk Service (2021).

[19] European IP Helpdesk (2022b).

[20] European IP Helpdesk (2022c).

Project (exploitable) results and KERs

As part of the project's exploitation management, it is important to map any results and assets that are generated through the implementation of project activities. Results can be defined as any tangible or intangible output generated within the project's activities, whatever their form or nature, including materials, data, knowledge or other pieces of information, whether or not they can be protected, as well as any rights attached to them, including IPR[21]. It must be noted that output generated outside project activities cannot be categorized as 'project's results.

In general, project results are owned by the partner that generates them. However, given the collaborative nature of the project, some results can be jointly developed by several partners. In this case, joint ownership can arise among the contributing partners and is subject to joint ownership agreements.

In addition, it is important to highlight that results generated within the project were formally called 'foreground', while current terminology, already updated in the EC's Horizon 2020 guidelines, prefers to only make a distinction between 'background' and 'results'[22].

Nevertheless, results can be categorized in different ways. For instance, a granular result can be part of a larger (composite) result, which may be a more important outcome of the project or be more relevant for exploitation purposes.

Accordingly, one can differentiate between 'results' and 'exploitable results'. An exploitable result (ER) is a project result that meets the following two criteria: (i) has commercial, social and/or academic relevance, and (ii) can be commercialised/exploited as a standalone result. However, not all results may meet the above conditions. Furthermore, ERs ought not to be ready to be exploited right after the end of the project, even though they must hold that potential; for instance, they may require further R&D, engineering, or validation before becoming a product that can be commercialized. As mentioned before, exploitable results can be a combination of more granular project results.

Furthermore, it is important to consider the concept of 'Key Exploitable Results' or KERs, which are the main project results in terms of exploitation interest and potential[23]. Among the various identified results generated by the project that can potentially be exploited, a prioritisation must be made to distinguish the main results as Key Exploitable Results or KERs. KERs are identified and prioritised due to their high potential to be reused and valorised (in other words, exploited) and the consortium's interest in doing so.

Exploitation

In the latest available Horizon Europe Model Grant Agreement[24], exploitation is defined as the use of results in further research and innovation activities beyond the project, including among other

[21] See the IP Helpdesk's glossary: https://intellectual-property-helpdesk.ec.europa.eu/regional-helpdesks/european-ip-helpdesk/europe-glossary/europe-ip-glossary-r_en

[22] European IP Helpdesk (2019).

[23] European IP Helpdesk (2021).

[24] European Commission (2024).

things, the commercial exploitation through the creation, manufacturing, marketing or provision of products or services, the development of processes, or in standardisation activities[25].

Therefore, exploitation refers to using a result generated in SKILLBILL in other activities, with the goal to valorise the result at the organizational level and/or to maximise its impact for other stakeholders. Other ways to make use of project results include, albeit apparently out of the scope of this definition of exploitation, conducting further research or providing relevant input for future policy-making. While we argue that further R&D can be interpreted as exploitation through, for instance, the development of new processes, the publication of results in scientific publications or as policy recommendations would rather fall under the scope of 'dissemination' of results (see the relevant section below for a discussion on dissemination).

One option regarding exploitation of results is for a beneficiary to transfer the ownership of IP to one of the joint owners of such (exploitable) results or even third parties[26].

Dissemination

Dissemination is defined in the latest Horizon Europe model GA as "the public disclosure of the results by appropriate means, other than resulting from protecting or exploiting the results, including by scientific publications in any medium"[27].

The appropriate means for the dissemination of project results (e.g. scientific publications, publication on web sites, conferences, etc.), can be selected by project partners, always taking into consideration the Open Science requirements in Horizon Europe.

In any case, partners must first ensure the protection of a project's Exploitable Results and then proceed to dissemination actions of the underlying result(s). In this regard, it is important to note that certain IPR protection measures require the relevant IP to be kept confidential before registering it for protection.

Specifically in the context of SKILLBILL, in order to maintain confidentiality during the project and after its conclusion, the provisions set out in the Consortium Agreement (Article 8) establish that, during the project and for a period of one year after its end, the dissemination of own results by one or several project parties, including but not restricted to publications and presentations, should be determined by the procedure of Article 17.4 of the Grant Agreement and its Annex 5, (Article 17 "Communication; Dissemination; Open Science and Visibility"), subject to the following provisions.

Prior notification of any planned publication shall be given to the other partners at least 45 calendar days before the publication. Any objection to the planned publication shall be made in accordance with the Grant Agreement by written notice to the Coordinator and to the Party or Parties proposing the dissemination within 30 calendar days after receipt of the notification. If no objection is made within the time limit stated above, the publication is permitted. (D1.2: "Quality Assurance and Risk Management Plant", M3).

[25] See page 85 in European Commission (2024).

[26] European IP Helpdesk (2022c).

[27] See page 85 in European Commission (2024).

Results, outcomes and impact

Horizon Europe clearly distinguishes between results, outcomes, and impact. Results are achievements made during or shortly after the implementation of the project. Outcomes are the effects of the project in the medium term, achieved through the uptake, diffusion, and use of the results. Impacts are the effects on society, the economy, and science in the long term, enabled by the outcomes of the project. The specific time periods in which results, outcomes, and impacts are expected depend on the specific project, but typically may be three, five and seven years from the project start, respectively[28].

Joint ownership

Joint ownership, also called co-ownership, refers to a situation in which two or more (legal or natural) persons have proprietary shares of an asset. Joint ownership often occurs in connection with collaborative innovation and is thus of relevance to EU-funded programmes and any research project involving co-development of IP[29].

Joint ownership of IP requires that results (e.g., research results) are jointly generated by the partners, and that the exact share of the work (i.e., of the 'material' contributions) cannot be determined easily, or that the final work or result is indivisible by nature[30]. In addition, joint ownership may arise with regard to all the forms of IP (e.g., patents, copyright, trademarks, trade secrets, etc.).

Partners should define the terms of the resulting joint ownership in a separate joint ownership agreement or, alternatively, in clauses within the more general collaboration agreement. However, when drafting a joint ownership agreement or a collaborative agreement, it is crucial to seek legal advice, given the complexity and technicality involved in doing so.

Exploitation rights on jointly owned assets may vary across the various relevant jurisdictions. Hence, it will be determined on the national level who, among the joint owners, can grant licenses and/or sub-licenses. Likewise, the co-owner's right to be compensated for not exploiting those assets might be differently regulated or even absent in some jurisdictions. In this context, the respective co-owners need to carefully consider the choice of applicable law and jurisdiction. Choosing a jurisdiction will allow partners to uniformly interpret their joint ownership agreement and to set common rules in case disputes among them emerge. Any national law can be selected, even though it is preferable to choose a jurisdiction that offers the highest degree of impartiality as well as a high standard of protection and efficiency. It is also advisable to select a law that is applicable to the parties' respective national systems or the core of the agreement[31].

Partners should define the expectations regarding jointly created results before any research activity is carried out. In addition, if possible, partners should define co-ownership issues of the expected results by considering the following factors[32]:

[28] European IP Helpdesk (2022c).

[29] European IP Helpdesk (2022b).

[30] European IP Helpdesk (2022b).

[31] European IP Helpdesk (2022b).

[32] European IP Helpdesk (2022b).

- The allocation of the ownership shares of IP results between joint owners. One of the most common options is to equally share the results among the partners. An alternative is to divide it according to their involvement in the development of the results.
- The conditions of use of the jointly owned results (IP). Co-ownership arrangements usually grant each party an unrestricted use of the jointly owned IP. However, if restrictions were to be deemed necessary, two options can be envisaged: either (a) joint ownership is maintained with the provision of mutual restrictive conditions (e.g., use strictly necessary for research activities), or (b) the property of the entire asset – hence supporting all the related costs – is assigned to a single party who will grant licenses to the other partners on an "as-needed" basis.
- The conditions of exploitation of the joint IP, under which each co-owner can assign, license and exploit the jointly owned results. For instance, whether the other partners will receive compensation when exploiting the joint results; or any rights and obligations regarding licensing costs and income.
- The conditions for dissemination of the joint IP. To maintain secrecy on the knowledge, parties can establish confidentiality rules. For instance, joint owners can agree on limits to the disclosure of data and results, bearing in mind that dissemination can be an impediment to future IP rights registration (i.e., patents, utility models and industrial designs). Common clauses include the following: (i) that a party intending to publish any research results provides a certain period of time for the other parties to verify whether the contents of such dissemination should be kept confidential; or (ii) that confidential information shall not be disclosed, reproduced, or otherwise made available to any other third party, without the consent of the other parties, at least for a certain term (e.g., until patent applications are filed).
- The management of the jointly owned results (IP). This refers to the protection, maintenance and defence of the results. Regarding IPR protection, an agreement shall include: (i) the type of protection measure, (iii) when the protection will be registered, (iii) which party will file the application and then follow the procedure, and (iv) which party will bear the costs of the IP protection and maintenance. Regarding IPR infringement and enforcement, joint owners should decide which party will be responsible for monitoring and policing the joint IP as well as assume the expenses for any infringement in connection with it. The latter can arise either because the jointly owned IP infringes a third parties' IPR or because a third party infringes the co-owned IP. In the case of IPR infringements owners can legally enforce their rights against infringers[33]. However, it is also recommended to first evaluate an Alternative Dispute Resolution mechanisms (ADR) such as negotiation, mediation, expert determination, arbitration, etc[34].
- Governing law and jurisdiction and alternative dispute resolution mechanisms. Such mechanisms are a rapid and cost-effective way of solving disputes in contractual relationships.

It is best practice for partners to establish, during or after the project, a separate joint ownership agreement in order to define the allocation of ownership and the terms discussed above.

[33] It is recommended to utilise monitoring services, online searches, and industry networks to identify potential infringements and, if infringement is detected, to consult an IP attorney (European IP Helpdesk & Enterprise Europe Network, 2024).

[34] ADR are a rather simple, fast and inexpensive procedure that brings parties together with the objective to resolve disputes out-of-court. Types of ADR include negotiation, mediation, expert determination, arbitration, etc. (European IP Helpdesk & Enterprise Europe Network, 2024).

As mentioned at the beginning of this document, exploitation of the project results may be done by partners directly or indirectly through another party through licensing or transfer of IPR. Hence, each joint owner can grant non-exclusive licenses to third parties to exploit the jointly-owned results (without any right to sub-license). In such case, unless otherwise agreed in the CA or the joint ownership agreement, the remaining joint owners must be given at least 45 days advance notice and fair compensation[35].

Lastly, it is important to note the difference between joint ownership of collaborative results and a common exploitation of composite results belonging to multiple partners. Exploitation of co-developed results can take various forms. For instance, jointly-owned results may be exploited individually by partners who have formally decided on the allocation of ownership and IPR of the results through a joint ownership agreement. However, jointly-owned results may also be exploited collaboratively, for example through joint ventures, special-purpose vehicles, or similar types of legal entities owned by multiple parties. Such joint exploitation may also not rely on jointly-owned results; i.e. not all parties that own shares in the legal entity must also be the IPR owners of the underlying results being exploited by that entity. Compared to joint ownership, agreements on the joint exploitation of individually-owned results are a common, and often simpler, pathway to manage the IPR and exploitation of project results. The aforementioned vehicles can exploit multiple elements owned by different partners through a single entity. Partners would still need to agree on (a) the division of the proprietary shares of such entity, and on (b) how to transfer the IPR to exploit the results to this new company. Although still complex and requiring further negotiations among partners, a joint exploitation through establishing a dedicated entity may be a more realistic strategy, depending on the nature of the project results. Regarding the ownership of IPR, the new common entity would either become the owner of the KER through the transfer of IPR, or simply acquire a license to exploit the result. In the latter case, the partners owning the individual elements would license their technology to this entity, according to their agreed terms.

Protection of digital IP

The threat posed by copying, industrial espionage, reverse engineering and manipulation of software solutions has led companies to increasingly invest in software protection. Additionally, IPR can arise in various aspects of a webpage or social media content: Be it - in respect of the logo used, the text/images that appear, the interface design, typography, domain name, databases included or the coding which determines the way the website is laid out and formatted. Some of this may have been created by the company but some of the content may have been created by others. Particularly, if your client is using an agency, pay careful attention to the property clauses. It‘s important to be aware of IP considerations when creating and sharing content on webpages or social media platforms to ensure they respect the rights of others and protect their own IP. Laws and regulations regarding IP can vary by jurisdiction. For software protection, depending on the jurisdiction, explore legal options like patents, copyrights, and trade secrets[36].

[35] See article 16 of the Model GA in European Commission (2024).

[36] European IP Helpdesk & Enterprise Europe Network (2024).

4. Definitions of IP protection measures

When exploring IP protection, it's important to recognize that various forms of intellectual property rights (IPR) are available. Therefore, selecting the most effective protection strategy is essential. The appropriate form of protection should be determined based on the nature and unique features of the results in question, as well as the goals of the IP owner.

A few key terms concerning IP protection are the following:

- Patents and utility models
- Trademarks and industrial designs
- Trade secrets and confidentiality
- Copyright and creative common licenses
- Domain names

Short definitions and key elements of these terms are provided in the following subsections.

Patents and utility models

A **patent** is a legal title granting its holder the right to prevent third parties from commercially exploiting an invention without the authorisation of the patent holder. Therefore, the value of a patent arises from giving its owner a monopoly.

Patents are granted for inventions that demonstrate potential for industrial application. A patent protects inventions (i.e., products or processes) offering a new technical solution or facilitating a new way of doing something. Therefore, patents must be novel and demonstrate progress beyond the state-of-the-art. Quoting the European Patent Convention, “European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.[37]”

According to the European Patent Convention, mathematical methods, programs for computers or aesthetic creations, among others, are not regarded as inventions with regards to patentability[38]. Software is thus excluded from patentability to the extent that a patent application relates to a computer program “as such”. However, computer-implemented inventions, defined by the European Patent Office (EPO) as innovations that “involve computers, computer networks or other programmable apparatus, whereby at least one feature is realised by means of a [software] program”[39], are accepted at the EPO. It is relevant to note that a computer program and a computer-implemented method are distinct from each other: while the former refers to a sequence of computer-executable instructions specifying a method, the latter refers to a method being performed on a computer[40]. Relatedly, database management systems, defined as technical systems implemented on computers to perform the tasks of storing and retrieving data using various data

[37] See art. 52 in European Patent Office (2020).

[38] See art. 52 in European Patent Office (2020).

[39] See Part F – Chapter IV-10 in European Patent Office (2024).

[40] See Part G – Chapter II-17 in European Patent Office (2024).

structures, are considered a method that uses technical means and are therefore not excluded from patentability either[41].

Like patents, utility models are exclusive rights granted for an invention (i.e., a product or a process) that either provides a new way of doing something or offers a new technical solution to a problem. In addition, in order to obtain protection, registration must be granted. However, utility models are not available in every country[42].

Trademarks and Industrial designs

Trademarks are signs capable of distinguishing the goods or services of one enterprise from those of others (e.g., its competitors). Therefore, they offer an exclusive right over the use of a sign in relation to the goods and services it represents. Examples of such signs include combination of words or letters, drawings, symbols, and even sounds or fragrances, among others. This type of IPR confers an exclusive right to the use of the registered trademark. While the trademark lasts for 10 years, it is renewable indefinitely[43]. In contrast, a patent always expires.

Trademark law protects the design only indirectly. Neither novelty nor a creative level of creation are necessary. But there are also disadvantages: Firstly, protection is limited to the goods and services designated in the trademark register, and secondly, for a trademark that has not been used for more than 5 years, anyone can apply for its cancellation for the unused goods and services[44].

Industrial designs can also be protected by exclusive rights. Design protection protects the two- or three-dimensional external appearance of a whole product or a part thereof. More specifically, a design refers to "the appearance of the whole or a part of a product resulting from the features of, in particular, the lines, contours, colours, shape, texture and/ or materials of the product itself and/or its ornamentation"[45] . Examples include the design of vehicles, furniture or clothing, as well as product packaging, equipment and other graphic symbols.

For this type of IPR to be granted in the EU, the design must be registered in the industrial property office of a Member State, and it must demonstrate novelty and singularity or 'individual character'. A design is considered new if no identical design has been made available to the public before the filing of the application for registration. Individual character requires that the impression the design produces on the informed user differs from the impression produced by any existing design.

Trade secrets and Confidentiality (or non-disclosure) agreements

A **trade secret** is a type of IP that encompasses confidential, proprietary information (such as manufacturing processes, formulas, techniques, customer lists, marketing strategies, software

[41] See Part G – Chapter II-21 in European Patent Office (2024).

[42] European IP Helpdesk & Enterprise Europe Network (2024

[43] European IP Helpdesk & Enterprise Europe Network (2024).

[44] European IP Helpdesk & Enterprise Europe Network (2024).

[45] European Parliament, Council of the European Union (1998).

algorithms, data and more). Unlike patents, copyrights, or trademarks, trade secrets rely on maintaining their secrecy. To qualify as a trade secret, the information must be confidential (i.e., unknown or not readily accessible to the public or competitors) and have economic value. In addition, the owner of the trade secret must take reasonable efforts to keep the information confidential, for instance through non-disclosure agreements or access controls[46].

Confidentiality agreements, also known as non-disclosure agreements (NDAs), are contracts that provide protection to organisations wishing to disclose valuable information and ideas to other parties in confidence. These written agreements establish the obligation of the recipient (i.e. the legal person to whom the information is disclosed) to not disclose the information to third parties. Therefore, they provide an assurance that confidential information will be used only for the agreed purposes and will not be used or revealed to third parties without consent.

Therefore, confidentiality agreements are crucial for inventors or other parties willing to protect confidential information. This is also the case for participants in collaborative R&I projects, where the exchange of valuable, confidential information is necessary to set up, implement the project, in addition to exploit its results.

Confidentiality agreements can protect project results which represent confidential information that, if kept secret, can offer an organization a competitive advantage and thus be part of wider exploitation efforts, e.g. in the development of technology, products or processes. Examples of information commonly covered by NDAs include a product design or a business idea.

Copyright and Creative Common Licenses

Copyright law protects authorship understood as the expression of an original work created by an author. The general rule is that the author is the first owner of the copyrighted material and has the right to decide the type of use that other persons can make of his or her works[47]. Thus, copyright represents the IPR that authors have over their work[48].

Copyright generally applies to literary, musical, artistic works, but also to other intellectual works such as computer programs, databases, advertisements, maps, and technical drawings. Copyright can also protect software or information stored on hardware and used by computer systems to execute operations, including algorithms, program codes and graphical interfaces[49].

In the EU, copyright protection grants the following exclusive rights: (i) economic rights, guaranteeing control over the work and remuneration for its use through selling or licensing; and moral rights, usually protecting an author's rights to claim authorship and the right of being cited as the author (i.e., right of attribution) and the right to refuse a modification of the work (i.e., right to the integrity of the work)[50], as well as the right to withdraw the work from publication[51].

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[46] European IP Helpdesk & Enterprise Europe Network (2024).

[47] European IP Helpdesk (2022a).

[48] Creative Commons (2023).

[49] European IP Helpdesk & Enterprise Europe Network (2024).

[50] European Union – Your Europe (2023).

[51] European IP Helpdesk (2022a).

Creative Commons (CC) Licenses are a free, universally accessible and standardised manner to grant copyright permissions for creative and academic works. CC licenses are free of charge and do not require creators or other rights holders to register with a Creative Commons organisation to assign a CC license to their work .

CC licenses are copyright licenses and depend on the existence of a copyright to work; as such, they work worldwide and last as long as applicable copyright lasts. CC licenses are appropriate for creators willing to make their work available to the public for limited kinds of uses. However, they are not recommended for IP owners willing to keep all of their rights under copyright law[52].

Domain names

Domain Names are the typographical characters corresponding to registered IP addresses, which are used to identify a particular website on the internet. Although a domain name is unique and may be a valuable commercial asset, a domain name registration is not considered as a type of IPR[53].

However, when the domain name contains a trademark, it can then be considered as protected intellectual property. If one has a registered trademark, other parties are not allowed to register that trademark as a domain name[54].

[52] Creative Commons (2023).

[53] See the Glossary of the IP Helpdesk: https://intellectual-property-helpdesk.ec.europa.eu/regional-helpdesks/european-ip-helpdesk/europe-glossary_en

[54] DNS Belgium (n.d.).

5. Strategy throughout SKILLBILL's lifecycle

Relevant IP aspects arise throughout the lifecycle of a project: from the conceptualisation stage, during its activities, and even beyond its implementation through the potential exploitation and commercialisation of its results.

Before the start of the project, it is essential to define the existing IP that is brought to the project by the partners (i.e., the background). It is also important to monitor the patent landscape. During the project implementation, partners must identify relevant IP elements and discuss possible IP protection methods. After the end of the project, it is crucial to discuss and agree on (joint) exploitation strategies and pathways, as well as studying possible IP ownership arrangements and defining the related responsibilities for managing IPR protection. It is also crucial to explore potential agreements related to licensing or transfer of IPR.

At the strategic level, the Exploitation Management approach in SKILLBILL is aligned with the five pillars of IP management in Horizon Europe[55], with the aim of addressing the diverse IP issues that typically arise at different stages of a collaborative Horizon Europe project.

IP awareness: At the start of the project, or ideally even before its start, it is crucial for the consortium to be – or become – aware of the relevant IP policies, rules and agreements that apply to the project and its prospective results, given the nature of the project's R&I activities and the technologies it deals with. To this end, the present report provides a thorough understanding of the relevant IP and Innovation Management concepts, rules and processes for HE, based on an up-to-date review of existing EC guidelines and trainings. It also identifies the relevant literature and material that consortium partners wishing to explore these aspects further can use.

IP created: Also before and at the start of the project, consortium partners must identified and agreed on which pre-existing IP (i.e., background) is to be shared among consortium partners and under what terms and conditions it becomes available for use both during the project as well as after its end if needed for project implementation or results exploitation purposes. As the project progressed, the IP created needs to be defined; an Exploitation Management approach such as the one presented in this report needs to be put in place to ensure the capture of these results and facilitate agreements on ownership and relative contributions, as well as on who will manage the results and how.

IP assessment: IP assessment refers to the process of identifying, evaluating and analysing IP assets, as well as identifying the relevant IPR related to the identified IP. Hence, during the project's implementation phase, the commercial and scientific exploitation potential of the results were assessed. Results are also assessed with regard to their readiness (e.g., their expected technological readiness level). In addition, protection strategies for KERs were defined. If relevant, a preliminary assessment of the IP landscape should be performed, which may include a freedom-to-operate analysis and patentability checks. Altogether, this IP assessment will help in making informed decisions regarding the management, exploitation and/or protection of project results.

IP protection: In addition, appropriate measures for the protection of results should be put in place, when relevant to support a financially sensible commercial exploitation. It is relevant to consider that the costs of protection are eligible costs in HE projects. Protection measures includes applicable IPR, trade secrets, trademarks, etc. Towards a smooth valorisation of IP, it was ensured that specific

[55] See European IP Helpdesk (2022c).

provisions are put in place regarding access rights to results in order to safeguard the interests of the IP owners while at the same time allowing other project partners to exploit project results.

IP valorisation: Towards the end of the project, as the key exploitable results of the project are developed, the focus was shifted to the planning of tailored exploitation and dissemination pathways for these KERs, with the aim to ensure their long-term sustainability and impact. IP valorisation includes project activities as well as post-project ones. Specific IP valorisation activities during the project may include (i) an assessment of the market potential of KERs , (ii) an assessment of how the KERs relate with similar IP of competitors (e.g., competitor mapping, competitive advantage assessment), (ii) a delineation of suitable, detailed strategies for the commercialisation of KERs (e.g., business models). As outlined at the beginning of this document, HE beneficiaries are expected to exploit the KERs they own after the project. When relevant, IP valorisation also includes IPR management activities, including potential IP transfers (under agreed terms and conditions) and agreements for post-project efforts to maintain and potentially enforce the IP protection (including, for example, cost and revenue sharing agreements).

This strategic approach is also aligned with the slightly different 6-pillar IP strategy identified in previous material from the IP helpdesk[56]. The main difference rests on the split of the IP valorisation phase in two: on the one hand, dissemination and exploitation actions and on the other hand, post-project management activities.

Overall, the present exploitation management strategy relies on an iterative approach that consists of a continuous monitoring of project developments in order to identify any IP elements and the respective IPR owners and adequate protection measures. At the more practical level, the followed approach was tailored to the needs of the project and the needs of the IPR management strategy at each stage of it. This tailored methodology, comprising a series of guidelines and templates, supported all consortium partners in identifying and managing in a structured way the BG and the (exploitable) results of the project, assessing relevant protection measures and agreements to enable the successful exploitation of the project's results. SKILLBILL's methodology is thoroughly explained in the relevant chapter of this report (see 'Methodology').

Below we explain in more detail the entire innovation management strategy throughout the different relevant stages within an R&D project. The relevant timeline covers a period spanning pre-project and post-project stages, besides, naturally, a project's implementation period.

GA preparation stage

Both the Grant Agreement (GA) and the Consortium Agreement (CA) discuss several issues related to IPR. Their unique provisions represent a reference point for IPR issues that might present themselves during and after the project. These provisions can also facilitate any further advancements regarding IPR actions that project partners wish to put in place.

Grant Agreement: The GA constitutes a contract which sets out the key rules and conditions of the project and is agreed upon between the European Commission (EC) and the project partners. It represents the main contractual basis for the project, including several fundamental provisions referring to IPR, under which the management of the project's IP is regulated. For instance, it defines access rights and obligations related to the background brought to the project. In addition, the Grant

[56] European Commission, European IP Helpdesk Service (2021).

Agreement defines issues concerning the ownership and protection of the project's generated results, as well as their exploitation and dissemination outcomes. Finally, transferability and access rights to results are also defined in the project's GA.

Consortium Agreement: The CA constitutes a contract among the consortium partners that aims to define rights and obligations for the purposes of carrying out the project's foreseen actions and activities. To complement the provisions outlined in the GA, the CA addresses specific IP provisions as well as provisions for settlement of internal disputes. Regarding IP provisions, the CA discusses, among others, aspects of confidentiality, background selection, use of IP generated parallel to the project (sideground), ownership/joint ownership of results, legal protection of results (IPR), access rights, and procedures for dissemination of results[57].

The Consortium Agreement minimises the probability of later disputes as it provides rules and responsibilities to be followed during the project as well the delineation of access rights to be granted to the partners in the context of the project. In addition, it outlines the rights and responsibilities among the consortium members concerning IPR issues. For instance, the CA covers the following IPR-related aspects:

- Results, sets out provisions on ownership and joint ownership of results, as well as on their transfer and dissemination.
- Access Rights clarifies the access rights governing principles along with the access rights for the exploitation and dissemination purposes. It also states specific provisions for access rights to the software.
- Background included presents a preliminary list of usable background identified at the pre-project stage.

Implementation stage

During the implementation stage of SKILLBILL, IP handling procedures were applied among the consortium partners in order to properly identify and manage all project results and assets. With this goal in mind, it was important to establish a dedicated IP monitoring methodology that shall be followed from the early stages of the project and throughout its lifespan. As presented in more detail in the 'Methodology' section, we established mechanisms to guarantee that IP information is reliably and timely captured.

Overall, the IPR management strategy of SKILLBILL consisted of the following interconnected and iterative steps: (i) **identification of any further background IP** and definition of access rights among partners within the project; (ii) **identification of the results** generated under each project task; (iii) prioritisation of results **to identify the project's Key Exploitable Results**; (iv) plotting of the corresponding **(co-)owners and their type of exploitation interest**, along with the contributing partners to each result; (v) **definition of IPR protection measures, rights of use and exploitation pathways per partner** for the defined KERs; (vi) discussion of the KERs' value proposition to the main target stakeholders; and, lastly, (vii) the descriptions of each partner's individual post-project valorisation plans to make use of the overall knowledge gained during the project and the assets developed in it.

[57] European IP Helpdesk (2022c).

The initial and final versions of the Exploitation Strategy focus on the identification of the knowledge brought to the project by the different partners and the preliminary mapping of project results and their IPR. More specifically, at the initial implementation stages of the project, the Exploitation Strategy of SKILLBILL identified the background IP of the project and, to the extent possible, the main expected ERs. Access rights to the BG were also defined. As the project evolved, the initial focus on BG knowledge evolved to put more relative emphasis on the identification of ERs, with the respective discussions on asset ownership, access rights and IP protection, together with preliminary expected exploitation interests and pathways.

As the project advanced, the SKILLBILL Exploitation Management approach emphasised the handling of IP protection issues related to the specific results that are of strategic importance to the project, in order to facilitate the exploitation of its key exploitable results, including their further development, wider deployment and, where applicable, their commercialisation. Accordingly, during the later stages of the project's implementation, the focus was shifted to the consideration of KERs and the pathways to guarantee their sustainability and wider impact in post-project stages. In particular, technical developments must be monitored following an iterative plan that ensures that project results are timely identified and regularly up to date.

By the end of the project, the consortium ensured that the identification of IP elements, together with their ownership, protection conditions and exploitation plans, is exhaustive, validated and aligned. Lastly, at this stage, it was also clear how the KERs add value to their main target stakeholders, as well as how they compare with existing competing products or state-of-the-art scientific outputs.

5.1.1 *Main roles*

Within SKILLBILL, clear roles and clear responsibilities have been established with the aim to efficiently and effectively carry out the Exploitation Management strategy defined throughout this deliverable.

The **Exploitation Manager** (WR) was responsible for defining the Exploitation Management strategy of SKILLBILL. This included writing the respective reports and ensuring that all the discussed IP elements and strategies are captured and defined, respectively. In addition, the Exploitation Manager guides consortium partners in order to commonly establish the most adequate and efficient IPR strategies based on the nature of the newly identified assets and the purposes of the consortium concerning the exploitation of this asset. Finally, the Exploitation Manager also assumes a mediation role in case of IP conflicts, helping the involved partners find a mutually agreeable solution (including written agreements whenever necessary) and always in line with the provisions of SKILLBILL CA.

The exploitation manager also played a role in identifying potential risks and matching expectations among consortium partners, which is a pre-requisite for developing the necessary trust environment for the exploitation of collaborative results. The nature of collaborative international projects gives rise to interdependencies among consortium partners and their work. In turn, these interdependencies entail potential challenges from the alignment of different partners‘ cultures and objectives. This is particularly the case when both research organisations and SMEs/industry actors are present; while the former are driven and rewarded by publishing their findings, the latter are driven by increasing their competitiveness and growth, which can be hampered when publishing

results before adequate protection has been secured[58]. The increased focus on Open Science practices in HE increases the need to appropriately address potentially conflicting expectations by considering the different interests and objectives of all partners. To this end, partners strived to find a clear collective purpose and vision regarding the project's expected outcomes.

Throughout the entire project's duration, the Exploitation Manager was in close communication with the **Project Coordinator** (A0) in order to ensure the optimal management of all IP assets.

All partners: The efficient management of IP in a collaborative project can only be achieved through an active, participatory process, in which all consortium partners contribute to the timely identification and assessment of the IP (strategies) arising from their project activities and their respective organisational interests. Therefore, each partner was responsible for: (i) identifying the IP they are bringing as background for the implementation of the project and/or the exploitation of its results; (ii) capturing the results stemming from their work in the project; (iii) assessing the exploitability of such results and the most suitable protection avenues; and ultimately (iv) safeguarding their exploitation by identifying and taking any necessary actions during or after the project (e.g. deciding on ownership issues, drafting IP sharing or transfer agreements, maintaining protection measures, etc.). Project partners can rely on the support of the Exploitation Manager and the structured tools prepared as part of the project's Exploitation Management methodology in order to carry out these responsibilities in a time-efficient and structured manner.

Naturally, Work Package and task leaders played a crucial role in the monitoring of the results generated under their respective WPs and tasks. Consequently, they are responsible for informing the Exploitation Management of the IPR-relevant aspects within their WPs and tasks, especially when joint ownership aspects may be present.

Finally, it is good practice for partners to inform and consult with the Exploitation Manager and the Coordinator before deciding whether to protect a KER stemming from their activities – particularly when joint ownership was present.

Post-project stage

This deliverable represents the final version of SKILLBILL's Exploitation, IPR Management, and Sustainability Plan. It outlines the consortium's strategy for leveraging the project's exploitable results, providing detailed descriptions, potential sectors of application, and a timeline for their exploitation. The plan serves as a guiding document for partners, clarifying each partner's contributions to the project's assets, defining the distribution of IPR within the consortium, and establishing a clearly agreed exploitation pathway. Additionally, D6.3 details the planned activities to support the dissemination and exploitation of the project's outcomes, alongside the measures implemented to ensure the long-term sustainability of its results. Finally, this deliverable sets out the advanced strategy for the management of intellectual property, exploitation, and sustainability beyond the project's completion, including specific commercialisation pathways identified by the consortium.

[58] European IP Helpdesk (2022c).

5.1.2 *Seeking support beyond the project: Available support services from the EC*

A plethora of publicly financed services are available to Horizon Europe beneficiaries for support with the IPR management or the exploitation of project results beyond the grant's lifetime.

The **Horizon Results Platform (HRP)** is the European Commission's corporate platform promoting Key Exploitable Results (KERs) of Horizon Europe projects. It is free-of-charge and hosted on the Funding & Tenders portal. To support the exploitation of KERs, the HRP provides matchmaking opportunities through an ecosystem of partners, access to investors, as well as training from mentors and coaches.

The **European IP Helpdesk** is a free-of-charge IP support service from the EC. Its goal is to support European SMEs and beneficiaries of EU-funded research projects manage their IP through the following services, among others[59]:

- Training and awareness raising
- Resources library
- An Ambassadors Scheme: A group of EEN experts on IP, tech transfer and innovation that provide basic IP training

The **Horizon Results Booster** is an initiative of the EC which supports projects eager to go beyond their Dissemination and Exploitation (D&E) obligations - steering research towards strong societal impact and concretizing the value of R&I activity for societal challenges. The Horizon Results Booster offers 3 types of services[59]:

- Portfolio Dissemination & Exploitation Strategy
- Tailor made support services to develop a business plan
- Assistance, coaching and mentoring for go-to-market activities

The **Enterprise Europe Network (EEN)**: The EEN is a large network that supports SMEs with their innovation and international growth ambitions. The European Commission launched the Enterprise Europe Network in 2008. It is funded through the Single Market Programme and implemented by the EC's European Innovation Council and SMEs Executive Agency (EISMEA). The main activities of the EEN for business, technology and R&D partnering are the following[59]:

- Internationalisation advisory services. Identifying intellectual property assets of the company, IP due diligence, market analysis, IP cost/benefit analysis, IP valuation, IP audit, etc.
- Partnering opportunities database (POD)
- Brokerage (matchmaking) events, company missions, trade fairs. It helps find new business partners, build up business relationships and start cooperation
- Collaborative R&D&I projects

[59] European IP Helpdesk & Enterprise Europe Network (2024). Intellectual Property (IP) Handbook: Providing IP Guidance through the EEN Client Journey. Luxembourg: Publications Office of the European Union

6. Methodology

To facilitate the process described in the 'Strategy' chapter – 'Implementation stage' section, WR developed a series of guidelines and templates to monitor and regularly update the definition of IP elements and protection and exploitation strategies.

Identification of Background IP

The first step towards the definition of all the relevant IP elements of the project was to identify the background knowledge or IP (BG) that SKILLBILL partners brought to the project from external or previous activities. Our methodology to comprehensively identify all the BG contributed to the project relies on an iterative process. First, an initial mapping of BG is done when drafting the project's Consortium Agreement (CA; par. 9.1). Subsequently, using the offline template illustrated below, partners are asked to fill in the relevant information at different stages of the implementation phase. This iterative approach allows to update the list of BG by adding any new IP brought into the project by a given project partner.

The template below allows to compile data for all the main relevant elements related to the project's BG in a standardised manner. Once the table is filled in, the compiled information will enable the understanding of the nature of the BG, its use within SKILLBILL, and the different IPR considerations including protection and access rights, more specifically the conditions to use within and beyond the project by partners and/or third parties.

BG #	Description	Contributing partner(s)	Intended use in project and value (incl. WP)	Type of IP protection	Access rights: Conditions to use within the	Access rights: Conditions to use beyond the

Figure 1. Background template

The first column of the template assigns a number to each identified BG element, facilitating the mapping of relations between this BG and the project results that will be identified in the following steps. The second column of the template, a short description of the BG can be provided. In the third column, the name of the partner(s) who contribute this BG can be indicated, potentially distinguishing between primary and auxiliary contributors. The fourth column is intended determine how the BG will be used within the project, for instance its role within the activities or a specific task or WP to enable partners to perform certain activities or to help them achieve the task's goals. The fifth column allows partners to specify the relevant IP protection measures for the BG in terms of the instruments defined in section ['3. Definitions of IP protection measures']. The last two columns allow project partners to indicate the conditions for the use of the BG within the project or beyond it, specifying whether there are any restrictions to use the BG and, if so, the conditions that apply to other project partners and/or third parties. Examples of access rights and conditions include 'free to use', 'free to use under certain conditions', 'subject to charges/fees', etc.

Identification of (Key) Exploitable Results and IPR protection measures and actions

6.1.1 *Identification of (Key) Exploitable Results*

A crucial aspect in the project's innovation management methodology was the identification of the project's exploitable results, an exercise which is conducted, once again, collaboratively by project partners with the guidance of structured templates and guidelines prepared by the Exploitation Manager. The following templates were circulated offline, using several iterations in order to timely identify early results arising from project activities as well as to update, validate and extend the list of results in parallel with the project's developments throughout its implementation phase.

The first step consists in the identification, classification and description of project results with exploitable potential. In practice, project partners are asked to provide the following information using the table below:

- The type of result, namely whether the result is a main project result or a secondary result. This step allows for a prioritization between exploitable results (ERs) and key exploitable results (KERs), an important decision that will need to be validated, as it will affect the follow-up steps regarding exploitation and IPR management.
- The specific project activities that gave rise to the result, e.g. the specific tasks or WPs.
- Other ERs included within the result, in case the given result is a composite one that incorporates multiple project results.
- The sector of application of the result (e.g., the health or the transport sectors).
- A short but clear description of the result that has been achieved.

ER No. and Name	Type of result	Related project activities	ERs included (if any; only for composite ERs)	Sector of application	Description

Figure 2. ER Definition template

6.1.2 *Identification of IPR ownership and relevant protection measures*

Once the different project ERs have been identified and classified, we can proceed to conduct a deeper analysis of ownership and IPR aspects for the those ERs prioritised as main project results or KERs. To this end, the following table is used to identify the main elements required to engage in ownership and IPR management discussions and decisions. More specifically, the following new data can be compiled in a standardised and structure manner by using the additional template below:

- The names of contributing partners to the development of the KER, distinguishing between main contributor(s) and supporting ones. This identification will be useful to determine the owner(s) of the result.
- The (proposed) owner(s) of the KER. This decision will need to be taken in consensus among the different developing partners, with the guidance of the WR. Ownership decisions may be

made at a later stage of the project, once the result is fully developed and the relevant discussions among concerned partners have taken place.

- Feasible types of IPR protection mechanisms (e.g., patents, copyright, etc.). Different types of protection mechanisms may apply to a specific result; once again, the final decision on the chosen mechanism will need to be done in agreement among the owners and with the guidance of WR.
- The geographical coverage and jurisdiction of choice. As explained in previous sections, certain protection measures allow the IPR owners to choose where to register the novel IP. Different measures also offer distinct ranges of geographical coverage. This decision will be important to define the practical post-project exploitation actions for a given result.
- Any related background IP that was used to develop the specific innovation or result. Here, a reference to a BG element identified in the list of BG IP can be introduced.
- The access rights to the result by other partners or third parties, differentiating between (i) conditions to use within the project (i.e., for the implementation of project activities) and conditions to exploit and disseminate the result, whether there are any usage restrictions or not (e.g., free to use, subject to charges like license fees, etc.).

KER No.	Key Exploitable Result (KER)	Developing Partner(s)	Proposed Owner(s)	Relevant IPR protection mechanism	Geographical coverage (1) and chosen jurisdiction for registration (2)	Related BG#	Conditions for use	Conditions for dissemination and exploitation

Figure 3. KERs Definition template

Special consideration must be given to jointly-owned results, given the additional complexity in the management of the IPR for these results. Therefore, the last step in the definition of IPR protection measures for KERs concerns solely those KERs for which, using the previous table, it was decided that multiple partners would claim ownership of the IPR. When co-ownership of results applies, it is important to allocate the ownership shares among the involved partners. In addition, it is important to discuss any terms for post-project ownership or any potential IPR transfers among co-owners, as such agreements may facilitate the exploitation of the results. Examples of such agreements include the definition of which parties shall bear the related costs from IPR management, the transfer of ownership rights to another co-owner. Next, it is also important to define each co-owner's responsibilities regarding IP protection actions (e.g., filing an application for a patent) as well as the maintenance, monitoring and enforcement of such protection, all of which may entail non-negligible costs. Lastly, co-owners can also choose the applicable law and jurisdiction in case of disputes. The following table, along with the accompanying guidelines and examples provided by WR, can be used to guide partners in this exercise, making sure that partners engage in the necessary discussions in the presence of jointly-owned results and that all relevant aspects discussed in this paragraph are addressed. Ultimately, the purpose of this template is to gather information that will be useful for partners when preparing their joint ownership agreements.

Allocation of shares among joint owners	Terms for post-project ownership, IPR transfer, etc.	IP protection and maintenance responsibilities	IP monitoring and enforcement responsibilities	Governing jurisdiction and dispute resolution

Figure 4. Joint KER template

It is the role of the Exploitation Manager to consolidate this input and present the findings in a structured, clear and consistent way. When the input collection is done offline and data is provided individually by each partner, inconsistencies between their inputs are possible. Specifically, for jointly developed results, uncertainties subject to further discussion are prone to arise. Therefore, such inconsistencies or uncertainties need to be identified and addressed in validation rounds with the relevant partners.

6.1.3 *Specific IPR protection and pre-exploitation actions in the short run*

Having identified the right owners and protection measures for each of the project's results, the next step was to define the most relevant immediate post-project actions that will be necessary to ensure that such protection is achieved and that the subsequent exploitation of the results is enabled. To this end, the following table aims to guide result owners with the definition of specific short-term actions related to IPR (e.g., to apply for the proper protection measures or to put into practice any agreements regarding joint ownership).

In addition, this template may be used, whenever relevant, to create a roadmap of the most important and immediate actions to ensure the exploitation readiness of the KER (e.g., further development, testing and/or validation, delineation of a business plan, or the license or transfer of IPR) and the compliance with open science mandates (e.g., dissemination measures such as uploading results in an adequate repository).

With the guidance of the WR and dedicated discussions whenever necessary, partners can use the following table to define any relevant actions as well as their related costs, responsible partners and the estimated time of implementation.

KER No.	Key Exploitable Result (KER)	Action type	Action's description	Estimated costs (outside project budget)	Responsible partner(s)	Timeline

Figure 5. KER Exploitation actions template

Identification of exploitation interests and actions

This section comprises a series of templates designed to identify the types of relevant exploitation interests for each key exploitable result and from each partner's perspective. It also presents a template to assess the value proposition offered by the project's KERs to its main stakeholders as well as a template to identify and monitor publications with exploitation potential.

6.1.4 *Individual exploitation interests per partner and KER*

Partners may have varying interests with regards to the exploitation of the same result. For example, research institutes are more prone to have an interest on using a project result to conduct further research, while private entities are more likely to be interested in exploiting the same results for commercial purposes.

With the above in mind, the following template provides an illustrative overview of the individual exploitation pathways envisioned by each partner for each of the ERs. Through this template, the Exploitation Manager and consortium partners, collectively, can also obtain insights and spark

discussions on where and how the consortium should focus towards the exploitation of each of the main project results.

	ER1:	ER2:	ER3:	ER4:
	Exploitation interest/strategy	Exploitation interest/strategy	Exploitation interest/strategy	Exploitation interest/strategy

Figure 6. Individual Exploitation Plans template

In each column, the relevant partner provides the exploitation interest for each ER, in consultation with the result owners to ensure that the planned exploitation is aligned with the access rights to the result. To represent the information in a readable yet clear manner, partners were asked to indicate their envisioned exploitation interests by choosing from a pre-determined list of relevant types of exploitation and entering the respective acronyms in each cell. Guidelines were provided to specify how each type of exploitation interest is represented by each acronym

Commercial exploitation: Although varying, all the exploitation pathways listed below can be considered to fall under the 'commercial exploitation' category. They include potential exploitation interests of a project's results (during or after the end of a project) that have a commercial objective: they ultimately aim to gain or increase profits and/or economic (i.e., market-related) competitiveness of the partner(s) that are to exploit them. We can classify the types of commercial exploitation pathways into three categories:

- **C(M)**: Commercial interest in Making or improving a product with the ultimate goal to sell it.
- **C(L):** Commercial interest in Licensing the exploitable result (IP thereof) to third parties.
- **C(S):** Commercial interest in providing a Service, such as consultancy based on the ER or the knowledge built through it.

Internal product, service, or process development (I): The "Internal" exploitation type concerns exploitation approaches that will be used to improve an organisation's internal processes and/or products of any kind. We envisage the following internal exploitation types:

- The improvement of certain internal processes/products/services in an organisation; for instance, related to the development of AI algorithms.
- The use project results to increase their existing portfolio and improve existing products or services; for instance, tailoring advisory services related to the AI/healthcare market, improving imaging and diagnostic equipment, etc.
- The use project results to enhance their knowledge and perform further research activities and/or leverage on them for pursuing further opportunities.

Further Research (R): The 'research' exploitation type concerns the exploitation approaches relevant for research activities that may not have a commercialisation potential but offer scientific exploitation of the ER. Through these types of exploitation, project partners aim to increase their chances to access new research projects, to use them for future publications, or to be able to identify novel research concepts. We envisage the following research exploitation paths:

- Use of exploitable results (especially publications, research deliverables and general technical know-how) for ongoing and future projects and research schemes undertaken by university researchers and research centres.
- Use of exploitable results to advance research endeavours under industry-academia-state collaboration in the fields of RES education & training.

Standardisation (S): The outputs of R&I intensive projects may also be used in standardisation activities, potentially being useful to develop new standards and ultimately helping bridge the gap between research and development of new technologies and their large-scale market up-take and deployment.

Other: The "Other" exploitation category includes types that do not belong to the commercial, research and internal processes nor to standardisation activities. They may entail exploitation types related to civil or humanitarian purposes, such as gaining the trust of the users to AI for RES imaging and improving the effectiveness of patient care. Other purposes can be related to policy-making or advocacy, for instance with the goal to enable a healthcare regulatory environment that supports innovation. A further example are dissemination purposes, for example to increase a partner's visibility within the AI and the healthcare sector. For the sake of this exercise, partners were asked to specify the concrete nature of the envisaged exploitation pathway when completing the template and selecting the "Other" category.

The list of categories was tailored to the most relevant uses identified for SKILLBILL results, resulting in the following:

- **C(M)** – Commercial: Making or improving a product to sell it.
- **C(L)** – Commercial: Licensing it to third parties.
- **C(S)** – Commercial: Providing a service, such as consultancy.
- **I** – Internal use (e.g. using the ER to improve products or organizational processes).
- **R** – Research (e.g. in new research projects or internal R&D activities).
- **S** – Standardization activities
- **O** – Other types of exploitation (here, partners were requested to specify which specific use they were planning to give to the ER; for instance, pathways to derive value from the ER include dissemination or marketing activities).
    - **O(D)** - This acronym refers to Other (Dissemination purposes). This category is the most relevant 'other' type of exploitation path for the SKILLBILL (K)ERs. Therefore, to efficiently manage the space in the tables and enhance clarity, we also abbreviate it.

6.1.5 *Individual post-project valorisation plans*

To complement the individual exploitation plans of each project partner at the KER level, the table below allows partners to plot their plans for the post-project use of the overall outcomes of the project and the knowledge gained through its activities. Each partner is asked to identify the assets or outcomes of the project for which they hold the greater interest and to specify how they plan to, after the project, make (re-)use of them as well as of their general learnings.

Individual post-project exploitation plans		
Partner organization name	**Project results of major interest**	**Description**

Figure 7. Individual valorisation plans template

6.1.6 *Value offered by the KERs to cover the needs of the project's main stakeholders*

Understanding how the project results cover the needs of the project's target stakeholders can be very useful to support the definition of exploitation strategies as well as business models and business plans, which aim to maximise the value proposition of the project's results. Therefore, the following table captures, in a structured way, the main needs of each target stakeholder group and, more importantly, how the different KERs contribute to deliver value to each of these stakeholders.

KER No.	Key Exploitable Result (KER)	Target stakeholder(s)	Main stakeholder needs	Value proposition offered by the KER: how does it cover and deliver the identified needs

Figure 8. KERs value proposition template

6.1.7 *Exploitation plans and dissemination conditions for publications*

Finally, the table below allows partners to define their exploitation interests for the high-quality scientific publications that were drafted within the course of the project, in line with the project's aim to contribute to push research beyond the state of art and to disseminate scientific results in an open manner. Such scientific publications often include multiple authors from different organisations, while the research presented in these works constitutes an IP item that is protected by the author's copyright. While a comprehensive identification of publications is out of the scope of the present report, it is relevant for the Innovation Strategy to highlight those research outcomes for which partners attach an exploitation interest. This template also allows the consortium to track the status and progress of these publications. Importantly, it also allows authoring partners to monitor their compliance with open science requirements, helping ensure that the knowledge and data generated in the project are appropriately made accessible whenever required.

Type	Title	Author(s)	Name of publication/ venue & year	Exploitation Interest	Main Partner(s)	Related ER#	Internal status	External status	Accessibility	Accessibility of data

Figure 9. Publications listing template

7. SKILLBILL's Background and Exploitable Results

Overview of Background IP

The project partners identified the Background IP that was to be used in SKILLBILL in order to carry out the project's activities and achieve its objectives. This identification, presented in the following table, was done at the beginning stages of the project and updated thereafter whenever necessary.

Table 2. Overview of BG IP

BG #	Description	Contributing partner(s)	Intended use in project and value (incl. WP)	Type of IP protection	Access rights: Conditions to use within the project*	Access rights: Conditions to use beyond the project*
BG1: Existing knowledge and know-how on project management and Quality assurance	Development of tools to manage and monitor project progression; tools to manage risk assessment and quality assurance	A0	Template for monthly electronic update; Work Breakdown Structure (WBS); Project's cash flows	Trade Secrets	Free to use within the project	Subject of licencing agreement
BG2: Extensive networking ability (of the consortium)	The capacity of the partners to engage, mobilise and coordinate stakeholder communities	ALL	In order to set up the AB and the stakeholder community	Trade Secrets	Free to use within the project	Subject of licencing agreement
BG3: Existing knowledge and experience in social and business research	Existing knowledge and experience in: • Interviews preparation & implementation; • Analysing and fusing results; • Social and business	WR	For the targeted desk-research & the implementation of 30 semi-structured interviews under T2.1 framework	Intangible asset / Experience	Free to use within the project	Intangible asset

BG #	Description	Contributing partner(s)	Intended use in project and value (incl. WP)	Type of IP protection	Access rights: Conditions to use within the project*	Access rights: Conditions to use beyond the project*
	research; • Consulting activities.					
BG4: Knowledge of policy-making and how to feed project outcomes into decision-making processes at EU level	EREF contributes to the development of EU law-making that improves frameworks for renewable energy development. In parallel, EREF's project work supports the policy dialogue with decision-makers and feed into publications, presentations, meetings, events etc. For instance, SKILL BILL can demonstrate how education and training requirements on RES can be implemented across Europe.	EREF	For activities conducted by the Advisory Board; for stakeholder mapping; for policy recommendations.	Intangible asset/ Experience	*Free to use within the project*	Free to use
BG5: Existing knowledge & know how on organizing mobilisation & mutual learning workshop	Development of MML Concept	PEDAL	Template for MML workshops with general info to be adjusted according to the project needs	Trade Secrets	*Free to use within the project*	Free to use
BG6: Database of contacts	Consortium partners' database contacts -	ALL	The database is used to inform about the project	Trade Secrets	Free to use within the project	Confidential

BG #	Description	Contributing partner(s)	Intended use in project and value (incl. WP)	Type of IP protection	Access rights: Conditions to use within the project*	Access rights: Conditions to use beyond the project*
	stakeholders, key players etc. in the field of RES in Europe		and its activities; to mobilise & promote.			
BG7: Existing knowledge on RES and on communication media; knowledge on web set up and maintenance	AzzeroCO2 works for RES and for communication on RES and sustainability	A0	Development of Green Portal: ability to understand the concepts behind the communication media found in internet and to choose the ones to be upload on the portal with the proper quality level	Intangible asset / Experience	Free to use within the project	Subject of licencing agreement
BG8: Extensive network among EU stakeholder groups	Dataset of existing contacts	EREF	For advisory board composition; for raising citizens and stakeholder awareness	Intangible asset / Experience	*Free to use within the project*	Free to use
BG9: Knowledge in: 1) Socio-technical sustainable heating design, 2) Circular Economy, 3) Sustainability Assessment and 4) in Teaching at an undergraduate and graduate level	UU performs research and teaching activities on RES, energy transition and circular economy	UU	Implementation of knowledge in two (2) compulsory courses and at least two (2) elective courses within the specialization programme	Intangible asset (tacit knowledge)	Free to use within the project	Subject of licencing agreement

BG #	Description	Contributing partner(s)	Intended use in project and value (incl. WP)	Type of IP protection	Access rights: Conditions to use within the project*	Access rights: Conditions to use beyond the project*
BG10: Existing knowledge in RES and teaching for Master	UNIS works for RES and for teaching RES and sustainability	UNITUS MET	For the implementation of MASTER course in WP4.	Trade Secrets	Free to use within the project	Subject of licencing agreement
BG11: Existing knowledge in Virtual Reality	MET builds virtual reality rooms for teaching	MET	For the implementation of MASTER course in WP4 and VET in WP5	Trade Secrets	Free to use within the project	Subject of licencing agreement
BG12: Existing knowledge in Mobile solutions	MET builds virtual reality rooms for teaching	MET	For the implementation of MASTER course in WP4 and VET in WP5	Trade Secrets	*Free to use within the project*	*Subject of licencing agreement*
BG13: Experience and know-how on training courses design and development	Design of a training course and implementation of different learning modules customised on target users training needs and expectations	SINERGIE	For the implementation of VET course in WP5.	Trade Secrets	*Free to use within the project*	*Subject of licencing agreement*
BG14: Dissemination and Communication	Experience in the development and implementation of dissemination & communication strategy	WR	For the development of the Dissemination and Communication Plan under T6.1 and T6.2 framework	Intangible asset / Experience	Free to use within the project	Intangible asset
BG15: Dissemination and Communication	Experience in: • Running dissemination and communication campaigns; • Website and social media	WR	For the development and implementation of all Dissemination & Communication activities	Intangible asset / Experience	Free to use within the project	Intangible asset

BG #	Description	Contributing partner(s)	Intended use in project and value (incl. WP)	Type of IP protection	Access rights: Conditions to use within the project*	Access rights: Conditions to use beyond the project*
	content development and monitoring.		under T6.1 and T6.2 framework			
BG16: Exploitation and IPR	Experience in development (e.g. IPR Matrix) and implementation of IPR & Exploitation strategy	WR	For the development and implementation of all Exploitation and IPR Protection activities under T6.3	Intangible asset / Experience	Free to use within the project	Intangible asset
BG17: Dissemination Networks for reducing gap gender	Extensive networking of the consortium and presence of several women in academia and industries in the consortium; Mutual collaboration with ongoing projects	ALL	For the implementation of MASTER course in WP4 and VET in WP5	Trade Secrets	Free to use within the project	Subject of licencing agreement

Identified (Key) Exploitable Results

This section presents all the Exploitable Results (ERs) developed in the context of SKILLBILL, as identified by the consortium. After internal prioritisation discussions, we classified these results between Key Exploitation Results (KERs) and partial or secondary ERs. They will be identified and defined to provide a basis for subsequent discussions in this report, which will build on these results to discuss the exploitation and valorisation strategies of the project and its consortium partners.

These project ERs are built upon the data, knowledge and assets both (i) brought to the project by project partners and (ii) developed throughout the course of SKILLBILL's activities.

In order to pave the way for post-project exploitation and maximise the project's impact while also making an efficient use of the resources of SKILLBILL's Task 6.3, we focused the project's exploitation plan on the results that hold the greatest exploitation potential, impact and added value for the consortium partners as well as the project's stakeholders. Besides commercial, scientific and societal impact, technical maturity of the different project innovations was also considered for prioritisation. Moreover, the consortium's strategic priorities, comparative advantages and tolerable degrees of risk were also considered when selecting the results that shall be prioritised for an effective post-project exploitation .

In this context, it was concluded that the KERs of the project are the ones identified in the table below. Therefore, they will be the focus when designing the post-project exploitation strategies that are required for: (i) maximising SKILLBILL's value propositions to the main target stakeholders groups; (ii) ensuring the sustainability of SKILLBILL's work beyond the project; and (iii) helping consortium partners envision individual or joint realistic strategies to valorise their innovations in their preferred way (e.g., in the market, in future research activities, through reputation building, via internal product development, etc.).

7.1.1 *Key Exploitable Results (KERs) of SKILLBILL*

SKILLBILL's KERs were identified and validated by the consortium partners. In Table 3 below, we provide a description of each KER, together with the corresponding project WP under which they were created, and the partial or secondary ERs of which they are comprised or on which they rely (see Table 4. Additional Exploitable Results for the descriptions of the rest of the project's identified ERs)

Table 3. Key Exploitable Results

KER Name	Description	Related ER	Related WP
KER1: Results and analysis of data collected by desk-research & interviews with related stakeholders	Collected data from literature reviews and stakeholder interviews provided insights into knowledge gaps, educational needs, and barriers in renewable energy skills development across Europe.	ER2	WP2
KER2: Stakeholder Initiative in form of Working Groups - Reports of each	Reports detail the outcomes of thematic working groups, capturing recommendations, lessons learned, and future actions to strengthen	ER3	WP2

KER Name	Description	Related ER	Related WP
Working Group outcomes	stakeholder involvement in RES education and training.		
KER3: A guide on "How to formulate a joint stakeholder initiative"	A practical tool providing step-by-step instructions on how to develop and implement a joint initiative among diverse stakeholders (e.g., businesses, government, academia, civil society).	ER3	WP2
KER4: MML workshops actionable results	The results/outcomes of the mutual learning workshop, offering effective solutions to pressing challenges in the RES sector, providing policymakers, EU institutions, public authorities, and other stakeholders (the whole quadruple helix, incl. also educational institutions, potential consumers, students, experts, technicians) with actionable guidance to support a greener and more sustainable future.	ER4	WP2
KER5: Green Portal	A centralized digital platform hosting all project resources, tools, and informative material including: Green e-board discussion/forum, Green woman section, Green schools section, Good practice database, young careers testimonials and RES job profiles factsheets and requests. The Green Portal operates as a platform that helps people to understand renewable energy technologies and GreenHouse Gases' (GHG) impact on climate change	ER5; ER6	WP3
KER6: SKILLBILL's Specialization School	'The specialization school is an educational program for the upskilling of technicians, designers and researchers on renewable energy with additional focus on circular economy.	ER7; ER8	WP4
KER7: Virtual Reality Software to support laboratory work	Virtual reality software, developed to provide immersive opportunities for students to experience parts of the studies that are difficult to organise in real life, such as taking apart and rebuilding machinery.	N/A	WP5
KER8: SKILLBILL VET Program	A vocational training curriculum designed to upskill learners in renewable energy fields, with a modular structure adaptable to regional and occupational needs.	ER9; ER10	WP5
KER9: Mobile Software to support laboratory work	'Mobile software developed to provide immersive opportunities for students to experience parts of the studies that are difficult to organise in real life, such as conducting an energy audit. The content will be available for MET.	N/A	WP5

KER Name	Description	Related ER	Related WP
KER10: Dissemination and Communication campaign & strategy	SKILLBILL's methodological approach to create a network around the project; raise awareness and engage stakeholders, including: visual identity; promotional media; project video; social media accounts; website; newsletter; infographics	ER11; ER12	WP6
KER11: Exploitation, IPR Management and Sustainability Strategy - Preliminary Business Plan	A report providing a detailed listing of SKILLBILL's Exploitable and Key Exploitable Results, specifying ownership and copyright details for each. It also elaborates a business plan for the future expansion of the VR platform "Master" and the maintenance of VET development, as well as the signed Letter of Agreement of the involved universities for the continuation of SKILLBILL's Specilisation School.	N/A	WP6
KER12: Social impact monitoring framework	A structured methodology, including a set of indicators and processes, used to closely monitor evaluate and assess the process performed during the project as a lever for change	ER13	WP6

7.1.2 *Other Exploitable Results (ERs) of SKILLBILL*

Here, we provide a list of all the identified additional ERs that were generated within the project's activities. These ERs are presented in the table that follows, along with their description and the corresponding tasks or WPs under which they were created.

Table 4. Additional Exploitable Results

ER nr. and name	Description	Related WP
ER1: Improved tools for project management and quality control	Monitoring and coordination mechanisms developed and applied to ensure effective project execution, continuous quality assurance, and timely delivery of outputs.	WP1
ER2: Research results of existing best practices on RES education and training	A comprehensive review identified successful education and training initiatives in the renewable energy sector, providing a foundation for SKILLBILL's tailored learning pathways	WP2
ER3: Methodological approach of Stakeholder Joint-Initiative formulation, e.g. Working Groups coordination and implementation	A structured methodology created to engage stakeholders through working groups, fostering collaboration, knowledge exchange, and targeted co-creation activities	WP2
ER4: Methodological approach of MML workshops implementation	A replicable model for organizing MML workshops was developed, integrating inclusive facilitation and	WP2

ER nr. and name	Description	Related WP
	stakeholder-driven content to support lifelong learning	
ER5: Green Portal uploaded material	Green Portal was curated with educational and informational content by SKILLBILL's consortium, offering easy access to RES learning tools and awareness-raising resources.	WP3
ER6: Green Contest participating material	Videos, animations, and other projects submitted by Green Contest participants, reflecting innovative thinking and public engagement around renewable energy, gender gap in STEM, and sustainability.	WP3
ER7: Strategy of Specialisation School syllabus development	A flexible, multi-level syllabus framework was designed to address diverse educational needs in the RES sector, bridging knowledge gaps through modular learning paths.	WP4
ER8: Specialisation School developed material; e.g. educational material; student thesis; external events participation etc.	Educational resources, student research, and active engagement in external events contribute to the legacy and replication potential of the Specialisation School model.	WP4
ER9: Storyboards	The storyboards provided the outline for the development of the training materials and for the user- platform interaction modes.	WP5
ER10: Handout(s)	A handout will be published for each of the VET's training course and a digital kit consisting of multimedia materials and VR/AR simulators to support the training of technicians.	WP5
ER11: Dissemination material	A wide range of promotional tools - including presentations, flyers, roll-ups, and press releases - were developed to maximise project visibility and outreach.	WP6
ER12:Project digital dissemination and communication tools	SKILLBILL's online presence facilitated real-time communication, community building, and regular updates to stakeholders through targeted digital platforms, e.g. (social media accounts; website; newsletter)	WP6
ER13: Social impact framework and monitoring results	Monitoring results reflecting SKILLBILL's impacts across different target groups, demonstrating alignment with the project's objectives for societal transformation.	WP6

8. IPR Management and Exploitation Plans for SKILLBILL's Results

Building upon the partner input gathered through the templates of section 5 and the KERs defined in the previous section, this section presents IPR ownership and management procedures, such as protection, the definition of access rights and exploitation interests and pathways. The information presented in Tables 3 & 4 arose through an iterative process that comprised multiple rounds of review and validation by partners.

To assign ownership to each KER, a starting point was the identified role and contribution of each partner to the realisation of each project activity. From that, partners expressed ownership claims, which were collectively reviewed and validated. This process allowed for the proactive identification of potential conflicts related the ownership of the IPR behind key exploitable results.

In addition, based on the templates developed by the Innovation manager, all partners were then invited to express and elaborate on them, by describing the type of their exploitation interest and respective pathway for each specific project result, during and/or after the end of the project. Additionally, the templates allowed to collect important input regarding the actions and responsibilities each partner foresees for the protection of the IPR within the KERs. At the same time, it helped the Exploitation Manager (WR) to spot early on inconsistencies or unforeseen claims from specific partners over some results, to consult partners bilaterally and collect a proper justification about the claim. In that way, potential IP conflicts were identified and solved timely.

KER

KER#1: Results and analysis of data collected by desk-research & interviews with related stakeholders			
Developing partners	All partners	Related BG	BG3
Owner(s)	WR	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	Research results are analysed and summarised in the corresponding deliverable (D2.1). All results and research findings can be used in future activities with no specific restriction, with proper acknowledgement to be mandatory.		

KER#2: Stakeholder Initiative in form of Working Groups - Reports of each Working Group outcomes			
Developing partners	All partners	Related BG	N/A
Owner(s)	QPLAN	Joint ownership share allocation	N/A

Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	The results are summarised to the corresponding deliverable and are openly available to the public through the project website and the Zenodo repository.		

KER#3: A guide on "How to formulate a joint stakeholder initiative"			
Developing partners	QPLAN	Related BG	N/A
Owner(s)	QPLAN	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	The guide available as part of the open-access deliverable, allowing it to be freely downloaded and shared by any interested parties. Non-commercial use (e.g., by governments, NGOs, academic institutions) is free of charge and encouraged. The guide can be adapted for different sectors or regions, but major modifications should be reported to ensure proper alignment with the original content.		

KER#4: MML workshops actionable results			
Developing partners	All partners	Related BG	BG5
Owner(s)	PEDAL	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	n/a - no obligations/terms apply		

KER#5: Green Portal			
Developing partners	All partners	Related BG	N/A
Owner(s)	A0	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage

Conditions for use	Free of use | Open
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders
Exploitation interests and potential	n/a - no obligations/terms apply

KER#6: SKILLBILL's Specialization School			
Developing partners	UNITUS; USE; UU; MET	Related BG	N/A
Owner(s)	UNITUS	Joint ownership share allocation	N/A (check Chapter 12: Specialisation School – Continuation Roadmap)
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	Global-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	All partners can freely disseminate the specialization school.		

KER#7: Virtual Reality Software to support laboratory work			
Developing partners	MET; UNITUS; USE ; UU	Related BG	BG10; BG11; BG12; BG13
Owner(s)	MET; UNITUS; USE ; UU	Joint ownership share allocation	MET (70%); UNITUS (10%); USE (10%); UU (10%)
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Use subject to licensing, free within consortium		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	Access rights shall be granted to other project partners		

KER#8: SKILLBILL VET Program			
Developing partners	SINERGIE; MET	Related BG	BG10; BG11; BG12; BG13
Owner(s)	SINERGIE	Joint ownership share allocation	Check Chapter 11: VET Program – Preliminary Business Plan
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Use subject to licensing, free within consortium		

Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders
Exploitation interests and potential	Access rights shall be granted to other project partners

KER#9: Mobile Software to support laboratory work			
Developing partners	MET; SINERGIE	Related BG	BG10; BG11; BG12; BG13
Owner(s)	MET; SINERGIE	Joint ownership share allocation	MET (70%); SINERGIE (30%) (check Chapter 11: VET Program – Preliminary Business Plan)
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Use subject to licensing, free within consortium		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	Access rights shall be granted to other project partners		

KER#10: Dissemination and Communication campaign & strategy			
Developing partners	WR	Related BG	BG14; BG15
Owner(s)	WR	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	The SKILLBILL DC strategy and brand represents only the SKILLBILL project. The quality and credibility gained from the effective implementation of the project and its impact can facilitate the engagement of its partners into other EU funded projects and activities and the expansion of their network and client base.		

KER#11: Exploitation, IPR Management and Sustainability Strategy - Preliminary Business Plan			
Developing partners	WR	Related BG	BG16
Owner(s)	WR	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		

Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders
Exploitation interests and potential	WR will include SKILLBILL's in their service portfolio with non-commercial purposes

KER#12: Social impact monitoring framework			
Developing partners	All partners	Related BG	N/A
Owner(s)	QPLAN	Joint ownership share allocation	N/A
Chosen IPR protection mechanism	Copyright	Chosen jurisdiction for registration and geographical coverage	EU-level coverage
Conditions for use	Free of use | Open		
Conditions for dissemination and exploitation	Open for non-commercial use by all stakeholders		
Exploitation interests and potential	The Social Impact Framework is available, ensuring it can be used and adapted by academia, policymakers, and organisations. Non-commercial uses (e.g., academic research, policy evaluation, or social programs) are encouraged and free of charge under the open-access framework. Partners and external parties using the framework for social impact measurement are expected to report their findings to foster shared learning.		

Publications

Within the course of SKILLBILL, a significant number of high-quality scientific works were submitted, in line with the project's aim to contribute to push research beyond the state of art and to disseminate scientific results in an open manner. In the table below, SKILLBILL's consortium has identified the following relevant publications, which were published within the course and context of the project, also considering the fulfilment of the respective KPI aiming for at least 6 publications. All of SKILLBILL's public deliverables are also uploaded to Zenodo.

Table 5. SKILLBILL Publications

Type	Title	Author(s)	Name of publication/ venue & year	Exploitation Interest	Main Partner(s)	Accessibility	Link
Publication	Iscrizione gratuita al master europeo sulla transizione energetica	A. Rosati	QualEnergia, 2024	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	A0	Open access	Link
Publication	Green Contest: giovani europei in gara per un futuro sostenibile e inclusivo	A. Rosati	QualEnergia, 2024	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	A0	Open access	Link
Publication	A Guide to formulate joint initiatives	Kyriakopoulou D., Kalaouzi A.; Giagtzoglou K.; Gkalimanis P.	Zenodo, 2024	Other	Q-PLAN	Open access	Link Zenodo
Publication	Enhancing Metal Hydride – Phase Change Material Hydrogen Storage Systems Efficiency with Expanded Graphite	Marco Maggini, Giacomo Falcucci, Andrea Luigi Facci, Stefano Ubertini	Energy Proceedings, 2024	Research	UNITUS	Open access	Link Energy Proceedings
Publication	Does the availability of alternative energy choices lead to more environmentally friendly	Fouladvand, Javanshir; Ateş, Emre; Sarı, Yasin; Okur, Özge	Applied Energy, 2024	Research	UU	Open access	Link

Type	Title	Author(s)	Name of publication/ venue & year	Exploitation Interest	Main Partner(s)	Accessibility	Link
	outcomes? The case of thermal energy communities and natural gas consumption						
Publication	Why and how can agent-based modelling be applied to community energy systems? A systematic and critical review	Fouladvand, Javanshir	Energy Research and Social Sciences, 2024	Research	UU	Open access	Link
Publication	Perception towards reducing natural gas consumption and imports in Europe: A theoretical and empirical investigation	Fouladvand, Javanshir; Fiori, Francesco; Okur, Özge	Heliyon, 2024	Research	UU	Open access	Link

Table 6. SKILLBILL's deliverables

Type	Title	Author(s)	Date	Exploitation Interest	Main Partner(s)	Accessibility
Deliverable	D1.1 "PMP and DMP" (initial & final version)	A0	Oct.2022	Other	A0	Open access
Deliverable	D1.2 "QA & RMP" (initial & final version)	A0	Nov.2022	Other	A0	Open access
Deliverable	D2.1 "Stakeholder map and good practices"	Galatsopoulos A. ; Natsi D. ; Chapizanis D.	May 2023	Research	WR	Open access
Deliverable	D2.2 "Co-design of joint stakeholder initiative"	Kyriakopoulou Dimitra; Kalaouzi Andromachi	Aug.2023	Research	Q-PLAN	Open access
Deliverable	D2.3 "Actionable results from working groups and MML workshop"	Kyriakopoulou Dimitra; Kalaouzi Andromach; Premyanov Nikolay;	Aug.24	Research	Q-PLAN	Open access

Type	Title	Author(s)	Date	Exploitation Interest	Main Partner(s)	Accessibility
		Papavramidou Maria Eleni. Kyriakopoulou Dimitra; Kalaouzi Andromachi; Tzika Danai	Aug.2025			
Deliverable	D3.1 "Quality label definition"	A0	Feb.2023	Other	A0	Open access
Deliverable	D4.1 Master syllabus	Andrea Luigi Facci; Gabriele Loreti	May 2023	Research	UNITUS	Open access
Deliverable	D4.2 Report on the first completed master cycle	UNITUS	Aug. 2025	Research	UNITUS	Open access
Deliverable	D5.1 Report on training needs analysis	SINERGIE	Feb.2023	Research	SINERGIE	Open access
Deliverable	D5.2 Training programmes, storyboards and materials (initial and final ver.)	Emanuele Bertolani (SINERGIE); Carlo Tognoni (W.Training); Santeri Saarinen (METROPOLIA)	Dec. 2023	Research	SINERGIE	Open access
Deliverable	D5.3 Evalutation of training activities	SINERGIE	May 2025	Research	SINERGIE	Open access
Deliverable	D6.1 "Dissemination & Communication Plan"	Galatsopoulos A. Natsi D. Chapizanis D.	Dec.2022	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	WR	Open access
Deliverable	D6.1b "Dissemination & Communication Plan_updated version"	Galatsopoulos A. Natsi D.; A. Konstantinidou ; Chapizanis D.	Feb. 2023	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	WR	Open access

Type	Title	Author(s)	Date	Exploitation Interest	Main Partner(s)	Accessibility
Deliverable	D6.2 Dissemination and Communication Results	Anastasios Galatsopoulos; Dimitrios Chapizanis	Aug.2025	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	WR	Open access
Deliverable	D6.3 Exploitation, IPR Management and Sustainability Plan	Galatsopoulos A. ; Natsi D. ; Chapizanis D.	Feb.2023	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	WR	Open access
Deliverable	D6.3b Exploitation, IPR Management and Sustainability Plan_updated version	Anastasios Galatsopoulos	Aug.2025	Commercial (e.g., to sell as knowledge or improve organizational processes, methods or services/products)	WR	Open access
Deliverable	D6.4 Social Impact monitoring methodology and assessment	Kyriakopoulou Dimitra.; Kalaouzi Andromachi.; Tzika Danai.; Papavramidou Maria Eleni Kyriakopoulou Dimitra., Tzika Danai., Kalaouzi Andromachi	Feb.2024 Aug.25	Research	Q-PLAN	Open access

9. Common Exploitation Strategy for SKILLBILL's KERs

Value proposition of SKILLBILL KERs to the main stakeholders

This section provides a stakeholder listing for the main target groups that stand to benefit from the project's outcomes . An identification of their current needs was conducted during the first stages of the project and updated in this final version of the Innovation Strategy. The assessment of the value proposition builds upon the user needs identified in 'D2.1– Stakeholder map and good practices'.

Each of the stakeholder needs identified below is addressed by SKILLBILL either through SKILLBILL's Specialization School & VET or project's Green Portal; Working groups and internal events. Hence, we also link each need to the specific, relevant KER. Lastly, we discuss the value proposition that SKILLBILL promises to bring, through these results, to each of the identified stakeholder groups. The findings of this analysis are presented in Table 6.

Table 7. SKILLBILL's KERS value proposition

KER No.	Key Exploitable Result (KER)	Target stakeholder(s)	Main stakeholder needs	Value proposition offered by the KER: how does it cover and deliver the identified needs
KER1	Results and analysis of data collected by desk-research & interviews with related stakeholders	✓ Science Academia ✓ Private sector; ✓ Government; Energy Authorities & Policy Makers ✓ Civil Society	○ Curriculum alignment ○ Workforce upskilling ○ Policy insights ○ Regulatory support ○ Inclusive transition ○ Environmental safeguards	• RES skills insights • Education program support • Cross-sector cooperation • Gender equality advocacy • Inclusive sector guidance • Regulatory improvement roadmap • Multidisciplinary collaboration boost
KER2	Stakeholder Initiative in form of Working Groups - Reports of each Working Group outcomes	✓ Policy Makers; ✓ Academic Institutions; ✓ RES Industry; ✓ Educational Authorities	○ Policy guidance ○ Curriculum integration ○ Industry alignment ○ Skills development ○ Need for transparent performance metrics	• Evidence-based strategies • RES integration in education • Alignment with sustainability goals • Support for new job profiles • Practical stakeholder frameworks • Education–industry collaboration • Workforce upskilling pathways • Competence-based training design
KER3	A guide on "How to formulate a joint stakeholder initiative"	✓ Industry Associations; ✓ Public Administrations; ✓ Academic Institutions; ✓ NGOs	○ Cross-sector collaboration ○ Weak industry-academia ties ○ Policy co-creation ○ Strategic alliances	• Multi-stakeholder alignment • Cross-sector partnerships • Policy co-creation support

KER No.	Key Exploitable Result (KER)	Target stakeholder(s)	Main stakeholder needs	Value proposition offered by the KER: how does it cover and deliver the identified needs
			○ Impactful partnerships ○ Gaps in local-to-EU policy alignment	• Strategic academia-industry ties • Scalable NGO collaboration • Structured initiative framework • Innovation-enabling guidance
KER4	MML workshops actionable results	✓ EU institutions/policy makers; ✓ Public authorities; ✓ General public	○ Bottom-up Policy guidance ○ Inclusive RES policymaking ○ Disconnect between practice and regulation ○ Lack of community-level feedback loops	• Practical application potential • RES skills gap solutions • Innovative practice insights • Education program input • EU policy integration • Stakeholder practice support
KER5	Green Portal	✓ Industry Associations; ✓ Public Administrations; ✓ Academic Institutions; ✓ NGOs	○ Knowledege Gap ○ Lack of communication ○ Low awareness ○ Gender Gap ○ Quality Information ○ Unverified or scattered data sources	• Raise awareness • Gender balanced • Networking • Knowledge sharing • High quality information
KER6	SKILLBILL's Specialization School	✓ Academic Institutions; ✓ Private Sector; ✓ Government; Energy Authorities & Policy Makers; ✓ Civil Society	○ Practical RES training access ○ Industry-aligned curriculum design ○ Flexible skill development paths ○ Cross-sector collaboration support ○ Policy-shaping educational input ○ Inclusive green transition tools ○ Skilled workforce development	• Hands-on RES educational modules • Co-designed courses with industry • Custom upskilling/reskilling programs • Stakeholder-driven learning formats • Policy-relevant education content • Inclusive and accessible learning • Workforce-ready graduate output
KER7	Virtual Reality Software to support laboratory work	✓ Research & Academic Institutions; ✓ RES Industry; Civil Society	○ Accessible lab training ○ Immersive learning tools ○ Risk-free experimentation ○ Scalable teaching methods ○ Engaging STEM education ○ Skills-practice flexibility	• Realistic RES lab simulations • Safe, repeatable training environments • Scalable for wide deployment • Enhances engagement and retention • Bridges theory and practice • Reduces resource and facility strain
KER8	SKILLBILL VET Program	✓ Research & Academic Institutions; ✓ RES Industry; Civil Society	○ Structured RES curriculum ○ Industry-relevant skills ○ Inclusive learning paths ○ Flexible training formats ○ Updated technical content	• Tailored RES learning modules • Aligned with market demands • Inclusive upskilling pathways • Combines theory and practice • Supports lifelong learning

KER No.	Key Exploitable Result (KER)	Target stakeholder(s)	Main stakeholder needs	Value proposition offered by the KER: how does it cover and deliver the identified needs
			○ Workforce readiness tools	• Builds job-ready competencies
KER9	Mobile Software to support laboratory work	✓ Research & Academic Institutions; ✓ RES Industry; Civil Society	○ Accessible lab training ○ On-the-go learning ○ Digital skill-building ○ Practical RES simulations ○ User-friendly tools ○ Engaging learning methods	• Mobile lab access • Flexible learning tool • Enhances digital literacy • Simulates real-world tasks • Supports blended learning • Boosts training efficiency
KER10	Dissemination and Communication campaign & strategy	✓ Science Academia ✓ Private sector; ✓ Government; Energy Authorities & Policy Makers ✓ Civil Society	○ Clear, accessible information ○ Broader public engagement ○ Visibility of project outcomes ○ Awareness of RES benefits ○ Evidence for policy decisions ○ Support for informed training ○ Credible, science-based outreach	• Tailored communication tools • Broad multi-channel outreach • Amplified stakeholder visibility • Strengthened public awareness • Increased engagement with RES • Informed decision-making support • Strategic promotion of results
KER11	Exploitation, IPR Management and Sustainability Strategy - Preliminary Business Plan	✓ Science Academia ✓ Private sector; ✓ Government; Energy Authorities & Policy Makers ✓ Civil Society	○ Long-term project continuity ○ Clear IPR responsibilities ○ Scalable business models ○ Access to exploitable results ○ ROI clarity and planning ○ Strategic partnership building ○ Frameworks for future use	• Roadmap for sustainability • Defined IPR exploitation paths • Scalable exploitation strategy • Support for post-project uptake • Guidance on value generation • Tools for stakeholder alignment • Structured business foresight
KER12	Social impact monitoring framework	✓ NGOs; ✓ Academic Institutions; ✓ RES Industry; ✓ Educational Authorities	○ Social impact tracking ○ Standardised evaluation tools ○ Outcome measurement methods ○ Evidence-based reporting ○ Alignment with societal goals ○ Accountability frameworks ○ Support for sustainability targets	• Standardised impact framework • Quantifies social benefits • Supports ethical reporting • Enhances policy evaluation • Strengthens funding cases • Enables cross-sector comparability

10. Individual Post-project Exploitation and Valorisation Plans per Partner

Individual post-project exploitation interests per partner and KER

In projects like SKILLBILL with multidisciplinary consortia, the type of exploitation interest in a given result often varies among partners. This is due to many reasons, such as differences in each organisation's strategic priorities or the nature of an organisation. Based on the notation presented in section 6.3.1, the table below shows the different types of post-project exploitation interest and strategies/pathways that each partner envisages for each of the project's (Key) Exploitable Results.

For each result, the partners were asked to provide their exploitation interest, distinguishing between (i) commercial, (ii) internal development (i.e., the result is expected to be used within the project for improving certain processes/products/services in the respective partner's organisation), (iii) research, and (iv) other exploitation pathways.

Table 8. Individual post-project exploitation interest

LEGEND: C(M) - Commercial: Making or improving a product to sell it C(L) - Commercial: Licensing it to third parties C(S) - Commercial: Providing a service, such as consultancy I - Internal (e.g. using the ER to improve products or organizational processes) R - Research (e.g. in new research projects or internal R&D activities) O - Others (please specify)	KER1	KER2	KER3	KER4	KER5	KER6	KER7	KER8	KER9	KER10	KER11	KER12
	Exploitation interest/strategy											
A0	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
QPLAN	-	I,R	I	I,R		-	-	-	-	-	-	I,R
WR	C(S),I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	C(S),I,R	C(S),I,R	I,R
UNITUS	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
USE	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
MET	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
UU	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
EREF	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
SINERGIE	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R
PC	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R	I,R

Overall valorization plans per partner

Lastly, this section presents each project partner's general valorisation plans for the overall results and knowledge stemming from the entire work performed during the project. Complementing the exploitation plans at the result level, in this section each partner identifies which project assets they are more interested in exploiting and describes, briefly, how they intend to make use of the results generated, and the knowledge gained, throughout their activities in SKILLBILL. These post-project exploitation plans relate to organisational-level activities and goals. The information is therefore presented separately for each specific consortium partner in the table below.

Table 9. Overall valorization plan per partner

Partner	Project results of major interest	Description
A0	Green Portal	AZZERO CO2 SRL is an Energy Service Company specialized in Renewable Energy Sources, Energy Efficiency, Environmental Sustainability and Social Sustainability. The increase of awareness and knowledge on these themes is part of its mission. The Company, in collaboration with its members (Legambiente and Kyoto Club), carries out initiatives on a national and local scale to promote sustainability, renewable sources and corporate social responsibility; the Green Portal is in line with the scope and will be used as a tool to reach the goal and involve as many people as possible. In addition, the management tools, the network developed (project partners, AB members, stakeholders actively involved) and the project outcomes will be valorized/exploited in future R&D projects at national (ERFD) and EU (Horizon EU, Life) level.
QPLAN	A guide on "How to formulate a joint stakeholder initiative" Social impact monitoring framework; Stakeholder Initiative in form of Working Groups - Reports of each Working Group outcomes	Q-PLAN is a business consulting firm specialised in project design, management, and result exploitation across various sectors, including social entrepreneurship, social economy, and renewable energy sources (RES). Q-PLAN will leverage the knowledge and tools developed during SKILLBILL to enhance its consulting services in stakeholder engagement, social impact assessment, and RES-related innovation. The company will apply these insights to secure new business opportunities, particularly in social entrepreneurship, and RES, among other topics. By utilising the project's key results, Q-PLAN will strengthen its market position, leverage strategic alliances, and support ongoing dissemination and collaboration efforts at local and international levels.
WR	Desk-research & interviews results; Dissemination and Communication Strategy; Activities and Results Exploitation; IPR Management and	WR is a social research SME specialised in consumer behaviour, market analysis, and innovation management in key sectors including Renewable Energy; Education and Training sectors. The company will build on the knowledge derived from SKILLBILL as well as its results to improve its services, analytic tools and know-how with regard to both the EU's Renewable

	Sustainability Strategy SKILLBILL's Preliminary Business Plan	Energy; Education and Training sectors and business modelling and innovation management methods.
UNITUS	SKILLBILL's Specialization School	Graduate educational programs are part of the core-business for UNITUS. Therefore having implemented a new program has significantly improved the business capabilities of UNITUS.
USE	N/A	N/A
MET	Technical VR and mobile solutions	N/A
UU	SKILLBILL's Specialization School	UU is a world leading educational and research insitute in the Netherlands. Therefore, having implemented a new program could potentially demonstrate on the capabilities of UU on long-life learning programmes and combining research with education (and hands-on education).
EREF	The knowledge required throughout the project (on skills gaps, EU and national skills development initiatives, as described in D2.1) and related policy processes foster EREF's actions in this context, improving its advocacy for stronger measures to improve skills development in the EU, which is urgently required to achieve the bloc's decarbonisation targets.	EREF is an EU level umbrella organisation of national and regional energy associations that represents the interests of independent renewable energy producers towards EU decision-makers and the wider Brussels energy and climate stakeholder groups. In this context, SKILL BILL results and activities have enhanced awareness on extending its policy-making scope to educational initiatives, going beyond traditional topics such as permit granting procedures, climate and energy governance, or renewable support schemes.
SINERGIE	VET programmes; VET training materials and Moodle Courses	SINERGIE is an accredited VET body and the interest is related to the creation of newly asincronous courses using the VET materials of WP5 and/or integrate materials within funded qualification and training courses
PC	MML workshop results; VET courses; Green Portal	PEDAL Consulting s.r.o. is a management consulting company specialising in the project development and implementation across various sectors, including environment and renewable energy sources (RES). PEDAL Cons. will build on the SKILLBILL's knowledge and results to secure new business opportunities related to the RES and Educational and training sector.

11. VET Program – Preliminary Business Plan

This section presents a preliminary business plan developed to ensure the long-term sustainability of SKILLBILL's VET programme, elaborating the future expansion regarding VR platform Master and VET development maintenance as defined in the deliverable description of the GA (part B, pg.23). It outlines our approach to integrating training delivery with market needs, institutional support and financial viability. A mixed-method methodology was adopted, combining consortium consultation, a high-level market research and financial projection. The resulting framework ensures alignment with the project's strategic objectives and supports decision-making for future implementation.

Description of Product/Services

SKILLBILL's VET Program offers a curated portfolio of modular training courses tailored to the needs of public administrations, professionals, and SMEs operating in the fields of renewable energy, energy management, and digital transformation. These courses are structured to be short, targeted, and accessible through various delivery modes including online learning, e-learning packages, and immersive VR modules.

Among the currently developed courses are:

- A training program for Energy Managers (8 hours)
- A practical course on PV installation (8 hours)
- Modular e-learning packages designed for flexible professional upskilling
- Embedded courses in institutional training programs via platforms like ESF+[60] and Fondimpresa[61]

Each course follows a clear instructional design and includes content delivery, interactive components, assessment mechanisms, and certification. The digital format of the courses enables flexibility, while the integration of immersive Mobile Simulator AR experiences enhances engagement and practical skill development. The AR module is mandatory for all courses and is currently being scheduled for integration in SINERGIE's wider training offering as an additional, immersive course component. The Training of trainees course aims to train the instructors on how to use the material and the game simulator. In the technical courses the AR tool is part of some modules, e.g., energy audit for the Energy Management Course and Photovoltaic Panels installation for the Photovoltaic Course.

The program is designed to be adaptable, with multiple exploitation and access pathways, including::

- As fully funded training under EU or national funding schemes (e.g., ESF+, Fondimpresa)
- As direct sales through institutional procurement systems like MePA[62]

[60] Link

[61] Fondimpresa is an inter-professional Joint Fund for the continuous training of workers, established pursuant to Article 118 of l. n.388/2000 and recognized, by decree of 28 /11/2002, by the Ministry of Labour and Social Policies that exercises supervision and monitoring through Anpal on it. (link)

[62] PA Electronic Market (MEPA) is a public eProcurement tool managed by Consip on behalf of the Italian Ministry of Economy and Finance (MEF) (link)

- As openly accessible e-learning courses for individuals or companies

Organisation

Key Activities

To maintain the quality and continuity of the VET Program, several core activities are carried out:

- Content delivery through trainers and learning platforms
- AR content deployment and technical support (managed by METROPOLIA)
- Tutoring and learner support services, particularly in e-learning formats
- Course promotion, certification, and customer feedback loops

Key Resources

The sustainability of the training offer is built on a set of strategic and technological assets:

- A scalable Learning Management System (LMS) for course delivery and tracking
- The SKILLBILL VR platform, maintained by METROPOLIA
- Skilled trainers and course developers contributing to both content and tutoring
- Partnerships with institutional platforms and public procurement channels

Management

Key Partners

The deployment of the VET Program relies on two main operational partners.

SINERGIE: VET Program administrative leader and training provider actively integrating the SKILLBILL VET modules into its broader portfolio of training initiatives. This partnership ensures wider dissemination through existing channels and institutional customers.

METROPOLIA: responsible for the ongoing technical maintenance and support of the VR platform, ensuring the quality, accessibility, and scalability of immersive training modules developed under SKILLBILL.

Sector analysis

The broader **renewable energy and sustainable technology sector** is undergoing a profound transformation, which in turn reshapes labour demands and skill requirements. The transition to a green economy – alongside rapid digitalization – is not only an environmental imperative but also an economic revolution in how industries operate. European policies like "**Fit for 55" and the updated EU Skills Agenda** explicitly recognize a dual challenge: first, the massive **upskilling and reskilling of the existing workforce** for new roles in energy, construction, transport, and manufacturing; and second, the **inclusion of underrepresented groups** in these emerging green sectors (for example, increasing opportunities for women, youth not in education or employment, and regions historically

dependent on fossil fuel industries)[63]. Achieving climate targets will require a workforce not only technically proficient in areas like renewable energy, energy efficiency, and electric mobility, but also adaptable and diverse enough to drive innovation.

According to an International Labour Organization study "Skills for a Greener Future", a mix of **technical and soft skills** will be in high demand across green jobs. In addition to core technical skills (e.g. electrical engineering, project management, digital literacy for smart systems), employers are seeking transversal competencies such as **environmental and climate awareness, analytical and systems thinking, problem-solving ability, adaptability, and innovation[64]**. These skills are needed not just in engineering roles but across management, finance, and administrative functions as companies pivot to sustainability. The challenge, however, is that educational and training institutions often struggle to keep pace with the fast-evolving needs of the labour market[65]. Studies note a misalignment between available training programs and the skills required in rapidly decarbonizing industries. In practice, this leads to **skills mismatches** - companies report job vacancies in renewable energy that cannot be filled due to lack of qualified candidates, even as unemployment or worker displacement persists in other areas.

A critical development in the sector is the explosive growth of what the ILO defines as **"green jobs".** The ILO broadly describes green jobs as "decent jobs that contribute to preserving or restoring the environment", for instance by improving energy and resource efficiency, limiting greenhouse gas emissions and waste, and helping adapt to climate change[66]. These jobs are proliferating in areas like renewable power generation, battery and EV manufacturing, building retrofits, grid modernization, and environmental services. The International Energy Agency projects that the clean energy transition will create millions of new jobs globally in this decade. In fact, by 2030 adoption of clean energy technologies could create around **14 million new jobs** in energy supply and adjacent sectors, plus another **16 million jobs** in fields like building insulation, energy efficiency, and electric vehicle production[67]. At the same time, about 5 million jobs are likely to be lost in fossil fuel industries, meaning a net gain – but only if workers can be retrained and redeployed to new roles[67]. This underscores that simply creating green jobs is not enough; preparing a capable workforce to fill them is an equally urgent task. Without coordinated action, experts warn that by 2030 up to **one in five green jobs may go unfilled due to skills short**[68], a gap that could widen to one in two by 2050 if

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63 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/european-year-skills-2023_en#:~:text=and%20reskilling

64 https://www.renewableinstitute.org/closing-the-green-skills-gap-empowering-the-next-generation-of-renewable-energy-professionals/#:~:text=The%20challenges%20are%20not%20confined,7

65 https://www.oecd.org/en/topics/sub-issues/changing-skill-needs-in-the-labour-market.html#:~:text=Changing%20skill%20needs%20in%20the,a%20shortage%20of%20skilled

66 https://www.uncclearn.org/wp-content/uploads/library/ilo25.pdf#:~:text=sustainable%20enterprises%20and%20economies,%02%20Protect%20and%20restore%20ecosystems

67 https://www.reuters.com/business/sustainable-business/reskilling-challenge-how-can-we-leave-no-one-behind-energy-transition-2023-04-26/#:~:text=The%20International%20Energy%20Agency%20,and%20manufacture%20new%20energy%20vehicles

68 https://esgnews.com/global-demand-for-green-talent-outpaces-supply-linkedin-report/#:~:text=,and%20Ireland

training does not catch up with demand. In Europe, **77% of companies already report difficulty finding workers with the necessary skills** for current roles[69], a situation exacerbated in specialized fields like renewable energy where the needed expertise is very specific.

Market analysis

The global transition to renewable energy is accelerating, creating unprecedented demand for skilled professionals in green technologies. In Europe, policy drivers like the European Green Deal and the updated Renewable Energy Directive (RED III) have set ambitious targets - for example, a binding EU-wide renewable energy share of **42.5% by 2030**[70]. This push led to record installations in 2023; the EU added over **60 GW of wind and solar capacity**, helping renewables reach about **44% of Europe's electricity generation** that year[67]. However, the rapid expansion of renewables has exposed a widening skills gap. Recent data from LinkedIn's Green Skills Report highlights that demand for "green" talent is growing about twice as fast as supply - **global demand grew 11.6% between 2023 and 2024, while supply rose only 5.6%**[71]. This talent gap is especially acute in fast-growing sectors like wind and solar power, green hydrogen, and smart grids. The European wind industry alone anticipates needing over **200,000 additional workers by 2030** (expanding from 370,000 jobs today to ~600,000)[72].

Best practices from countries such as Portugal, France, and the UK illustrate diverse approaches. For instance, the PRAXIS Network in Portugal delivers modular PV training aligned with national standards, while France's ECOLE program incorporates blended formats that combine theoretical learning with lab-based practical sessions. The UK's Green Skills for Housing program tailors RES training to construction sector needs[73].

Key Trends

- ✓ *Rise of micro-credentials and modular learning*: Learners can accumulate short, stackable qualifications tailored to specific technical or sectoral needs, enhancing employability and adaptability.
- ✓ *Expansion of blended learning formats*: Training providers increasingly combine online content with on-site labs or practical sessions, allowing wider accessibility without compromising hands-on experience.

[69] https://esgnews.com/global-demand-for-green-talent-outpaces-supply-linkedin-report/#:~:text=2023%20to%202024%2C%20supply%20only,6

[70] https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en#:~:text=share%20of%20renewables%20in%20EU,energy%20consumption%202023

[71] https://esgnews.com/global-demand-for-green-talent-outpaces-supply-linkedin-report/#:~:text=,and%20Ireland

[72] https://balkangreenenergynews.com/european-wind-industry-to-need-200000-new-workers/#:~:text=Over%20the%20next%20six%20years%2C,new%20workers%2C%20according%20to%20WindEurope

[73] https://skillbill-project.eu/wp-content/uploads/2024/07/D2.1.pdf

- ✓ *Strong public-private collaboration*: Effective partnerships with local governments and industry actors help tailor training content to regional labour market needs and ensure job placement relevance.
- ✓ Usage of AR and VR tools in training contexts to avoid in situ training and related risks. Using AR in Health and Safety training or construction operations in getting more popular nowadays and many VET providers are adopting such technologies.

Gaps and Opportunities

- *Limited integration of immersive technologies*: Although VR and AR offer potential for enhanced practical learning, few training programs currently utilize such tools. Those are more frequent in training in which the usage of such technologies is justified in terms of cost-opportunity and risk reduction.
- *Gender participation imbalance*: Most RES training programs report a lower uptake among women, requiring more inclusive outreach strategies and learning environments.
- *Fragmented certification standards*: Lack of harmonization across national training certifications hinders worker mobility and program scalability across Europe.

Value Proposition & Market Penetration

The SKILLBILL VET Program presents a distinctive blend of flexibility, technical innovation, and institutional accessibility. At its core, it delivers short, practice-oriented courses that are easily integrated into existing professional development pathways. Enhanced by the use of augmented reality (AR) modules, the program enables learners to engage with complex concepts through immersive, hands-on experiences. Its design is further strengthened by compatibility with public funding mechanisms, broadening access for both institutions and individuals.

By combining cutting-edge learning methods with practical implementation, the VET Program offers a scalable and sustainable model for workforce training aligned with the EU's digital and green transition objectives. Its modular structure and focus on digital innovation respond directly to the evolving needs of the green economy, equipping learners with in-demand skills through a flexible and forward-looking approach.

Aligned with EU policy frameworks such as the European Skills Agenda and Smart Specialisation Strategies (S3), the program is rooted in both European priorities and regional realities. Beyond technical skills, it also addresses critical gaps in soft and transversal competencies - including problem solving, digital literacy, and environmental responsibility - while promoting inclusiveness, with particular attention to gender equality in STEM fields. In doing so, SKILLBILL's VET Program advances both employability and social equity in the context of the green transition.

Market penetration and customer engagement

The market strategy of SKILLBILL's VET Program is designed to ensure broad adoption and long-term sustainability of the training offer. The program targets three primary customer segments: public administrations, private enterprises (particularly SMEs), and individual professionals. Public administrations, at local; regional and national levels, represent a key group due to their growing need to equip staff with the necessary skills to drive the energy and digital transitions. These institutions often access funding opportunities, such as ESF+ and Interprofessional funds (e.g. Fondimpresa in Italy),which facilitates their participation in structured training pathways.

SMEs constitute a second critical market, particularly those eligible for interprofessional training funds. These companies frequently lack in-house capacity to deliver tailored training and benefit from the practical, modular nature of the VET curriculum. The third segment comprises individual professionals, who are increasingly seeking accessible, certified training solutions. The program's e-learning packages cater specifically to this audience by offering flexible, self-paced content that can be consumed remotely.

The VET Program is deployed through a combination of physical and digital channels. Institutional procurement platforms such as MePA enable direct purchasing by public bodies, while strategic partnerships with training organizations and regional development agencies serve to widen institutional outreach. The online learning portal supports e-learning delivery and allows individual users and private companies to access training directly. Customer engagement is supported by a strong service model that includes onboarding support for institutions and companies, structured certification for learners, and ongoing refinement of the course catalogue based on feedback from users and stakeholders. This integrated, multi-channel strategy ensures that the VET Program remains visible, accessible, and aligned with evolving training needs across Europe.

Timeline and Financial Planning

The financial and operational planning of the VET Program is structured around a phased deployment model that extends over the three years following the SKILLBILL project's completion. In the *first year* (2025–2026), the program will launch with an initial set of 5 to 10 courses delivered through institutional procurement platforms and partner networks. These pilot courses will provide the foundation for validating content, testing delivery formats, and refining the user experience.

In the *second and third years* (2026–2028), the program will scale across new regions and markets, with a focus on replicating the model in other EU countries and adapting the content to local needs. During this period, the online platform will also be expanded to support additional languages and regional adaptations, thus broadening the program's reach and inclusivity.

From a *financial perspective*, the VET Program's sustainability is built on a blended model comprising funded training and direct sales. Funded courses - such as those supported by ESF+ or Fondimpresa - typically cover the full course cost without generating surplus revenue. However, commercially sold courses - delivered via MePA or the open market - include margin[74] (profit) allowances that support reinvestment and operational continuity.

The average cost structure of a commercially delivered course is summarized below. It includes direct teaching costs (€560); administrative and management overheads (€1,200); technical support and platform maintenance (€370) and marketing expenses (€90). The total average cost amounts to approximately €2,220. Courses are priced accordingly to ensure sustainability and, in many cases, generate modest margins. For instance, e-learning packages priced at €3,000 and courses sold on MePA at €2,400 demonstrate the potential for positive revenue streams.

These financial dynamics, in conjunction with structured institutional relationships and scalable delivery mechanisms, provide a solid foundation for the long-term viability of the VET Program.

[74] The margin refers to the extra income earned from commercially sold courses after covering their delivery costs. This surplus helps support ongoing operations and reinvestment into the VET Program.

Table 10. Average cost per commercially delivered course

Cost Category	Teaching	Management/Admin	Technical	Promotion	Total (avg)
Avrg.Cost/Course	€560	€1,200	€370	€90	€2,220

To complement the financial overview, the following table presents a consolidated view of key revenue and cost components associated with each training offer. It includes average course duration, detailed breakdown of operational costs (e.g., teaching, management, technical support), and the final pricing strategies based on the type of funding or delivery mechanism (e.g., institutional procurement, open market). This comprehensive perspective supports the sustainability planning of SKILLBILL's VET program by outlining where value is created and how it is delivered.

Table 11. Key revenue and cost components per training offer

Course Typology[75]	Avrg. duration (h)[76]	Budget parameter (€)[77]	Total course budget (€)[78]	Teaching costs (€)[79]	Mgmt. (€)[80]	Tutoring (€)	Design (€)	Promotion (€)	Technical issues (€)	Administration and indirect (€)	Margin (€)	Final price/value (€)[81]
ESF+ funded course (embedding SKILL BILL in longer/broader funded courses)	28	190.00	5,320	1,960	896.28	1,195.04	298.76	298.76	298.76	372.40	-	5,320

[75] ESF+ (European Social Fund Plus): Training proposals are submitted in response to ESF+ calls, which are managed at the regional level in Italy. These calls typically require the development of training catalogues, allowing for partial or full reuse of SKILLBILL training materials in the context of renewable energy education.

Fondimpresa: A national interprofessional fund in Italy supporting company training. Fondimpresa publishes 2–3 calls annually for training proposals, and funding is directed to companies. Applicants can propose tailored training catalogues for pre-identified corporate beneficiaries, potentially leveraging SKILLBILL-developed content.

PA / MePA (Public Administration / Electronic Marketplace): In order to sell training services to public administrations in Italy, providers must be registered and qualified on the MePA platform (Mercato Elettronico della Pubblica Amministrazione). This enables compliance with public procurement regulations and allows public entities to purchase training courses directly from the approved catalogue.

[76] Average duration: the average duration of the different kind of courses. Normally, ESF+ funded courses lasts 24-30 hours (this is the duration, on average, of a training modules in longer courses). ESF+ in Italy funds catalogues of short courses addressed to unemployed or professionals/companies and long qualification courses (ending with the achievement of a recognized certification or qualification by the students), e.g. a qualification course for energy managers lasts normally 300h, of which 28-30h are dedicated to “energy audits”.

[77] Budget parameter: standard cost (on average) foreseen by the different funding schemes or commercialization channel.

[78] Total course budget = average duration * budget parameter.

[79] Teaching costs: average cost of a trainer. With the trainer being a professional external to the VET body, this is the fee paid to the teacher.

[80] Management to Indirect costs: internal costs. Organising a course involves different staff members, whose costs should be reported (in funded courses) or covered by revenues (for the sellable courses).

[81] Final price: for funded courses this is equal to the cost to organize the course. Profits are not allowed by funding schemes. Sellable courses have their cost increased by a multiplier to allow a Profit.

Course Typology[75]	Avrg. duration (h)[76]	Budget parameter (€)[77]	Total course budget (€)[78]	Teaching costs (€)[79]	Mgmt. (€)[80]	Tutoring (€)	Design (€)	Promotion (€)	Technical issues (€)	Administration and indirect (€)	Margin (€)	Final price/value (€)[81]
Fondimpresa (interprofessional i.e. social partners/trade unions) course catalogues - training courses for companies	24	150.00	3,600	1,680	500.40	667.20	166.80	166.80	166.80	252	-	3,600
MePA training course for PV installation	8	200.00	1,600	560	278.40	371.20	92.80	92.80	92.80	112	1.50	2,400
MePA training course for Energy Managers	8	200.00	1,600	560	278.40	371.20	92.80	92.80	92.8	112	1.50	2,400
e-learning packages	8	200.00	1,600	560	278.40	371.20	92.80	92.80	92.80	112	1.88	3,000

Table 12. Fixed costs per course

Fixed costs[82]	Cost (€)
Zappar licence	696
Server maintenance and Moodle maintenance	1500
Project design	4,000
Total	6,196

Table 13. Revenues and fixed costs per course number[83]

Covering fixed costs (min courses)	Min no. of courses	Revenues (€)	Fixed costs (€)
ESF+ funded course (embedding SKILL BILL in longer/broader funded courses)	5	26,600.00	2,987.60

[82] Fixed Costs: its cost is divided into different typologies. The sum of technical issues column of Table 9 is that cost.

[83] Table 11 includes an estimation of the numbers of courses to be organized from 2026. Fixed costs are equally divided between them and covered.

Covering fixed costs (min courses)	Min no. of courses	Revenues (€)	Fixed costs (€)
Fondimpresa (interprofessional i.e. social partners/trade unions) course catalogues - training courses for companies	5	18,000.00	1,668.00
MePA training course for PV installation	2	4,800.00	371.20
MePA training course for Energy Managers	3	7,200.00	556.80
e-learning packages	4	12,000.00	742.40
	Total	68,600	6,326

12. Specialisation School – Continuation Roadmap

Description of SKILLBILL's Specialisation School

The SKILLBILL Specialisation School in Sustainable Energy is a postgraduate academic programme established to train future leaders in the energy transition. Spanning one academic year and awarding 60 ECTS, the programme concludes with the conferment of a legally recognised 'First Level Master' degree issued by UNITUS. It combines online and in-person learning, enhanced by augmented and virtual reality (AR/VR) technologies to deliver an immersive and interactive experience. Students also engage in real-world applications through internships with industry and research institutions.

The School's innovative teaching model supports an international academic environment, driven by the collaboration of the four organising universities. Instruction is highly practical, involving case studies, design activities, and laboratory work. AR and VR tools support both self-study and remote access to laboratories, enriching the learning experience regardless of location.

Designed primarily for professionals already working in the energy sector and holding at least a Bachelor's degree, the programme is equally valuable for recent BSc and MSc graduates. To accommodate diverse needs, all sessions are available both on-site and remotely, with live streaming, interactive participation, and recorded content. Every student is offered the opportunity to complete an internship through partnerships with leading companies and research bodies, providing a practical conclusion to their academic journey.

Organisation & Management

To accomplish its mission the European Specialisation School in Sustainable Energy lays on 6 pillars:

I. Sustainability, circularity and social-economic aspects of energy transition
II. Sustainable and renewable energy fuels
III. Renewable and sustainable heat
IV. Renewable and sustainable electricity
V. Sustainable mobility
VI. System integration, energy management, storage and efficiency

Jointly developed by four prominent European institutions:

I. Università della Tuscia (UNITUS) | Administrative University
II. Universidad de Sevilla (USE) | Supporting University
III. Metropolia University of Applied Sciences (MET) | Supporting University
IV. Universiteit Utrecht (UU) | Supporting University

Sector and Market Analysis

As already mentioned in the previous section related to VET Programme, the renewable energy transition is accelerating rapidly in Europe, driven by the European Green Deal and the Renewable

Energy Directive (RED III), which sets a binding RES share target of at least **42.5% by 2030**[84]. In 2023, Europe added over 60 GW of wind and solar capacity, reaching nearly 44% of total electricity generation. However, the pace of green job creation is outstripping skills development. Global studies forecast that the green transition could result in a global shortfall of 7 million skilled workers by 2030, while in Europe the green talent supply grew just 5.6% in 2023 compared to an 11.6% increase in demand[85]. This talent gap is particularly critical in sectors like wind and solar power, green hydrogen, and smart grid technology. The European wind industry alone will require over 200,000 additional workers by 2030[86]. In response, EU programs such as the Skills Agenda and the European Year of Skills 2023 are working to bridge this gap, with public-private training partnerships, cross-border certification reforms, and new incentives for industry-aligned curricula.

The training market for green and renewable energy professions is rapidly evolving. Traditional education models are being challenged by the need for faster, modular, and industry-aligned learning. Across Europe, programs like the EUREC Master in Renewable Energy and Imperial College's MSc in Sustainable Energy offer robust academic paths but lack the modularity and immersive technologies now trending globally[87]. The SKILLBILL programme stands apart through its integration of virtual and augmented reality, stackable micro-credentials, and blended online-offline delivery. Global best practices also include India's Skill Council for Green Jobs, which has trained over 500,000 workers since 2015, and the US Inflation Reduction Act, which funds community colleges and apprenticeships in clean energy sectors[88]. Key market trends include growing employer demand for flexible; interdisciplinary programs and new technologies reshaping how practical training is delivered, while persistent challenges include credential standardization and inclusive access.

Value Proposition

The SKILLBILL Specialisation School offers an innovative and future-oriented postgraduate programme tailored to meet the urgent need for skilled professionals in the renewable energy sector. As Europe accelerates its green transition, the mismatch between the rising demand for green talent and the limited availability of adequately trained professionals is becoming increasingly evident. The School directly addresses this gap by combining academic excellence with strong industry alignment, delivering a flexible, immersive, and hands-on learning experience.

Built on the collaboration of four leading European universities, the programme leverages blended teaching formats, including both on-site and remote participation, and cutting-edge educational technologies such as augmented and virtual reality. These tools allow learners to access remote laboratory experiences and interact with complex energy systems in realistic and engaging ways. The curriculum covers six core pillars of the energy transition, ranging from sustainable fuels and electricity to circularity and system integration. Each module is designed to reflect both scientific advancements and evolving market needs.

[84] IEA (2023). Renewable Energy Market Update

[85] European Commission (2022). Skills for the Green Transition – EU Green Deal Factsheet

[86] WindEurope (2024). Wanted: more than 200,000 wind workers – but where to find them?

[87] EUREC (2024). Master in Renewable Energy – Programme Overview

[88] IHRB Just Transitions (2022). India's Skill Council for Green Jobs

What distinguishes the SKILLBILL Specialisation School is its ability to cater to a diverse learner base, from professionals already working in the energy field to recent graduates seeking specialised qualifications, while maintaining academic integrity and practical relevance. Internships with partner companies and research organisations ensure that learners can apply theoretical knowledge in real-world contexts, boosting employability and fostering direct connections with the labour market.

Timeline and Continuation Planning

The Specialisation School officially launched in late 2023 with its first round running across four teaching periods through 2024-2025. The structure allows for annual intake, with efforts already in place to secure its continuation post-SKILLBILL project. The School is designed with a biennial timeline, with each new edition scheduled to launch every two years. This model ensures the programme remains dynamic, responsive, and high-quality. Following the conclusion of its first edition, the next academic cycle is planned to commence in Autumn 2026. The two-year interval between editions is intentionally structured to provide sufficient time for a comprehensive evaluation of the programme's outcomes. This period will be used to assess student feedback, sector trends and partner input, allowing for thoughtful adjustments to the curriculum, teaching methods and staffing where needed.

UNITUS remains the administrative lead, responsible for coordinating annual updates to the course structure and overseeing admission. The flexible design allows each university to participate based on local administrative capabilities, timeframes and budget availability, ensuring sustainability while accommodating institutional diversity.

In support of this shared vision, a Letter of Agreement (LoA) was signed in summer 2025 by UNITUS; USE; MET and UU, formalising their willingness to the programme's continuation (*GA/part B/SO3/ pg.3*). The LoA outlines each institution's intention to provide teaching personnel, support curriculum development and explore future funding mechanisms. It serves as a foundational agreement to maintain and potentially expand the Specialisation School beyond its initially funded phase. Here the content of the LoA follows, while the signed LoA are included as in Annex.

In addition to the 4 Universities in the SKILLBILL consortium, other 2 external universities (the University of Calabria and the University of Athens) and 3 research institutions (CNR, ENEA, and SINTEF) have expressed their interest to join the Specialisation School, offering support of various kinds (*GA/part B/SO3/ pg.14)*. The Letters of Interest (LoIs) are included in Annex 2: Signed LoIs.

This section introduces the formal LoA template signed by the consortium universities, outlining their commitment to continue supporting the SKILLBILL Specialisation School after project completion. The LoA specifies the intended contributions of each institution, ranging from faculty provision and curriculum input to administrative coordination and exploration of future funding opportunities, while maintaining a flexible, non-legally binding format to facilitate collaboration and sustainability. What follows is the finalized, partner-approved template that served as the foundation for securing ongoing institutional engagement.

Letter of Agreement

Introduction

The Università degli Studi della Tuscia (UNITUS) in collaboration with the Universidad de Sevilla (USE); Metropolia University of Applied Sciences (MET) and the Universiteit Utrecht (UU), hereinafter referred to as "Parties",

Whereas:

** Noting the shared values and objectives that guide their activities and underline their strategic planning. In particular, the Parties have interest in supporting the continuation of SKILLBILL's Specilisation School, while not having any contractual and/or legal obligations to that end, as a way for boosting European Union target on skilling; reskilling and upskilling the workforce of RES.*

** Considering that collaboration between Europe's Universities to the same end is critical, as it (i) allows a multidisciplinary approach on RES education and training; (ii) help them shape more targeted; informed and effective methodologies and (iii) collaboration allows them to address problems they would not be able to solve independently.*

** Having regard to the fruitful cooperation that the Parties had in the most recent years. More specifically under the framework of SKILLBILL project (GA No. 101075587), Parties worked together with UNITUS, as the Administrative Leader of SKILLBILL's Specilisation School, to (i) shape the Syllabus; (ii) develop the time schedule for delivering the course and (iii) implement the course as described in WP4 of the GA.*

Objectives and Areas of Collaboration

The present LoA aims to formalize the companies' willingness to continue supporting SKILLBILL's Specilisation School aiming to the following objectives:

** to raise awareness among RES stakeholders towards (i) the enhancement and development of skills and knowledge related to RES; (ii) opportunities in the exploitation of RES development at a regional and EU level; (iii) overcoming prejudices related to RES through the enhancement of knowledge about them and the overall awareness and (iii) the promotion of a bias aimed at bridging the gender gap in STEM*

** examine the potential of further synergies amongst universities by establishing a frequent bilateral/unilateral communication for new collaboration opportunities*

** to support EU & local stakeholders in building capacity and knowledge on renewable energy concept and sustainability*

Given the shared objectives and the already existing communication, the Parties agree on the non-obligatory support by providing their services to SKILLBILL's Specialization School after the official completion of the project, within the courses related to School's Syllabus.

Form of Collaboration and Support Approach

Due to the differences in administrative rules between MET; USE and UU, the continuation of the cooperation of the universities and the support of SKILLBILL's Specialisation School, with UNITUS as its Administrative Leader, is valid with given differences concerning the time, economic and service plan of each university and will be determined in detail in the future and in the presence of a need for the provision of services by the universities MET; USE and UU to UNITUS.

The above are statements of cooperation between the Parties, ***indicating their intentions to support the continuation of SKILLBILL's Specilisation Program. The Letter of Agreement (LoA) is not intended to be a legally binding document.***

The parties agree to work together on the basis of the following principles:

** **Mutual benefit**: Ensuring that all parties derive value from the collaboration.*

** **Transparency**: Open communication and full disclosure of information related to ongoing projects, funding opportunities, and decision-making processes.*

** **Inclusivity**: Encourage participation from a broad range of stakeholders.*

* ***Sustainability****: Prioritising long-term outcomes.*

Any activities conducted under this LoA are subject to their inclusion in the Parties' respective strategic planning and budgets (considering the availability of human and financial resources funds).

They shall be carried out following their respective rules and practices.

Any specific joint activities decided at a later point in time will be reflected in separate oral or written agreements.

Any joint activities or other forms of collaboration may include several Parties, but not necessarily all of them.

Additional funding of further financial resources may be sought (if needed) through European Union programmes and public-private partnerships.

Confidentiality and Disclosure of Information

The Parties reserve the right to disclose to the public this LoA and information concerning activities carried out under this LoA following their relevant policies.

Entry into Operation and Duration

The present LoA will enter into operation on the day of its signature by all Parties. ***It will be applicable for three (3) years.*** *Furthermore, the present LoA* ***can be amended at any time by mutual agreement*** *and shall become* ***effective once all Parties have consented*** *to the modification in writing.*

The present LoA ***may be terminated at any time by the consent of all Parties****. Also, any Party can* ***leave the LoA under the condition that it provides three (3) months' written notice*** *before the intended leave date to the other Parties.*

In case of any ***dispute or difference*** *between the Parties arising from the validity, interpretation or implementation of the terms of the present LoA, the Parties shall* ***settle it amicably by mutual agreement****.*

This LoA shall be exclusively governed by and construed and enforced in accordance with by the laws of the Belgium, and the courts of Brussel is the competent court in case any conflict arises from this LoA.

13. Conclusions

The final version of SKILLBILL's Exploitation and IPR Management Plan outlines the strategic approach that was followed to secure the long-term sustainability and value generation of the project's key outcomes. By identifying exploitable results across the project's technical, educational and societal dimensions, the plan ensures that the knowledge and material developed under SKILLBILL will continue to create impact beyond the project's formal conclusion.

The structured methodology used to map and prioritise the project's results has allowed for a clear assessment of ownership, potential use cases and relevant stakeholder beneficiaries. Through this process, 25 exploitable assets were identified and analysed, ranging from educational materials and digital learning tools to methodological guides and social monitoring frameworks. Each asset has been linked to specific exploitation pathways, such as academic uptake, commercial opportunities, and policy influence, supported by appropriate IPR strategies when applicable.

The involvement of all partners in providing feedback and validating the exploitation approach demonstrates a shared commitment to preserving the value of SKILLBILL's work. The plan also integrates mechanisms to monitor and support the post-project use of these results, including the assignment of responsibilities and the inclusion of exploitation considerations in Letters of Support.

As the energy transition accelerates and the demand for specialised skills continues to grow, SKILLBILL's legacy will be shaped by its capacity to equip a new generation of workers, educators, and institutions with practical, forward-looking resources. The exploitation plan therefore serves as a key roadmap to ensure that the project's mission lives on well after its official end.

Annexes

Annex 1: Signed LoAs

UNIVERSITÀ DEGLI STUDI DELLA TUSCIA

C.I.A SEZIONE
Unitus Academy

DETERMINAZIONE N. 36 DEL 17/7/2025

Il Direttore di Unitus Academy- Scuola di Alta Formazione

VISTA la proposta pervenuta da parte del prof. Andrea Luigi Facci di sottoscrivere la lettera di intenti (letter of agreement among universities) tra l'Università degli Studi della Tuscia (UNITUS), l'Universidad de Sevilla, la Metropolia University of Applied Sciences (MET) e la Universiteit Utrecht (UU) nell'ambito della prossima proposta di attivazione del master di primo livello finanziato dal progetto SkillBill;

CONSIDERATO l'esito positivo delle verifiche amministrative effettuate dall'Ufficio Ricerca e rapporti con gli enti;

CONSIDERATA la richiesta del Prof. Andrea Luigi Facci di procedere quanto prima con le attività propedeutiche alla realizzazione del master di primo livello finanziato dal progetto SkillBill e definire l'agreement con le altre università coinvolte;

TENUTO CONTO che non è prevista a breve termine una riunione del Consiglio di sezione di Unitus Academy- Scuola di Alta formazione

DETERMINA

di approvare, sotto condizione del consenso per ratifica del Consiglio di Sezione, la sottoscrizione della lettera di intenti (letter of agreement among universities) tra l'Università degli Studi della Tuscia (UNITUS), l'Universidad de Sevilla, la Metropolia University of Applied Sciences (MET) e la Universiteit Utrecht (UU) nell'ambito della prossima proposta di attivazione del master di primo livello finanziato dal progetto SkillBill.

La determinazione sarà portata a ratifica del Consiglio di sezione di Unitus Academy, nella prima seduta utile.

Il Direttore Tecnico Scientifico
Prof. Alessandro Sterpa

Sede
Via Santa Maria in Gradi n. 4, 01100 Viterbo
Direttore Tecnico Scientifico: Prof.Alessandro Sterpa
cia@pec.unitus.it
unitusacademy@unitus.it

Rettorato
Via Santa Maria in Gradi, 4 01100 Viterbo
P. Iva 00575560560 C.F. 80029030568
Tel. 0761 3571 | protocollo@pec.unitus.it
www.unitus.it

Università degli Studi della Tuscia (UNITUS)

UNITUS expresses interest in continuing to support the initiative of the Specialisation School with contributions from academic members of the Tuscia University who have previously been involved in the program. Specialists (professors, assistant professors, lecturers) from our institution may contribute by delivering courses and lectures, subject to the feasibility of payment terms and contractual arrangements.

signature

Prof. Alessandro Sterpa
(Tuscia University, Italy)

Universiteit Utrecht (UU)

UU, to be more specific, the faculty of Geosciences, department of Sustainable Development, expresses a non-binding interest in continuing to support the initiative of the Specialisation School with contributions from academic members of the University of Seville who have previously been involved in the program. Specialists (professors, assistant professors, lecturers) from Utrecht University may support the Specialisation School by giving courses and lectures, provided the terms of payment and contractual arrangements are feasible. This LoA is not intended and shall not be construed to create any binding obligation on the part of the Parties.

In the event that, for whatever reason, this LoA is terminated, Parties are obliged to immediately return all information ((confidentiality) information on hardcopy and/or, electronically), to the other Party, which the Parties received from each other pursuant to this LoA. Parties shall not leave any copies of this information. Parties are not entitled to use any information/background (including knowledge and know-how) which has come to their attention pursuant to this LoA. Any information/background, including but not limited to knowledge and know-how, that is brought in by a Party prior to or during the term of this LoA and that is owned by that Party shall remain the sole property of that Party.

This LoA is not intended and shall not be construed to create a legal entity or any other form of corporate entity and the Parties do not intend to create any such legal entity or corporate entity.

Parties are obliged to keep confidential information of the other Party confidential during as well as after termination of this LoA for a period of 3 years.

Nothing in this LoA shall obligate either Party to enter into any contract or to perform any services, unless expressly agreed in writing in a separate agreement.

A Party may not, without the other Party's prior written approval, assign any of its rights or obligations under this LoA to any third Party.

signature ValidSigned by Prof. dr. ir. M.F.P. Bierkens
on 03-07-2025

Name: Prof. dr. ir. M. Bierkens

Title: Dean Faculty of Geosciences

Place: Utrecht

Date: 03-07-2025

Universiteit Utrecht

UNIVERSIDAD D SEVILLA 1505

University of Seville

Seville, June 4th 2025

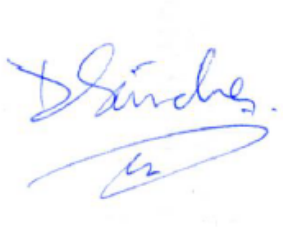
Letter of Support for the Master program "European Specialization School in Sustainable Energy"

Dear Prof. A.L. Facci,

We are pleased to express our interest in continuing to support the initiative of the Specialisation School with contributions from academic members of the University of Seville who have previously been involved in the program. Specialists (professors, assistant professors, lecturers) from our institution may contribute by delivering courses and lectures, subject to the feasibility of payment terms and contractual arrangements.

This statement signifies our commitment to the initiative without establishing any legal obligations.

Best regards,



Prof. David Sánchez, ASME Fellow
Department of Energy Engineering
School of Engineering
University of Seville

Escuela Técnica Superior de Ingenierías
Camino de los Descubrimientos, s/n.
E-41092-SEVILLA, SPAIN

Tel. +34 95 448 72 41
email: ds@us.es

Annex 2: Signed LoIs

Consiglio Nazionale delle Ricerche | Dipartimento Scienze del Sistema Terra e Tecnologie per l'Ambiente

Il Direttore

Prof. Andrea Luigi Facci, PhD
Associate Professor
School of Engineering
andrea.facci@unitus.it
University of "Tuscia"
Largo dell'università snc 01100 Viterbo.

Oggetto: Letter of Support for the Master program "European Specialization School in Sustainable Energy"

Dear Prof. Andrea Luigi Facci,

we fully endorse the **Master program "European Specialization School in Sustainable Energy".** We consider this initiative as timely and highly relevant to improve educational aspects on renewable energy and for skilling people to boost the European RES economy sector. We are also willing to support the program by:

- Providing lectures/seminars to the studens;
- Hosting students for project-works, training events, thesis;
- Be part of an eventual master advisory board;
- Other, please specify …

This letter does not result in any obligations.

Best regards,

Francesco PETRACCHINI

Francesco Petracchini
03.07.2025 18:04:39
GMT+02:00

Dipartimento Scienze del Sistema Terra e Tecnologie per l'Ambiente DSSTTA-CNR
P.le Aldo Moro n. 7 00185 Roma
Tel. 06 49933886 – segreteria.dta@cnr.it - www.dta.cnr.it
P. IVA 02118311006 - C.F. 80054330586

AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE

Dipartimento Tecnologie Energetiche e Fonti Rinnovabili
Divisione Tecnologie e Vettori per la Decarbonizzazione: accumuli, idrogeno, mobilità, CCUS e usi finali
La Responsabile

Roma, 04/07/2025

Prot. ENEA/2025/46427/TERIN-DEC

Prof. Andrea Luigi Facci, PhD
Associate Professor
School of Engineering
University of "Tuscia"
Largo dell'università snc 01100 Viterbo.

Object: Letter of Support for the Master program "European Specialization School in Sustainable Energy"

Dear Prof. Facci

We fully endorse the **Master program "European Specialization School in Sustainable Energy".** We consider this initiative as timely and highly relevant to improve educational aspects on renewable energy and for skilling people to boost the European RES economy sector. We are also willing to support the program by:

- Providing lectures/seminars to the studens;
- Hosting students for project-works, training events, thesis;
- Be part of an eventual master advisory board;

This letter does not result in any obligations.

Best regards,

ENEA
DEPARTMENT OF ENERGY TECHNOLOGIES AND RENEWABLE SOURCES
Head of Division of Technologies and Vectors for Decarbonization: Storage, Hydrogen, Mobility, CCUS, and End Uses
(Ing. Viviana Cigolotti)
Viviana Cigolotti

Centro Ricerche ENEA Casaccia– Via Anguillarese, 301 - 00123 Roma – Italia Tel. +39-06.30484325 – viviana.cigolottii@enea.it
Sede Legale - Lungotevere Thaon di Revel, 76 - 00196 Roma - Italia – Tel. +39-06-36271
Partita IVA 00985801000 - Codice Fiscale 01320740580 - www.enea.it - PEC enea@cert.enea.it

SINTEF Industri
Postadresse:
Postboks 124 Blindern
0314 Oslo
Sentralbord: 40005100
info@sintef.no

Foretaksregister:
NO 919303808 MVA

Deres ref.:	Vår ref.:	Prosjektnummer / Referanse:	Dato
		-	2025-08-28

Letter of Support for the Master program "European Specialization School in Sustainable Energy"

Dear Prof. Andrea Luigi Facci, PhD

We fully endorse the **Master program "European Specialization School in Sustainable Energy".** We consider this initiative as timely and highly relevant to improve educational aspects on renewable energy and for skilling people to boost the European RES economy sector. We believe that such Master program will serve as a centre of excellence by:

- Offering an interdisciplinary and international curriculum that bridges engineering, environmental science, economics, and policy.
- Fostering collaboration among academic institutions, research centers, and industry stakeholders across Europe.
- Equipping students with both theoretical knowledge and practical skills through project-based learning, internships, and industry engagement.
- Contributing to the creation of a new generation of professionals capable of designing, implementing, and managing sustainable energy systems at local, regional, and global levels.

We welcome the program's emphasis on integrating academic excellence with real-world relevance, and we see strong potential for future collaboration in areas such as guest lecturing, research supervision, joint projects, and access to our facilities for training or thesis work. Nevertheless, this letter does not result in any obligations.

SINTEF is enthusiastic about contributing to the development and long-term success of this program. We consider it a valuable initiative that will not only strengthen Europe's capacity in sustainable energy education but also foster the next generation of researchers, innovators, and thought leaders in this essential domain.

We look forward to supporting and collaborating with the institutions involved in this important endeavour.

With best regards
for SINTEF Industry

Thijs Peters
Senior Scientist

Thijs Peters (Aug 28, 2025 16:08:49 GMT+2)

UNIVERSITÀ DELLA CALABRIA

Rende, 29 luglio 2025

To Prof. Andrea Luigi Facci
Associate Professor
School of Engineering
University of "Tuscia"
Largo dell'università snc 01100 Viterbo.

Letter of Support for the Master program "European Specialization School in Sustainable Energy"

Dear Professor A.L. Facci,

we fully endorse the **Master program "European Specialization School in Sustainable Energy"** organized by Tuscia University as part of the SkillBill project's activities. We consider this initiative as timely and highly relevant to improve educational aspects on renewable energy and for skilling people to boost the European RES economy sector. We are also willing to support the program by:

- Providing lectures/seminars to the studens;
- Hosting students for project-works, training events, thesis;
- Be part of an eventual master advisory board;
- Other, please specify ...

This letter does not result in any obligations.

Best regards
Luigi Bocci

Università della Calabria
Via P. Bucci
87036 Rende (CS) - ITALIA

Tel. (+39) 0984.494743
Fax (+39) 0984.494713
Luigi.Boccia@unical.it

www.unical.it

NATIONAL TECHNICAL UNIVERSITY OF ATHENS
SCHOOL OF CIVIL ENGINEERING – DEPARTMENT OF STRUCTURAL ENGINEERING
DR. MICHALIS FRAGIADAKIS – PROFESSOR

To Prof. Andrea Luigi Facci
Associate Professor
School of Engineering
University of "Tuscia"
Largo dell'università snc 01100 Viterbo

Athens, 28 July 2025

Letter of Support for the Master program
"European Specialization School in Sustainable Energy"

Dear Professor A.L. Facci,

With this letter, we fully endorse the Master program "European Specialization School in Sustainable Energy" organized by Tuscia University as part of the SkillBill project's activities. We consider this initiative as timely and highly relevant to improve educational aspects on renewable energy and for skilling people to boost the European RES economy sector. We are also willing to support the program by:

- Providing lectures/seminars to the students
- Hosting students for project-works, training events, thesis;
- Be part of an eventual master advisory board;

Sincerely yours,

M. Fragiadakis

Professor Michalis Fragiadakis

Head of Structural Engineering Department

National Technical University of Athens

The project

SKILLBILL's overall objective is to develop a large and strong foundation for the growth and acceleration of renewable energy's deployment, thanks to engaging with stakeholders of the whole chain, diffusing scientific culture and skilling multi-level workers. The basic idea underling the project is that the knowledge should be diffused at several different levels and qualitatively appropriate both to train the adequate number of workers and to increase RES awareness and to reach a more social and inclusive Europe. The project aims at creating several pathways to induce target groups to get interested or involved in RES besides their initial level of education and their working position. It's important, beside the creation of instruments for the upskilling and reskilling of workers, technician and designers, to have awareness modules for unspecific public in order to fight against ignorance, fake news, gender gap and the phenomenon of functional illiteracy: it is widely documented that lifelong suitable learning process is the fundamental driver to support the development, maintenance and update of skills. Thus, SKILLBILL proposes concrete actions to accelerate the deployment of renewable energy at different levels to analyse and involve all the interested parts in open discussion using adequate language; create several different pathways to increase skills after having mapped knowledge gap and without gender prejudice; develop and implement innovative learning method; and evaluate the work performed.

Coordinator: **AZZERO CO2 SRL (AzzeroCO2)**

PARTNER		SHORT NAME
AzzeroCO2 climate in our hands	AZZERO CO2 SRL	AzzeroCO2
Q-PLAN	Q-PLAN INTERNATIONAL ADVISORS PC	Q-PLAN
WHITE	WHITE RESEARCH SPRL	WR
Università della Tuscia	UNIVERSITA DEGLI STUDI DELLA TUSCIA	UNITUS
Universidad de Sevilla	UNIVERSIDAD DE SEVILLA	USE
Metropolia University of Applied Sciences	METROPOLIA AMMATTIKORKEAKOULU OY	METROPOLIA
Utrecht University	UNIVERSITEIT UTRECHT	UU
EREF	EUROPEAN RENEWABLE ENERGIES FEDERATION	EREF
SINERGIE	SINERGIE SOC CONS ARL	SINERGIE
PEDAL CONSULTING	PEDAL CONSULTING SRO	PC