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Open Education Resources (OER) strategy report

REPORT ON OPEN EDUCATION RESOURCES (OER) STRATEGY USED IN ACCESS-3DP TRAINING COURSE

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1 DESCRIPTION OF THE PROJECT (OFFICIAL DESCRIPTION AS IT IS IN THE PROPOSAL)

Additive Manufacturing (or 3D printing) is one of the technologies under the umbrella of Advanced Manufacturing, which the European Commission has identified as one of the Key Enabling Technologies (KETs).

The creative industries are core elements of the European economy. The people active in its development are talented and flexible with a range of core capabilities that can be developed and improved naturally through practice in their field's activities and lifelong learning. Enterprises in the creative industries are usually small and often micro-enterprises. They find work with clients in sectors that have been traditionally connected to the creative industries for some time, using their flexibility to add value to their products by applying their ability to realise innovative ideas through their work.

Increasingly, these capacities are becoming more relevant to the European Economy as new sectors find out they need the skills provided by creative enterprises and their workers. At the same time new, often disruptive, technologies come to light and consequently require highly skilled creative labour to allow maximum exploitation of capital based on the tools and machines provided by these technologies.

Such technologies are often adaptable by relatively traditional sectors in the economy. However, these sectors often need workers who are ready and competent enough to use the new technologies. On the other side, when they have a high level of technical skills, workers often lack the core capacities for creativity, innovation, and an entrepreneurial approach to use technologies such as AM/3D printing. These are working capacities that new technologies require if the capital in the form of tools and machines are to be exploited to the maximum potential.

ACCESS-3DP brings together an innovative consortium of 5 partners with experts in 3D printing and design from the VET, HE world and business organisations from creative industries from 5 EU countries. The partners jointly embrace the following objectives:

- Identification of skills mismatched between the craft and traditional industries with additive manufacturing technologies
- Use of the skills needs to develop and tailored VET curricula according to EU standards to foster mobility and employability in craft sectors in Europe
- Improve the competitiveness and efficiency of the traditional sector enterprises through the use of 3D printing technologies
- Improve the entrepreneurship in craft sectors and Additive Manufacturing sector through a better understanding of the 3D printing value chain
- Evaluate the impact of tailored training about 3D printing in entrepreneurs and craftsmen.
- Sustain the project results, in the course of time, through the development recommendations for certification.

2 INTRODUCTION

The ACCESS-3DP project team has designed and developed a Joint Curriculum (JCV) for creating the training course for the following profiles:

- Professionals, Workers, Entrepreneurs.
- Students, VET providers, Universities, Unemployed.
- Other relevant Stakeholders (Traditional Sector, Local educational Authorities, Policy-makers).

During the establishment of the Joint Curriculum, the Consortium developed six different learning modules to be shared by the Massive Open-Online course. One crucial task during this process was to provide materials with adequate protection. The Consortium considers the various possibilities for Open Educational Resources (OER) protection.

Over the last year, the term OER has gained significantly around the world. It has become the subject of heightened interest in policy-making and institutional circles, as many people and institutions explore the concept and its potential to improve the delivery of education around the world. Because of the growing importance of OER in today's education, ACCESS-3DP has developed the following report to summarise OER content and to analyse different license conditions. It explains how an agreement on the licensing works and how ACCESS-3DP Consortium will ensure the property rights on its material within the Erasmus+ Program rules.

Hence, the main objectives of this report are detailed below:

- To describe how ACCESS-3DP ensures the proper rights on its material within the Erasmus+ Programmes rules.
- To explain the connection between produced materials and Creative Commons Licenses (CLL).
- Explain what Open Educational Resources are and what is the connection with the ACCESS-3DP project.
- How properly rights work among the project partners.

3 DEFINITION OF OER AND HOW THIS CAN BE APPLIED IN PRACTICE

OER stands for "Open Educational Resources" and is linked to an educational movement that began 20+ years ago and has become a global educational movement. Faculty who uses OER in their courses use freely available, high-quality educational resources to lower textbook costs for students. The OER are any resources available at little or no cost that can be used for teaching, learning, or research. The term can include textbooks, course readings, other learning content, simulations, games, other learning applications, syllabi, quizzes, assessment tools, and virtually any other material used for educational purposes. [...] OER can originate from colleges and universities, libraries, archival organisations, government agencies, commercial organisations such as publishers, faculty, or other individuals who develop educational resources they are willing to share.¹

Some benefits of OER include¹:

- Fosters pedagogical innovation and relevance that avoids teaching from the textbook
- Broadens use of alternatives to textbooks while maintaining instructional quality
- Lowers costs of course materials for students

Some disadvantages of OER include:

- Quality of available OER materials inconsistent
- Materials may not meet described accessibility or requirements and must be modified to bring into compliance
- No common standard for review of OER accuracy and quality
- Need to check the accuracy of the content
- Customisation necessary to match departmental and/or college curriculum requirements
- Technical requirements to access vary
- Technological determinism created by the delivery tool

3.1 OPEN LICENSING

As stated in the OER definition, the openness in OER is enabled by open licensing, which gives users free and permanent permission to adapt and reuse. According to the concept of the 'five freedoms' of OER, this means specifically²:

- Retain – the right to make, own and control copies of the content (e.g., download, duplicate, store and manage)
- Reuse – the right to reuse the content verbatim or in its unaltered form (e.g., download, reproduce, store and manage)
- Revise – the right to adapt, adjust, modify or alter the content itself (e.g., translate the content into another language)
- Remix – the right to combine the original or revised content with other content to create something new (e.g., incorporate the content into a mashup)
- Redistribute – the right to make and share copies of the original content, revisions, or remixes with others (e.g., give a copy of the content to a friend)

3.2 THE IMPORTANCE OF LICENSING

OER material can only be legally free, and therefore, any document or policy has to clarify which type of licensing will be used. The work's author is the owner unless the copyright is transferred to someone else (such as the publisher). Several existing open licenses can be used in national settings. Creative Commons (CC) licenses, launched in 2002, have emerged as the most frequently used for open copyright licenses and can also be used as a reference for any necessary national legislation. Creative Commons licenses are non-exclusive and therefore work alongside existing national copyright law and international intellectual property treaties. Copyright holders can use creative Commons' suite of open licenses and public-domain tools to allow others to share, reuse, and remix their works legally and without asking. Four elements exist for a Creative Commons license. A copyright holder can use these in combination to determine how they would like to see their intellectual property rights respected. Using the four components, CC presents six different varieties of licenses.





ICON	Element	Creative Commons description
	Attribution (BY)	Requires that others who are using the licensor's work must give the licensor credit
	Share Alike (SA)	Others can copy, display, perform and modify the licensor's work as long they distribute any modified work on the same terms; otherwise, they must get the licensor's permission
	Non- Commercial (NC)	Others can use, copy, distribute, display, perform and modify the material in a non-commercial way only unless they get the licensor's permission
	No Derivatives (ND)	Others can copy, distribute, display and perform only original copies of the licensor's work. If there is any modification, they must get permission from the licensor

Figure 1: Creative Commons Source: <https://www.ccoer.org/using-oer/open-licensing/>

3.3 DIFFERENT TYPES OF LICENCES:

The authors/copyrights holder who wishes to apply for a CC license can choose the most appropriate variate of license for their work. The combinations are listed in the following table:

LICENSE	DESCRIPTION	TERMS & CONDITIONS
<p>Attribution CC BY</p> 	<p>This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit the original creation. This is the most accomodating of licenses offered. Recommended for maximum dissemination and use of licensed materials</p>	<p>Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.</p> <p>No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.</p>
<p>Attribution-ShareAlike CC BY-SA</p> 	<p>This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under identical terms. This license is often compared to "copyleft" free and open-source software licenses. All new works based on yours will carry the same license, so any derivatives will also allow commercial use. This is the license used by Wikipedia and is recommended for materials that would benefit from incorporating content from Wikipedia and similarly licensed projects.</p>	<p>Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.</p> <p>ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original.</p> <p>No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.</p>
<p>Attribution-NoDerivs CC BY-ND</p> 	<p>This license allows redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with credit to you.</p>	<p>Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.</p> <p>NoDerivatives — If you remix, transform, or build upon the material, you may not distribute the modified material.</p> <p>No additional restrictions — You may not apply legal terms or</p>

		<p>technological measures that legally restrict others from doing anything the license permits.</p>
<p>Attribution-NonCommercial CC BY-NC</p> 	<p>This license lets others remix, tweak, and build upon your work non commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.</p>	<p>Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.</p> <p>NonCommercial — You may not use the material for commercial purposes.</p> <p>No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.</p>
<p>Attribution-NonCommercial-ShareAlike CC BY-NC-SA</p> 	<p>This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under identical terms.</p>	<p>Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.</p> <p>NonCommercial — You may not use the material for commercial purposes.</p> <p>ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original.</p> <p>No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.</p>
<p>Attribution-NonCommercial-NoDerivs CC BY-NC-ND</p> 	<p>This license is the most restrictive of our six main rights, only allowing others to download your works and share them with others as long as they credit you, but they can't change them in any</p>	<p>Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.</p>

	way or use them commercially.	<p>NonCommercial — You may not use the material for commercial purposes.</p> <p>NoDerivatives — If you remix, transform, or build upon the material, you may not distribute the modified material.</p> <p>No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.</p>
CC0	This type of license allows creators to give open access – worldwide public domain, without any copyrights	

Figure 2: Creative Commons Source: <https://www.ccoer.org/using-oer/open-licensing/>

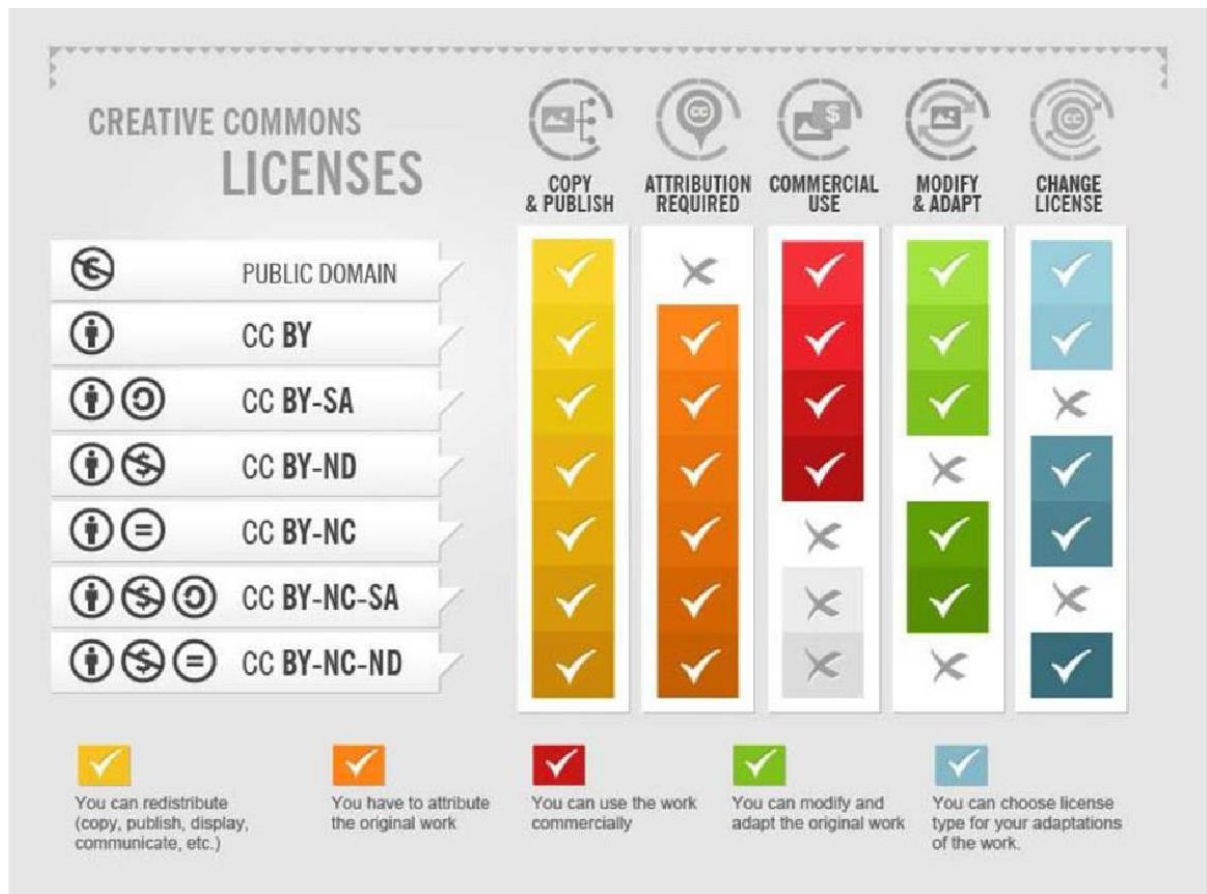


Figure 3: Creative Commons licenses explained. Source: <https://library.fvtc.edu/OA/CCL>

4 CHOOSING THE SUITABLE LICENSE COMBINATION FOR OER IN ACCESS-3DP COURSE

The first to consider is to respect the criteria for the project, being produced with the support of Erasmus+. The open license must allow other users to freely use the work and adapt it to their needs in the meaning of translations and other modifications and reproduce and share it with others. The project consortiums are encouraged to choose the type of licenses that support maximum use of the material with others and consider possible duplication and other activities from third parties. They can select licenses to declare if work done is derivative or shared, if it can be used commercially or not, and how other users must share the license in the following uses. To impact the maximum possible number of interested parties, the license could also allow commercial use and enable fair use of the material.

The Consortium discussed all different criteria for learning materials protection based on Erasmus+ recommendation. All agreed options were then selected as a response to questions inside the CLL "license generator", a practical online program for all users to choose the most appropriate license. The joint Consortium agreement, confirmed with the program, was to use the following license.

ACCESS-3DP Course © 2022 by ACCESS-3DP Consortium is licensed under Attribution-NonCommercial-ShareAlike 4.0 International 

Figure 4: ACCESS-3DP Course License (Attribution 4.0 International (CC BY-NC-SA 4.0). Source: <https://creativecommons.org/choose/?lang=en>)

The educational material produced within the ACCESS-3DP Consortium will be licensed under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA 4.0).

A whole ACCESS-3DP Consortium will attribute the creation of each learning object without any distinction between partners.

Also, a recommendation from project partners was received. They suggest placing the Creative Commons Attribution 4.0 International License at the website's footer, which will imply that all project deliverables are in line with this license, including the OER.

LICENSES

This material is licensed under **Creative Commons Attribution-NonCommercial ShareAlike 4.0. International Licence (CC-BY-NC-SA 4.0)**.



For training material, such as images, subject to another type of license, the license is explicitly stated.

The author of this content is ACCESS-3DP Consortium: CMA69, CETEM, CTCP, TUKE, and STP.

FUNDING

ACCESS-3DP

This training material has been developed within the framework of the "Art & Creative Craft Enterprises for Successful Streaming of 3D Printing" (ACCESS-3DP) project.



This project has been funded with support from the European Commission (Ref: 2020-1-FR01-KA202-080183).

Figure 5: License selected in ACCESS-3DP Consortium (learning content – word template)



LICENSES

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This project has been funded with support from the European Commission (Ref: 2020-1-FR01-KA202-080183).

Figure 6: License selected in ACCESS-3DP Consortium (learning content - slide template)

5 INTELLECTUAL-PROPERTY TO THE PARTNERSHIP AGREEMENT

At the start of a project and where Partnerships are involved, a "Partnership Agreement" must be created and signed. In this project, the creation of one Partnership Agreement for each Project Partner was the best option. The agreement defines the organisation of the partnership by regulating the rights and obligations of sides to successfully implement the ACCESS-3DP project successfully.

The agreement sets out several topics, such as the duration of the agreement, payments of funds and modalities, project management, accounting, record keeping and reporting, audits, etc. Among other topics, there is Intellectual property.

Within the Intellectual Property, a list of criteria and rules are set.

- Material already developed and brought in may only be used within the project's scope as good practice templates. Copyrights must be strictly safeguarded, permission for reproduction and scale of copy must be settled beforehand.
- Where beneficiaries develop material within the project's scope, this material will be available for the partnership as a means within the common goals set in the partnership.
- Collective products in a tangible form, like manuals, CD-ROMs, online data as the authorised result of this project work may be disseminated and translated into the respective beneficiary's official language(s) for free if they are not marketed for a profit. Throughout the contractual period of the project, the partnership is the proprietor of the product.

The two most essential elements turn out of this:

- 1) Protection of copyrights. Although mainly the content prepared for the ACCESS-3DP course is created by the project partners themselves, it is crucial to ensure that whenever a figure, table, or other types of work or derivative is used, the work's creator or result must be indicated.
- 2) Need to concentrate on the no-profit side of the market. It is essential that all material prepared, following its open licence nature, cannot be used for commercial purposes (e.g., sold by others, integrated into a commercial textbook, etc.). It is urged that any derivatives must be shared under the same licence or licensing terms.

6 CONCLUSIONS

Education institutions have invested in creating open licensed, freely distributed open educational resources (OER) to advance a wide range of goals within the educational system. Available educational resources enable flexible and open pedagogy, increase access to authorship, facilitate representation of different student experiences, and increase equity by reducing the cost barriers in accessing high-quality learning materials. Creators and users of OER are often motivated by a shared commitment to increase access to materials and contribute to the common good. To meet the full pedagogical, pragmatic, and social functions of those teaching and learning materials, educators must have the ability to incorporate and reference existing copyrighted content, both historical and contemporary. Uncertainty about the copyright rules that govern these incorporations can wrap both what subjects are covered in open educational resources and how those subjects are taught.⁵ The most widely used open licenses for OER are the Creative Commons (CC) licenses. CC licenses account for different copyright laws in different countries or jurisdictions and allow for different language versions. Creative Commons licenses give everyone from individual creators to large institutions a standardised way to grant the public permission to use their creative work under copyright law.

Creative commons help everyone set for the work, create reasonable restrictions and get all the rights they need. Therefore ACCESS-3DP project respect the Erasmus+ program rules regarding the "non-commercial" use of the materials and can maintain the intellectual property on the produced material while sharing it with the users.

The educational material produced within the ACCESS-3DP course will be licensed under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA 4.0).

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3. Guidelines on the development of open educational resources policies https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef_0000371129&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_75b312a4-e696-423c-b30d-f8573e3c819c%3F%3D371129eng.pdf&updateUrl=updateUrl3781&ark=/ark:/48223/pf000371129/PDF/371129eng.pdf.multi&fullScreen=true&locale=en#%5B%7B%22num%22%3A37%2C%22gen%22%3A0%7D%2C%7B%22name%22%3A%22XYZ%22%7D%2C0%2C806%2C0%5D, This material is based on original writing by David Wiley and published under a Creative Commons Attribution 4.0 license, available at <http://opencontent.org/definition/>
4. Guidelines on the development of open educational resources policies https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef_0000371129&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_75b312a4-e696-423c-b30d-f8573e3c819c%3F%3D371129eng.pdf&updateUrl=updateUrl3781&ark=/ark:/48223/pf000371129/PDF/371129eng.pdf.multi&fullScreen=true&locale=en#%5B%7B%22num%22%3A37%2C%22gen%22%3A0%7D%2C%7B%22name%22%3A%22XYZ%22%7D%2C0%2C806%2C0%5D
5. Best Practices in FAIR USE for OER <https://cmsimpact.org/code/open-educational-resources/>