
Free and Open Source Software for European SMEs in the frame of EU funded research

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Abstract

The smart use of Free and Open Source Software (FOSS) by European small and medium-sized enterprises (SMEs) can have a high impact on entrepreneurship, growth and jobs, as it will unleash new business opportunities created by the digital evolution. The EU funded project FOSS4SMEs intends to equip European SMEs with the skills and competences to properly use FOSS, so to improve their digital performances and competitiveness. To reach this objective, the project intends to develop a free online training course for managers and staff of SMEs as well as a policy recommendation report addressed to decision-makers and VET providers to promote digital migration to FOSS among European SMEs.

Author Keywords

Free and Open Source Software; training; online learning platform; ECVET.

ACM Classification Keywords

- Information systems~Open source software
- Human-centered computing~Open source software
- Social and professional topics~Computer and information systems training
- Hardware~Platform-based design



Figure 1: Project Logo

Introduction

In the Entrepreneurship 2020 Action Plan, the European Commission (EC) highlights the high potential of smart use of ICT as an enabler of entrepreneurship, growth and jobs and commits to unleash new business opportunities created by the digital evolution [1]. About 90% of all SMEs in Europe are micro enterprises with less than 10 employees [2]. Their competitiveness can be ensured by enabling them to take advantage of new opportunities in ICT. Therefore, the EC has launched the Digital Agenda for Europe, which proposes to better exploit the potential of ICT in order to foster innovation, economic growth and progress [3]. Among the initiatives foreseen in this framework is the 'Digitising European Industry', which points out the need to promote digital skills of the European workforce [4].

Concerning the use of FOSS by European SMEs there are no existing studies, researches or surveys available, focused specifically on this matter, nor transnational studies on the motivations and barriers on the uptake of FOSS within businesses. There have been only some initiatives in the educational and policy sector, that targeted mainly public administration. Because of this, FOSS4SMEs is a completely innovative European project supporting Europe's ambition by offering an alternative to the mainstream digital education.

Project objectives

The main objective of FOSS4SMEs is to develop a free vocational education and training (VET) course for European SMEs aiming to facilitate recognition and transferability of competences, thus mobility, by applying the European Credit System for VET (ECVET)

[5] to the professional profile of the FOSS-Business User (FOSS-BU).

Project Methodology

The FOSS-BU profile is developed based on the results of a first research phase that includes: i) a desk research on training materials in the field of FOSS developed in Europe and on national curricula relevant to the FOSS-BU profile and ii) a field research in form of a survey, where representatives from Greek, Italian, Swedish, German, UK and Irish SMEs and micro enterprises were asked about their current knowledge on FOSS and its business application, with the purpose of detecting their training needs and the possible drivers for the adoption of FOSS solutions. The team applied the ECVET principles to describe the contents that need to be included in the course, the learning outcomes and the associated ECVET points, in order to produce the curriculum and the assessment procedure for the course.

In the remaining months of the project it is planned that the team will develop the training contents, along with a new online training platform customised for the target group of the project. In addition, assessment activities will be conducted to assure the course is tailored to the target group needs and to develop a statement comparing the results of the initial survey. The assessment will include short training activities at local level, asking representatives of the SMEs on their opinion about the entire training system. Additionally, VET providers will be testing the applicability and exploitability of the course within the VET sector at local level. Based on the results of the assessment, the platform and the course will be evaluated and improved, in view of their final release.

Major Interim Findings

Desk Research

In the first year of the project and within the first intellectual output the consortium prepared six national reports. The first section of these deliverables provides a list of existing courses and training materials at national and European level. The results showed that most of the courses and training materials collected:

- come from private actors relevant to FOSS, with a strong emphasis on competence development;
- mostly aimed either at individuals in an educational setting or in a private function;
- can be found at non-formal education and VET level;
- may have the form of guidelines and tutorials;
- target a broad range of businesses and professional roles, including system administrators, development managers, quality managers, decision makers, project leaders, system architects, web developers and others.

In the second section, the partners gathered available curricula relevant to the FOSS-BU profile, that are recognised by their national qualification frameworks. The situation outlined in the reports showed a substantial shortage of qualifications of this kind across Europe. UK is the only country among the six partner countries offering educational paths related to open source technologies - within the framework of its formal education. In the remaining five countries, no nationally accepted qualifications strictly related to FOSS have been reported at any European Qualifications Framework (EQF) level. Only some certifications are offered by private institutions, which are generally recognised in the labour market and particularly in the

IT-domain (non-formal courses). The majority of them is covered by the *Linux Professional Institute*, which has a high degree of recognition within the European business landscape.

Field Research

The project investigated the training gaps of the target groups and their motivation to adopt FOSS solutions within their business. More than 120 representatives from SMEs and micro-enterprises of the 6 different partner countries with no business field limitations were asked. They participated in an online ad-hoc survey developed by the consortium in four different languages, with questions gravitated around five different key thematic areas.

1. Demographics: Most of the survey participants were employed in micro enterprises and SMEs with up to 40 employees, which have been active for approximately 10 years.

2. Level of knowledge and perception about FOSS: Most of the survey participants declared to have heard of FOSS to some degree. However, this concept seemed to be still somewhat misleading, as some of them wouldn't be able to tell FOSS apart from proprietary software. Sustainability and reliability were the most common perceived benefits of FOSS products. The largest concern across the six countries however stayed in the availability of technical support, as the reaction of respondents in this regard was generally negative.

3. The use of FOSS in everyday business activity: A large portion of SME-professionals reported they already use FOSS in their business. Lack of awareness/skills and an adverse company policy were the two most common reasons for not using FOSS in

their businesses. The Microsoft Office Suite and SAP Resource planning applications were the two most recurrent non-FOSS software mainly cited as important within the daily business operations of the respondents.

4. The obstacles (actual and perceived) to a migration to FOSS: The highest obstacles indicated for the adoption of FOSS were lack of necessary skills, enough time to implement them within their working procedures and external requirements. What really emerged is the high level of uncertainty about the topic, as almost all of the factors suggested raised doubts among the respondents about whether they would be seen as obstacles or not.

5. Suggested learning programme: In this last section, respondents were asked to indicate all the topics they would like to be trained on, thus providing valuable information for the contents to be developed for the training course foreseen by the project. Cloud/backup tools, security solutions, project management systems and office productivity suite were the top scoring subjects that participants were interested in knowing more about.

Development of the ECVET Curriculum

Following the ECVET guidelines, five categories of main competencies of the FOSS-BU have been identified – based on the field and desk research results and the consortium’s expertise. The categories lead to the development of five units of learning outcomes in level 5 of the EQF, generating the conceptual and curricular structure of the training course:

- UNIT 1 Introducing Foss
- UNIT 2 Why Foss in Business?

- UNIT 3 What Kind of Foss is Available?
- UNIT 4 Adopting Foss in Your Business
- UNIT 5 (Strategies For) Migrating to Foss

Conclusions

FOSS4SMEs partners have mapped the use of FOSS by European SMEs and have developed a curriculum aligned with the target group needs. The participants of the non-formal training course will be trained to understand how to make most of FOSS and select solutions relevant to their specific type of business, in short, they will become e-leaders. The content will be available as an Open Educational Resource, with a free software licence allowing end users to use, share or modify the course.

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