GUIDELINES FOR

TRANSFERABILITY AND UP

SCALING OF OPEN-AE

PROJECT RESULTS

https://Open-AE.eu/

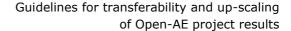| Project Acronym	OPEN AE
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Abstract	The document targets non-formal adult education providers and policy makers with to enable transferability and up-scaling of the Open-AE project results on one hand and to raise awareness and promote the use of FLOSS content and tools in the education policy development.
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Abstract

FLOSS (free libre open source software) tools allow decentralised decision making by sharing resources to allow greater autonomy in the development of practical solutions useful to the whole community.

The co-creation of content, knowledge, priorities and actions builds a collective intelligence that is closer to the needs of the learners. This allows them to actively participate, with a support of the community, in the creation of innovative solutions that make sense them and their ecosystem.

Migrating to to a specific software (i.e. LINUX) or using FLOSS technologies is important but as a priority it is secondary. Secondary to raising awareness of why we want this change and to decide together which tools we want to use and to determine which culture of collaborative work we want to promote in our community.

This document summarizes the findings from the piloting experiences at national levels gained through the implementation of the Open-AE: Promote open source technologies in non-formal adult education project methodology as reflected in the Open-AE piloting report and translates what is presented in the first three paragraphs to concrete guidelines and recommendations.

The aim of this is to facilitate transfer and upscaling of the Open-AE model for enhancing digital skills of adults through non-formal education by using open source technologies. The guidelines and recommendations are based on the project's impact and address:

(a) educators in non-formal adult education

(b) stakeholders of non-formal educational systems for adults, primarily policy makers and education providers.

The results of each piloting experience at national level, as well as the policy-recommendations, aim to contribute to the development of digital skills of adults and promotion of open source software in Europe.

1. Overall Assessment of the Open-AE Methodology

As outlined in the Open-AE piloting report, the methodology developed in the project achieved the set objectives and was extremely positively evaluated by pilot participants (novice and experienced users of open source tools) and other stakeholders (experts, activists, educators).

Impact of the COVID-19 on the overall assessment of the Open-AE methodology was significant. The original plan was to implement a blended training course, consisting of online and face-to-face activities. This was impossible to implement, therefore all piloting partners had to transform planned face-to-face activities to online activities. Contrary to expectations of the partners, this **proved to have many advantages as well as some challenges**:

- It multiplied the impact of the course by giving the opportunity to people from all parts of the participating countries to enrol, to join the Open-AE community and take part in the course.

- Some participants faced several difficulties in completing the learning path because of the lack of direct interaction with trainers, especially in those modules requiring practical exercises. Some of the module content needed more depth and explanation which was not always possible to provide in the online format. Some of the most practical parts have been affected, such as the mapping of activities or local initiatives on a given topic, precisely because of the extraordinary situation that has affected all countries and organizations.

- Some participants had problems following the activities due to various reasons related to COVID-19 confinement measures.

- Distance learning and online collaboration has become the fundamental pillar and the basic methodology to follow which has also impacted into the participants' personal circumstances, capacity and motivation to actively participate in the course.

Open-AE methodology that enables educators (e-facilitators, trainers, etc.) to acquire and/or upscale their digital skills to enable them to use open source technologies in non-formal adult education **has proven to be effective**. The evaluation of the pilots conducted in 4 countries showed that the **methodology stimulates educators to**:

- **explore FLOSS culture** and in particular the use of open source software,
- **improve their digital skills** by participating in the Open-AE training activity that is based on Digital Competence Framework for Educators (DigCompEdu),
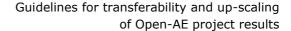
- **improve knowledge and self-awareness** about important topics and issues such as internet safety, disinformation and fake news, media literacy, active citizenship, big data, facial recognition, social networks.
- **reflect about the choice of the tools** used to support learning processes.

The **learning modules** (content and webinars) were mentioned as **one of the high points** of the pilot training activities. **Modules** are available, free and open (FLOSS culture) for all to access with a licence (CC-BY-SA) allowing it.

Summary of our **conclusions regarding the advantages of using FLOSS technology and culture in non-formal adult education** are extrapolated from and based on Open-AE methodology and Toolkit development, desk and field research done in project countries which encompassed research of the FLOSS technologies and resources, development of the curriculum and training modules and materials and, finally, analysis of the piloting of the OPEN AE Curriculum and Toolkit:

1. When thinking about FLOSS for (adult) education, this should be done by splitting it in two categories: (1) Open educational resources (OERs) and (2) open source software. Although a software could be considered an open educational resource, partnership believes that the Free and Open software constitute a separate category because the whole FLOSS philosophy is inspired by the software development. **Open source adoption in education can give each stakeholder control over its resources**. It can help one to make informed choices for their future, be it individual or collective. It can also help adult training organizations thrive with collaborative innovation.

2. Regarding the **benefits of adopting and sharing open educational resources (OERs)**, project partners witnessed the usefulness and richness of the the approach during the Open-AE piloting. Starting from existing resources project partners developed the material for the training modules with a triple benefit for the partnership and the educational community:
   a. They adapted the resources starting from a quality base.
   b. By updating the resources, they contributed to the community.
   c. This collaborative approach builds on different layers resulting in time saving and a richness (diverse approaches and perspectives on a topic) of the materials.

3. **Advantages of using FLOSS** for organisations providing non-formal adult education are:
   a. It stimulates embracing of a **culture of collaboration, inclusion and openness** through the adoption of FLOSS culture practices, both internally and externally.

b. Ensures **sustainability, accessibility and transferability** of produced content and software by using FLOSS licences.

c. Promotes innovation by working in **a transdisciplinary area of skills and competences** (FLOSS skills) based on a "learning by doing" and "learning to learn" approach.

d. Provides opportunities to **network with other groups and organisations** embracing the FLOSS culture and share knowledge and resources with them.

e. Provides profit of **economies of scale and vendor independence** when using FLOSS tools in daily activities.

f. Stimulates participation in sustainable **Communities of practice** around an activity by opening concrete space of collaboration and resource sharing.

g. Promotes **societal change** by allowing and advocating for more ethical behaviours and practices.

4. Working with / from FLOSS to encourage its adoption or invest in establishing associated policies, allows to generate a wealth of shared knowledge that feeds back, grows over time and develops an entire ecosystem around it, economically, socially and academically.

5. **Key benefits of the methodologies based on open source (i.e. Open AE)** have to offer in non-formal adult education are:

a. It allows students and teachers to learn computing concepts, instead of products ("Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime.").

b. It lowers total cost of software ownership.

c. It provides affordable computing at student homes.

d. Enables customisation and reuse of software.

e. Extends the lifetime of old hardware (by using various open source packages) which can significantly help institutions and organisations that are short on funds to afford the latest hardware.

f. Offers lucrative career opportunities as several business and government organisations have embraced open source software

2. Recommendations and guidelines for policy makers and education providers

The piloting of the Open-AE course has shown that the adoption of FLOSS resources is based on the knowledge people have of the tools, methodologies and resources. Thanks to initiatives like Open-AE (and many others around Europe), project partners were able to spread the knowledge and many people around Europe are aware that the alternative exists and have access to knowledge and tools to utilise this in their educational activities. It must be emphasized that the aim of these guidelines and recommendations is not to demonize the proprietary software and tools but make people aware of what are the available alternatives and how to utilize them.
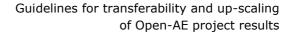
The course offered proven methodology, based on the results of Open-AE project, to deliver quality and innovative modules that presented tools and resources that can be implemented at low cost. **All the methodologies presented can be easily adapted by educators to their teaching environmen**t. It is important to also note that the that the course, delivered fully online due to the Covid-19 emergency, has inevitably pushed participants to develop digital skills by encouraging them to (at least) play around with innovative tools and introduce them to other colleagues. The community created by the Open-AE course together with the FLOSS community will be able to support educators in a deeper digital skill acquisition that of course a 60-hour blended course cannot guarantee.

Policy makers, and on a wider level the citizens, **should be aware of the choices they make** in terms of security, privacy, digital inclusion and development of societies and return on investments for public communities. Those choices become even more relevant when it comes to education funded by public funds.

Open-AE project partners see the FLOSS approach as inspired by the software development and consequently tightly linked with digital skills. Teaching and learning about computing skills is fundamental to provide teachers and learners with the necessary flexibility to adapt to several and diverse tools/resources rather than acting in a close environment. **The possibilities to improve digital skills thanks to FLOSS tools are very wide both in terms of software and methodologies** and they benefit from the support of communities of practice and support community (almost each FLOSS software has its own support community for users).

The most important contribution the **FLOSS approach can give to the digital upskilling of educators and learners** is exactly the community-based approach: the constant development of resources carried out thanks to the continuous collaboration within the community.
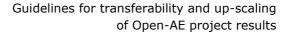
Project partners devised **two sets of recommendations** (for policy makers and education providers) to promote and support transfer and up-scaling of FLOSS use in in non-formal adult education sector across. Recommendations are based on project results and extensive experience and expertise of FLOSS technology and culture project partners accumulated by using it and living it daily.

2.1 Recommendations and guidelines for policy makers

Recommendations for policy makers reflect the benefits of using FLOSS technologies and culture in the non-formal adult education sector and specifically target policy makers in the field of education. The recommendations are:

- Increase the support (financial and institutional) for **FLOSS-based policies and initiatives** to upscale the positive impact of FLOSS culture in various aspects of the societies (e.g. education, citizenship, health, environment or public services).

- Provide **greater visibility to the initiatives that use FLOSS in the framework of non-formal adult education** by offering opportunities to present good practices at events, congresses, conferences, etc. In the same way support participation of representatives of public administrations in these events to additionally underline the support for this type of initiative.

- The **innovation of curricula and teaching methodologies** is a priority at the EU level and in many EU countries. Implement the FLOSS approach, that is innovative in its core, to support the innovative processes in non-formal adult education and which will produce a positive impact on students learning process. (i.e higher motivation and engagement which is crucial, as also underlined in the Digital Competence Framework for Educators).

- **Transparency and effective governance principles** represent core values of public governance and public policy processes as well as in FLOSS culture. This should be exploited further by implementing FLOSS tools and solutions in public governance and policy making processes.

- Adopting FLOSS resources often means digital skills acquisition which in the long-term results in the **reduction of costs**, for example in software management and maintenance. In addition, if we consider public organization, the FLOSS approach respects the simple principle of "public money, public good": the money invested by public organizations in resources (software, OERs, etc) should produce a public return on the investments.

- **Support digital upskilling of trainers and facilitators** in non-formal adult education by recognizing and promoting FLOSS which will result in the

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development of advanced skills of trainers that will allow organizations to deliver more effective digital skills courses and increase the digital literacy of European citizens. This will result, in the long term, in the acquisition of advanced digital skills for both educators and students. Although it is true that very often the markets needs are based on product knowledge, the acquisition of computing skills will allow people to have basic digital skills for running a product and at the same time be able to interact with similar products.

- A knowledge ecosystem based on FLOSS allows a much higher level of personalization and localization, and at the same time increases the involvement of all interconnected stakeholders. It also allows for **customization and reuse of resources according to educators and students needs.** The use of FLOSS resources makes this possible, which is quite the opposite of proprietary software.

- **Connect digital skills acquisition to a wider digital netizenship[1] culture**: practices and behaviours that transform learners to active producers contributing to commons-oriented initiatives. This is the essence of what we call the FLOSS culture.

- Add specific mentions to **FLOSS culture and technologies to existing EU frameworks**, particularly the EU Digital Competence Framework, to raise awareness about the FLOSS and its impact.

- Implement legislation requiring that publicly financed educational content or software developed for the public sector, especially in the Digital Public Spaces and Smart City initiatives, **have to be made publicly available under a Free and Open Source Software licence**.
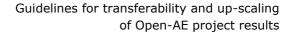
2.2. Recommendations and guidelines for education providers

The basis of the FLOSS culture is that the sum of individual efforts produces better result since it avoids repeating basic efforts and **allows higher development with less investment of resources**. In addition, it benefits those organizations that do not have as many resources to develop materials, syllabus and teaching resources, since they can use those that have already been developed, verified and used by others.

The **most important contribution** that the FLOSS approach can give to the digital upskilling of educators and learners is exactly the **community-based approach**: the

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[1] The term netizen is a portmanteau of the words Internet and citizen, as in a "citizen of the net" or "net citizen". It describes a person actively involved in online communities or the Internet in general. (Wikipedia, 4. 9. 2020)

constant development of resources carried out thanks to the continuous collaboration within the community.

For this to be possible, transparency is essential at the same time as it is necessary to ensure that **knowledge is produced by educators attending** to:

- Usability (ease of use - from the user point of view)
- Accessibility: generic (all people), functional (understandable), technological (all systems)
- Flexibility, adaptability and reusability (different situations)
- Modularity (different didactic sequences)
- Interoperability (cataloguing)
- Portability (different systems)

Open-AE has used these strategies and the result is demonstrable. Currently, there is a **broad knowledge base accessible through the Academy**, which other educators can use and customize to implement it in their own contexts. The tools are open in such a way that the knowledge base can be expanded to generate more content, more experiences and more shared knowledge.

Open-AE project partners believe that **many of the recommendations aimed at policy makers are also valid for education providers**. As stated above, the advantages of adopting the FLOSS approach are wide. At the same time embracing the FLOSS world without the necessary preparation can sometimes result in confusion and frustration if the process is not supported by adequate skills. It is reckoned that extensive advantages can be seen in the long term, so the **transition to FLOSS can be often hard**. But it can be done gradually (and if supported by appropriate policies it can be extremely effective). In this regards Open-AE partners would like to share **a simple step by step roadmap that can facilitate** the process:

1. Getting to know the FLOSS world
2. Analysis of the organization's needs
3. Flexibility and adaptation of FLOSS tools to the needs of the organisations
4. Testing of tools and/or methodologies
5. Developing digital skills
6. Building capacity for the organization
7. Contributing to the growth of the community

In addition to the above, Open-AE partners **extrapolated some concrete recommendations for education providers** in non-formal adult education based on project experience and feedback provided by adult educators that participated in the piloting. The recommendations are the following:

- Using the FLOSS approach contributes to the **digital upskilling of educators and offers opportunities to customize educational tools** according to the educators' and learners' needs with low costs.

- Free sharing enables FLOSS to contribute to the **enrichment of educational resources** and thus to a more open and accessible education.

- Blended learning activities (combining online and face-to-face learning activities) are key for utilising the full potential of FLOSS since the **added value is not only in the knowledge and skills but also in the community development and contribution** that goes hand in hand with learning.

- The commitment to **digital inclusion**[2] involves adopting open knowledge strategies, mutual support and community building which is embedded in FLOSS and represent its advantages compared to other education resources.

- More effort should be put into **mutualising and combining the use of similar FLOSS resources**, particularly for replicating training courses after the end of the project(s) and building a body of knowledge that benefits European and national communities of adult educators in the field of non-formal education for digital skills.

- The progressive incorporation of a set of free software tools is only one of the key elements. **Sharing information, resources, sources**, etc. is another. Generating communities of commons culture or, even better, joining existing communities in different regions, is also recommended. Contributing and enriching yourself with the organizations that are already part of this culture is a key element.

- There is a deep and epistemological awareness of the **relationship between knowledge and power**. The co-creation of solutions by the community to meet its own needs effectively promotes autonomy, freedom and solidarity of the learners.

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[2] The European Commission defines digital inclusion as ways to "ensure that everybody can contribute to and benefit from the digital economy and society", through information and communications technology (ICT) that is accessible and designed for all; assistive technology for people with disabilities to perform activities they otherwise would not be able to do; digital skills to empower citizens and careers to fight social exclusion through education, and promote participation of disadvantaged people in public, social and economic activities through social inclusion projects. (European Commission, https://ec.europa.eu/digital-single-market/en/digital-inclusion-better-eu-society#Article, 4. 9. 2020

3. Digital Competence Framework for Educators (DigCompEdu) and FLOSS movement

The [European Framework for the Digital Competence of Educators (](DigCompEdu) is a scientifically sound framework describing what it means for educators to be digitally competent. It provides a general reference frame to support the development of educator-specific digital competences in Europe. DigCompEdu is directed towards educators at all levels and types of education.[3]

Not only are the DigCompEdu objectives very much aligned with the FLOSS movement principles but we can observe that the **very core of the FLOSS environment could become the push for boosting the adoption of the framework**. If we look at the DigCompEdu competence areas and the specific competences, it seems clear that many of them could extensively benefit from the FLOSS approach. There are two wide competences that the FLOSS approach entails on the learning process:
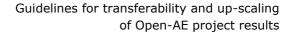
- Learning to learn
- Learning by doing

The FLOSS approach, in particular through its free and open source resources, **relies on the two competences** mentioned above in the following ways:

- Allowing students and teachers **to learn about internet culture concepts and practices, instead of products**.
- Encouraging them **to communicate, create, mix and work with real communities** that are already producing results.
- **Promoting personal and social responsibility** as participants in communities need to show interest in and respect for others, be willing to overcome stereotypes and prejudices, sensitive to cultural differences and be keen to find solutions under consensus.
- **Pushing (educational) organizations to build accessible tools and software** available for others to reuse, contributing to a more coherent local and global citizenship.

Observing in parallel, in the [DigCompEdu framework] we see that **"Learning to learn"** and "learning by doing" competences are already widely integrated. See for instance Area 1 "Professional Engagement", competences 1.3 "Reflective Practice" and 1.4 "Digital Continuous Professional Development". **Both competences are clearly connected to what FLOSS** is already supporting with this approach and in particular

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[3] EU Science Hub – The European Commission's science and knowledge service, https://ec.europa.eu/jrc/en/digcompedu, 15.9.2020

the "Learning to Learn" key competence. On the long term, the adoption of FLOSS tools and OERs will contribute to learners' and educators' (digital) skills development.

With regards to the "**Learning by doing"** competence, it is largely present all over the DigCompEdu framework. Take for example Area 2 "Digital Resources", competence 2.2 "Creating and Modifying", Area 3 "Teaching and Learning", competence 3.3 "Collaborative Learning" and Area 5 "Empowering Learners", competence 5.3 "Actively engaging learners". All these competences that an educator should gain to be digitally competent would be **improved by using FLOSS tools** since the FLOSS approach is highly collaborative, empowering and engaging.

Given the nature of the FLOSS approach and the objectives of the DigCompEdu we would strongly advice to **highlight the importance of adopting FLOSS content**, (i.e. OERs) tools (software and licences) and collaborative methods in the education and training. There are many **key aspects to be considered for the development of the educational sector** that the FLOSS resources can contribute to:

- The community-based approach
- The users' (teachers and students) empowerment
- The cost reduction (short and long term)
- Digital skills development
- Ownership over one's data/software
- Enhancement of creativity and engagement

All the above are the **objectives pursed by the DigCompEdu framework** and at the same time the key principles the FLOSS movement has been advocating for year now. The list could be much longer, but the focus is on aspects that are crucial for both FLOSS and the (Adult) education field as underlined by the framework.

In this regard, the partnership to recommend that while promoting the DigCompEdu framework, the FLOSS alternatives should also be promoted and that the future version(s) of the framework should reflect this deep connection. The future of education, and especially of open and public education, should go hand-in-hand with FLOSS tools given the high return on investment this kind of resource can bring.