Executive Agency, Education, Audiovisual and Culture

Lifelong Learning Programme

VALS Virtual Alliances for Learning Society

Final Report Public Part

540054-LLP-L-2013-1-ES-ERASMUS-EKA

Project information

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Project website:		http://virtualalliances.eu/ http://semesterofcode.com/
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Executive Summary

VALS (Virtual Alliances for Learning Society) project has the aim of establishing sustainable processes **to build knowledge partnerships between Higher Education institutions and Companies/Foundation** to collaborate on resolving real business problems through an open innovation process mediated by the use of Open Source Software (OSS). To achieve this, VALS builds knowledge partnerships between Higher Education and Companies/Foundations. **The innovative approach is to leverage virtual placements for Computer Science students in companies** in order **to foster entrepreneurial skills and attitudes**, and to make use of the results **to establish new learning and teaching methods**. This results in the Semester of Code initiative, a set of methods and processes for creating and managing a real virtual placement system, and for integrating this into innovative teaching and learning strategy. To make possible these methods and processes, this project establishes a general methodology designed to perform the Semester of Code, supported by technology framework, as well as several guidelines on how to develop the software that will support this process.

The partnership consisted of **four Higher Education** (HE) partners (the Universities of Salamanca, Udine, Cyprus and Bolton) and **four SMEs** working in the field of open development (OpenDirective, RayCom, OSS Watch and Mindshock). The HE are seeking opportunities to enhance the preparation of their students for professional life, and all run courses which can be enhanced by virtual placements. The synergy with the SMEs involved in the project, not only do they find opportunities for placements of their students, but they also achieve an excellent understanding of what is required of student or professional who participates in the development of OSS solutions for business. This has been valuable input into the **design of VALS processes and pilots**.

An **Open Innovation Process Model** has been designed with the description of the innovation model that is used in Virtual placements and guidelines for the possible applications in Higher Education institutions. A **Virtual Placement System** has been developed to manage the virtual placements, supporting the publication of placement proposal, the students application and conducting the workflow defined in the Open Innovation Process Model. This Virtual Placement System has been deployed in three instances with different changes (one per each round of the Semester of Code celebrated, each one with the different requisites of the round) available in the URLs http://vps.semesterofcode.com, http://vps2.semesterofcode.com, and in http://vps1516.semesterofcode.com

Right now, at the end of the project, has been proved that methodology and the platform developed are suitable to manage virtual placement procedures, connecting students and Higher Education Institutions to mentors and companies/foundations related to Open Source Software development. During the 28 months of the project, there were contacted 67 companies/software foundations that provide about 300 placement proposals to the Virtual Placement System, as well as 15 Higher Education Institutions involved directly in the placements. These contacts result in 36 placements applications in the two rounds celebrated of the Semester of Code. These 36 applications for placements result finally in 17 virtual placements celebrated (among

others that were not started, were not accepted or without final decision from the mentor or student).

Despite of the numbers of arranged placements, the contacts established with companies, universities and students have shown a great interest and expectation about the project and the future of the Semester of Code, especially important for allowing students' access to real companies and projects all over Europe with no expenses of money for travelling and subsistence, which is very important in the current economic reality.

HE staff and students, Open Source Software Foundation and the business sectors in general can find all the information about VALS project at http://virtualalliances.eu/.

FOSS projects, HE Institutions and students that'd like to take part in Semester of Code, can still sign up. Simply by heading over to http://semesterofcode.com for more details about the SoC or directly to http://vps1516.semeserofcode.com to register the organisation and join the initiative in the current round.

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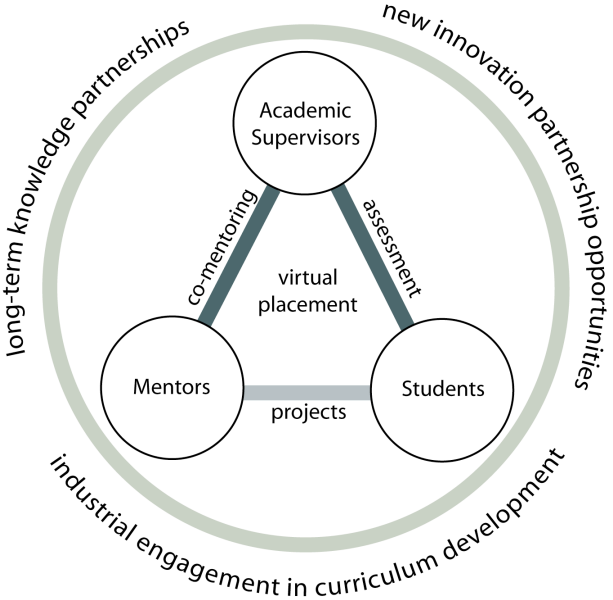
1. Project Objectives

The **aim of the project** is establish sustainable methods and processes for virtual placements, which bring together higher education and companies to collaborate on resolving authentic business problems.

Its intervention is to align and address the needs of the stakeholders involved:

1. **Software companies engaged in open source and OSS foundations** need to actively solicit contributions from new contributors, including students, in order to remain viable and compete with closed-source offerings.
2. The current level of engagement between universities and the software industry is recognised as being insufficient by:
    a. **Universities**, who want to offer authentic teaching and assessment opportunities using current industry best practices.
    b. **Students**, who want to obtain relevant experience and to make contacts in the industry that they can use to help start their career after graduation.
    c. **Employers**, who are seeking graduates with real-world programming experience and related soft skills such as communicating in distributed project teams and working with contemporary development tools and practices.

VALS creates the Semester of Code (SoC), bringing together Academic Supervisors from Higher Education (HE), mentors who are problem owners at enterprises and foundations, and students. Preparation for the Semester of Code, and integration of outcomes into the academic process, mean that each iteration takes place over a full academic year.
Their relationships and the benefits accruing are shown in the following diagram:



2. Project Approach

The **motivation behind the VALS project** has its origin in a need, shared by all partners, to **forge greatly improved links** between **higher education** students and their teachers, and on the other hand the **businesses** where those students will find employment.

The partners share an understanding of how this need can be addressed. Large sector of the European economy are now mediated by online communications and collaboration, both within a single company, and in the collaboration between organisations. Nevertheless, mobility of students in placements and internships in companies relies on the local connections, which higher education institutions have developed, and the location of placements is restricted by the high costs of relocation and living expenses at any significant distance from the home institution. **The solution is to create virtual placements**. These will make use of the technology, which drives the professional environment to organise and carry out placements.

The consortium believes that the reason this potential has not been exploited is that virtual placements have not **to date offered experience of an authentic business environment and business problems**. We conclude that for the approach to be successful, these aspects need to be replicated in a virtual placement.

To achieve this, VALS **built knowledge partnerships** between higher education (HE) and companies who work together on **resolving authentic business problems through open innovation.** The innovative approach of VALS is to leverage virtual placements of students in companies in order to **foster entrepreneurial skills and attitudes**, and to make use of the results to **establish new learning and teaching methods**. This results in the Semester of Code methodology, a **sustainable set of methods and processes for creating and managing virtual placements,** and for integrating these into **innovative teaching and learning strategies.**

Our **focus** is, on the one hand, **real world business problems**, and on the other, **education that involves programming**. These may be from a wide variety of areas of study, not only ICT. This is a promising area for establishing industrial/educational collaboration, because there is:

1. **established practice of external participation** in business, in which software artefacts are developed outside a business, and then applied within it,
2. a very **wide range of real world business problems can be addressed**.

Within this context, we make use of **open source software (OSS) as an enabling technology**. This has a number of significant advantages, but nevertheless, the VALS method is extensible to any innovation, which is mediated by software, so long as the legal and organisational barriers created by licensing terms can be overcome. OSS provides the means whereby HE institutions, students, businesses and foundations can all collaborate to resolve authentic business problems. Firstly, OSS provides the necessary shared infrastructure: it is accessible to students, and

businesses are not constrained by intellectual property or commercial interests, which prevent them engaging with educational placements. Secondly, OSS provides a context of well-established collaborative practice within which authentic business tasks are shared remotely, and beyond the confines of an individual organisation.

Moreover, the foundations that manage the software are also hubs, which channel the operational challenges of their users through to the people who can solve them. This has great potential for enabling students and supervisors to collaborate in resolving the problems of businesses, but is constrained by the lack of support for managing and promoting collaboration across the two sectors.

3. Project Outcomes & Results

VALS:

- Provides the **methods, practice, documentation and infrastructure to unlock this potential through virtual placements** in businesses and other public and private bodies
- Pilots and **promotes this through the "Semester of Code" initiative.**
- Provides different **conclusions, evaluations, analysis and recommendations** for the future of the initiative, as well as, for serving any other consortium that will deal with virtual placements in the future.

In particular the major achievements and results of the project are the following:

1. The creation of the VALS Open Innovation Process methodology and guidelines.
2. The establishment of an online system (VALS Virtual Placement System) to manage virtual placements for student developers to work on real-world business problems, with appropriate mentoring. This VPS had different features and versions in the different iterations performed of the Semester of Code.
3. Ran three pilot programmes (three rounds of the Semester of Code SoC) to demonstrate the effectiveness of this approach, open to non-partners. These rounds attracted more than 60 companies and software foundations related to the Open Source, 15 Higher Education Institutions directly involved and 36 applications for virtual placement by students from five different countries of the European Union.
4. Designed and executed an Evaluation Plan, with guidelines and tools to evaluate the results of the virtual placement programme. This placements evaluation (pre-placements and post-placement) provide great insights to continue with the project and to improve the virtual placements in the scope of the Semester of Code or other similar projects. These results have been published in different publications and disseminated in academic conferences and technical events.
5. Established long-term alliances between universities and companies in Open Source development.
6. Initiate mainstreaming of the project approach, with the provision of persuasive evidence, materials and resources with which to carry the work forward. Regarding the mainstreaming and exploitation of the project after the funding period, the VALS project has created the Semester of Code Association that will steer up the future of the initiative, continuing working on the ideas and virtual placements system.

An **Open Innovation Process Model** has been designed with the description of the innovation model that is used in Virtual placements and guidelines for the possible applications in Higher Education institutions. A **Virtual Placement System** has

been developed to manage the virtual placements, supporting the publication of placement proposal, the students application and conducting the workflow defined in the Open Innovation Process Model. This Virtual Placement System has been deployed in three instances with different changes (one per each round of the Semester of Code celebrated, each one with the different requisites of the round) available in the URLs http://vps.semesterofcode.com, http://vps2.semesterofcode.com, and in http://vps1516.semesterofcode.com

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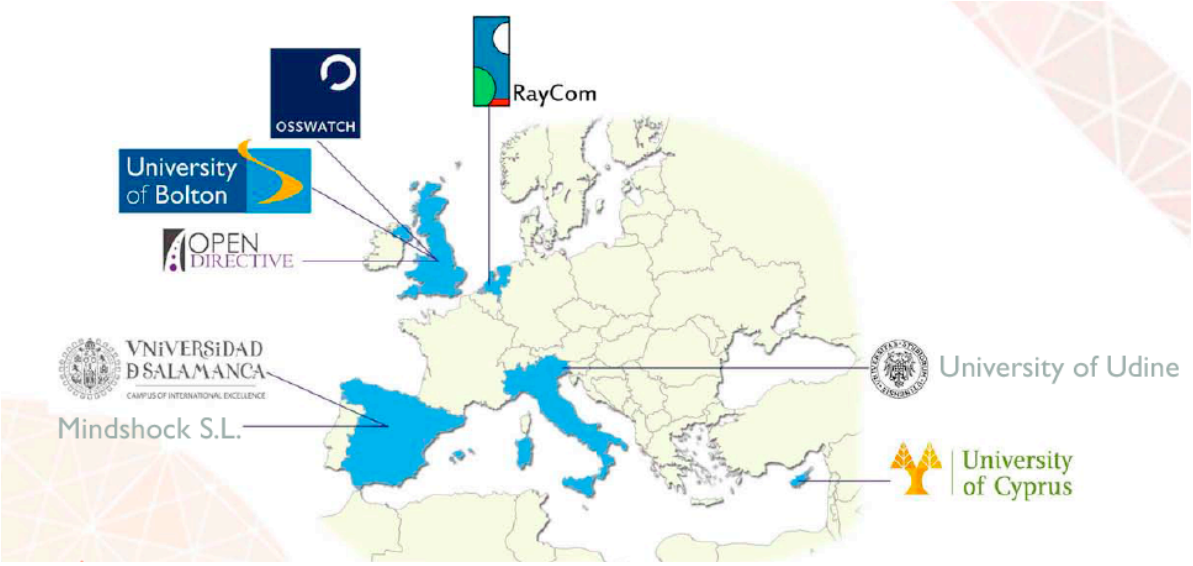
4. Partnerships



University of Salamanca (Spain) http://www.usal.es
OpenDirective Ltd (United Kingdom) http://www.opendirective.com/
RayCom B.V. (Netherlands) http://www.raycom.com/
University of Bolton (United Kingdom) http://www.bolton.ac.uk/Home.aspx
University of Udine (Italy) http://www.uniud.it/
University of Cyprus (Cyprus) http://www.ucy.ac.cy/
Mindshock S.L. (Spain)
University of Oxford - OSS Watch (United Kingdom) http://www.ox.ac.uk/ - http://www.oss-watch.ac.uk/

The consortium of eight is composed of equal numbers of HE institutions and SMEs who have a focus on OSS, and is completed by a number of OSS foundations and HE institutions who have committed to collaborating in the Semester of Code by providing access to problems and problem owners and engaging students.

The VALS partnership is a network in which all partners have collaborated with at least one other member in previous projects. Much of this has dealt involved the development of products and services using OSS which have bridged the academic and business contexts. **In the course of this work they have become aware of the potential of collaboration in** open innovation addressing authentic business challenges **as a means of** overcoming the separation between formal education and the domains in which it can be applied**.**

5. Plans for the Future

The VALS project made a large number of presentations to students (more than 600 students have known about the VALS project directly by the presentations made). The fact that the project was so successful in attracting companies and OSS foundations also indicates that the overall performance of the project was not unsatisfactory, although we have received a very limited response from students.

The VALS project brought together many enthusiasts for the use of open source software in education, from both industry and education. The poor response of students to Semester of Code has not dampened this enthusiasm, as is shown by the loyalty of project owners, who were willing to maintain their projects in the Semester of Code for a second round of activity.

We are aware that introduces a very significant innovation in the complex processes of Higher Education all over the Europe is not easy. This needs time to reflect about the obstacles we have found, and this reflection means one of the most outstanding outcome of VALS project. But also, taking into account the perceived enthusiasm in the all the involved project stakeholders, including the students that liked too much the VALS background, the VALS partners have organized a set of actions to continue with the exploitation of the project activities after the official project ending. These actions may be summarized as follows:

- We made the decision to develop a virtual placement system for VALS meant that the project had complete control over the workflow for virtual placements, and could adjust this as required, making it flexible enough to support the different schedules of European universities. This virtual placement system will be continuously open to receive placement applications. This way we take the advantage of a virtual placement system that worked well, and all feedback was positive on its functioning.

- Enthusiasts could be more effective in persuading Higher Education institutions to engage with open software and Semester of Code if there were a well-known and established initiative to coordinate the use of open software in education, whose professionalism was recognised. Unfortunately, no such initiative exists yet. Semester of Code therefore has the opportunity to engage with these people who have commitment to the Semester of Code approach, and to bring them under an umbrella, creating the conditions to move forward together. We have established The Semester of Code Association to take this work forward.

- The project also has provided a valuable perspective on the European education landscape. To this end we will present our experience of running

the Semester of Code initiative, and our theories about the constraints on take up placements among students.

Regarding that, the future of the VALS project outside the funding of the European Union (and the EACEA) is to continue offering the Virtual Placement System in new rounds of placements. In fact, there is currently an open round of placements with no time restriction where student can apply for available placements in any moment. This future activity is covered and supported by the Semester of Code Association, an association created to ensure the future of the ideas, work and principles of the VALS project and Semester of Code initiative, involving more partners and opening the opportunities to other students in and out of the European Union.
This association is open to new contributors, new points of view and new board members. If you are interested in collaborate, please contact through the websites http://virtualalliances.eu or http://semesterofcode.com

6. Contribution to EU policies

The practice of industrial placements is well established in Europe. Many major corporations and leading universities offer placements, and these are also supported by the Commission through the Erasmus and Leonardo programmes. This has been largely coordinated through bilateral links between HE institutions and business, developed over the years. **While successful, current practice has limitations**.

As Professor Kate Purcell of Warwick University, an expert in the graduate labour market, recently stated "Work placements are very difficult for universities to set up and they're expensive for to run – departments have to arrange visits by academics, and mentoring, to ensure students are having a rewarding experience." 1 This problem is common across Europe, and a concerted European effort is required to address it. This is recognised by the European Commission, and in Supporting growth and jobs – an agenda for the modernisation of Europe's higher education systems (2011[2]) it is stated that "**internships and placements today do not always provide the right conditions for students to develop their skills and receive appropriate recognition for experience gained. More needs to be done to improve the quality and relevance of traineeships**."

The cultural contexts, practices and understandings of education vary greatly between the member states, and in order to produce robust, sustainable outcomes that are usable throughout the European Union it is necessary to take into account the range of different environments and the specific situation in each country.

To achieve this it is necessary to have **a project, which operates across the educational systems in a number of member states**. This enables the methods and systems to be designed and evaluated within a wide range of education systems, so that they are applicable across the European Union.

Moreover, the VALS methods and systems are particularly appropriate to an intervention at a European level. This is because they leverage the methods and practice of OSS foundations, which is based on **bringing together contributions from participants in different countries to work on common problems, which can be applied internationally**. The virtual placement method, which could be extended to other collaboration around artefacts, **can create a step change in practice by greatly expanding the pool of potential links between student recruits and placement contexts**. In order to realise this potential it is important to have project partners from a wide range of cultural contexts, who are able to both adapt the VALS methods and systems to local conditions, and to lead a pan-European mainstreaming effort.

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[1] Cited in The Guardian, 30th April 2012. *Why aren't more students doing sandwich courses?* http://www.guardian.co.uk/education/mortarboard/2012/apr/30/students-sandwich-course

[2] European Commission, Brussels, 20.9.2011 COM(2011) 567 final

7. Dissemination and Exploitation Activities-Tools

This section provides detailed information about the VALS project dissemination, as well as incorporating the most important issues posed in the different deliverable reports of the WP7.

5.1 Dissemination Plan on Project Activities

At a first level the dissemination strategy of the VALS project was decided to be dedicated explicitly to the promotion of the project to immediate contacts with which project partners have established connections. This makes it easier and more practical to get these academics and industry mentors involved, since having an established relationship with them will aid in motivating them but also will be likely more willing to participate to the pilot of the VALS semester of code. On a second level a more general dissemination approach will be followed, so as to promote the project and disseminate it to a wider audience (e.g., via conferences, events) prior to the execution of the pilot but also more intensively after its completion since the actual results of the VALS semester of code pilot can help towards this point.

The initial dissemination plan of project related activities is presented in two separate classes. The first class involves the dissemination tools such as setting up the project collaboration tool, developing the project website, creating the logos, branding and flyers for the project, etc. The second class refers to scheduling and performing presentations to promote the project in events such as academic conferences and workshops but also at industry events to generate interest in the project and building up a community with academics and industry mentors that can support the possibility of continuing the project after its lifetime.

In the primary class the following list defines the immediate “static” activities to be undertaken as part of the dissemination strategy and provides the means and enabling better promotion of the project as part of the more “dynamic” second class of activities. The list is defined as follows:

- Define and create the branding of the VALS project that will be used for the definition of the logo, formatting and styling of documents (e.g. deliverables), project websites and social media.
- Define and produce the VALS project flyer that defines clearly the motivation, concept, core objectives, pilot information, partners and contact information.
- Define a project mailing list that allows industry mentors to denote interest in submitting projects for the pilot of the VALS project.
- Define and produce the VALS Semester of Code industry-specific flyer that defines clearly the VALS project concept and calls for statement of interest in submission of projects by industry mentors, which subscribe to the project mailing list.
- Setup the two project websites, define the material and populate with this information the website to accommodate a flagship dissemination point for the project towards both industry mentors and academics.

- The primary project website was developed and hosted at University of Cyprus servers and can be accessed via the following URL: http://www.virtualalliances.com. It contains information on the VALS project motivation, concept, objectives and the approach followed for realising student virtual placements.
- The second website was developed and hosted at University of Cyprus servers and can be accessed via the following URL: http://www.semesterofcode.com. It provides information on the pilot of the project, including timeline of the project pilot execution, answers to frequently asked questions and a mailing tool that can be used by mentors and academics to subscribe and take part in the pilot of the project execution.

- Define a professional group in social media, such as LinkedIn, to serve as another dissemination channel that allows generating interest and provides the means to join the project community and get information on the project pilot.
- Define a public group in social media such as a Google group to serve as another public dissemination channel where discuss with other people interested in the Semester of Code.

The “static” dissemination activities provide the means for promoting the project via scheduling and performing the following list of “dynamic” events and activities that enable getting academics and mentors involved in the pilot execution.

On the first side the academic partners should be involved in dissemination activities that are categorised as follows. At a first level dissemination activities will focus towards channels (i.e., academics, local industry) with which the academic project partner has an established relationship.

- Each academic partner participating in the VALS project is advised to schedule and perform seminar(s) at its own University so as to present the project to academics and promote the project, but at the same time enable academics with which there is an established relationship to bring on students that can be involved in student virtual placements for the VALS project.
- Schedule and carry out presentations at local Universities for engaging Universities and academics that are not directly involved as partners in the project by presenting to them via these seminars the VALS project concept, the open innovation education workflow process, the timeline of the workflow phases and the platform that will be used for executing the virtual placements. This will allow promoting the project but most importantly will enable non-project academics (in particular those with which the partners has an established relationship) to bring on students that can be involved in student virtual placements for the VALS project.
- Schedule and present the project at local industry events in order to motivate and generate interest in the project, as well as try to engage if possible local industry mentors that are either actively involved in Open Source Software (OSS) development and would be interested in submitting a project proposal

or they are not directly involved in OSS development but they would like to submit proposals under an open source license.

As aforesaid, at a second level, a more general dissemination strategy will be followed based mainly on the points below:

- Principally academic partners can contribute in terms of dissemination of the project through academic publications in reputable international workshops, conferences and journals.
- Presentation of the project in international workshops and conferences (mainly organised at the country of the academic partner) using posters, project flyers and demo presentations at these events.
- On the complementary side industry partners involved in the project can contribute to dissemination activities categorised as follows. As with academic partners, first level dissemination activities will focus towards channels (i.e., local industry mentors, academics) with which the industry project partner has an established relationship.
- Industry partners exploit their OSS connections and partnerships to promote the project in appropriate OSS communities through email communication, via posts in appropriate OSS and other relevant blogs.

Again at a secondary level a more general dissemination strategy will be followed based mainly on the summarised point defined below:

- Industry partners can also contribute in terms of dissemination of the project through academic publications and presentations performed in international workshops, conferences and journals.

Workshop, events

The goal of this type of dissemination activities was to present the VALS project to Academic Institutions in an effort to engage more students and supervisors to the Semester of Code pilots but also to raise interest and collect feedback on the VALS project. During the project several face-to-face workshops, events and webinars were conducted, including experts and policy-makers from both Academia and Enterprise. The following table provides a list of these workshops and events.

Workshops and Events [3] [4]		**Contributing partners**
I.	VALS project presentation at Frederick University, Nicosia, Cyprus – (17 September 2014)	University of Cyprus
II.	VALS project presentation at Open University of Cyprus, Nicosia, Cyprus – (19 September 2014)	
III.	VALS project presentation at University of Nicosia, Nicosia, Cyprus – (26 September 2014)	
IV.	VALS project presentation at University of Cyprus, Nicosia, Cyprus – (30 October 2014)	
V.	VALS project presentation for students and teachers at University of Salamanca. March 21, 2014	University of Salamanca
VI.	VALS project presentation for students and teachers at University of León. May 23, 2014	
VII.	VALS project presentation for students and teachers at Politechnical University of Catalonia. June 2014	
VIII.	VALS project presentation for students and teachers at University of Salamanca, September 2014	
IX.	VALS project presentation for students and teachers at University of León. September 2014	
X.	VALS project presentation for students and teachers at Politechnical University of Catalonia. September 2014	
XI.	VALS project presentation for students and teachers at University of Salamanca, Zamora's Campus. February 2015. http://www.slideshare.net/grialusal/introducing-vals-project-semester-of-code	
XII.	VALS project presentation for students and teachers at University of Salamanca, Faculty of Sciences. February	

[3] These Universities are registered in the VPS platform to recruit students for the pilot.

[4] The project was promoted to students and faculty via all mailing lists of the departments and at students' courses, but as an additional incentive presentations were scheduled to attempt at motivating students to participate and involve more industry companies.

	2015. http://www.slideshare.net/grialusal/vir-tual-alliances-for-learning-society-semester-of-code	
XIII.	VALS project presentation for students and teachers at University of Salamanca, Faculty of Education. February 2015. http://www.slideshare.net/grialusal/vals-y-semestre-de-cdigo	
XIV.	VALS project presentation for students and teachers at University of Salamanca, Faculty of Sciences. March 2015. http://www.slideshare.net/grialusal/executive-presentation-of-vals-project	
XV.	VALS project presentation for students and teachers at Pontifical University of Salamanca. March 2015. http://www.slideshare.net/grialusal/propuesta-de-prcticas-virtuales	
XVI.	VALS project presentation for students and teachers at University of Salamanca, Faculty of Sciences. March 2015. http://www.slideshare.net/grialusal/the-vals-project	
XVII.	VALS project presentation for students and teachers at Technical University of Madrid (UPM). June 11, 2015. http://www.slideshare.net/grialusal/proyecto-europeo-vals-y-semester-of-code-prcticas-virtuales-en-empresas-y-fundaciones-relacionadas-con-el-software-libre-a-nivel-europeo	
XVIII.	VALS project presentation for students and teachers at Polytechnic Institute of Porto (ISEP). July 23, 2015. http://www.slideshare.net/grialusal/presentation-of-vals-project-within-an-erasmus-mobility-framework	
XIX.	VALS project presentation for students and teachers at University of Salamanca, Faculty of Sciences. February 2016. http://www.slideshare.net/grialusal/programa-de-prcticas-en-empresas-internacionales-para-el-mster-de-ingeniera-en-informtica-de-la-usal	
XX.	VALS project presentation for students and teachers at University of Salamanca, Faculty of Sciences. February 2016. http://www.slideshare.net/grialusal/programa-de-prcticas-en-empresas-internacionales-para-la-facultad-de-ciencias-de-la-universidad-de-salamanca	
XXI.	Udine: internal meeting in Mathematical and Computer Science Department with almost 20 professors from Computer Sciences degree, September 2014	University of Udine
XXII.	Udine: internal meetings with 3 professors from Electronic Engineering and Management Engineering that are responsible for courses in Information	

	Technology, July and October 2014	
XIII.	Bologna: AiIG (Associazione italiana Ingegneria Gestionale, the Italian Association of Management Engineering) annual scientific meeting, October 2014	
XIV.	Interviews conducted (1st period February 2014 general interviews about virtual placements, 2nd period July – October interviews for Semester of Code specific implementation in our university) a. professors of the courses Information basics, Advanced Planning and Scheduling, Computer Programming, Information Processing Systems, Databases, Computer Networks, b. students of Computer Science master and bachelor degree c. Placement Office Staff	
XXV.	University of Venice: presentation of the VALS project at the Faculty of Informatics of the University of Venice (March 2015)	
XVI.	University of Ferrara: presentation of the VALS project at the Faculty of Informatics Engineering of the University of Ferrara (December 2015)	

Conferences and other events

This subsection covers and presents conferences and events that were organised and performed by the project partners, as well as conferences and events in which partners have participated in an effort to raise awareness on the VALS project and Semester of Code pilots in the Higher Education (HE) and business sector. This type of activity is dedicated in specific to publicising the innovative practices and the results of the project.

Activity – Conferences and Events	**Contributing partners**
I. Erasmus+ Knowledge Alliances Cluster Meeting. Brussels. January 26, 2016 o **Description:** Thematic Cluster meeting organized by the Education, Audiovisual and Culture Executive Agency (EACEA) of the European Commission	University of Salamanca
II. Congreso Internacional sobre Aprendizaje, Innovación y Competitividad (CINAIC'15). Madrid, 14-16 October 2015. o **Description:** Conference on Education, Innovation and Competitiveness hosted by the	University of Salamanca

Technical University of Madrid, Spain.

http://www.slideshare.net/grialusal/tendencias-en-innovacin-educativa

III.	TEEM Technological Ecosystems for Enhancing Multiculturality. Porto, Portugal, 7th-9th October 2015 http://2015.teemconference.eu/ ○ **Description:** The Conference is focused on topics like “Education Assessment and Orientation”, “Human-Computer Interaction”, “eLearning, “Computers in Education”, “Communication Media and Education”, “Medicine and Education”, “Robotics in Education”, “Engineering and Education, “Information Society and Education” and promotes internationalization and knowledge sharing with other researchers. The VALS project was presented at the Projects Presentations track.	University of Salamanca

http://www.slideshare.net/grialusal/virtual-alliances-for-learning-society-vals-project-and-the-semester-of-code

https://youtu.be/h2QFWogfk-A?list=PLboNOuyyzZ867BwkvLFh1dw-Unlut9Uhe

IV.	VALS Half-Day Event: Alliances between Academia and Industry, Friday, 10 July 2015, Room 148, Building 12, Department of Computer Science, Pure and Applied Sciences (FST-01), University of Cyprus, New Campus. ○ **Description:** This half-day event was organised by the University of Cyprus and aimed at introducing the VALS project to participants from academia, industry and policy makers in Cyprus. Presentations from Industry Liaison Office of the University of Cyprus and from Research Promotion Foundation (i.e., National Contact Point) were given on relevant initiatives and projects. Finally, there was a session dedicated to open discussion regarding the VALS project activities, results, feedback and future directions. **Audience:** Industry, Academia and Policy stakeholders in Cyprus.	University of Cyprus
V.	Seminar of the Erasmus+ KA1 School Education Staff Mobility project "Using ICT (Information and Communication Technologies) tools in math, science and English courses" (2014-1-TR01-KA101-004923). ○ **Description:** Workshop hosted by the Research Institute for Educational Sciences. University of	University of Salamanca

Salamanca 15-19 June, 2015

http://www.slideshare.net/grialusal/vals-project

VI.	Seminar “La universidad digital”. Taller de buenas prácticas: presentación de experiencias. Madrid, June 11, 2015 ○ **Description:** Workshop organized by the UNESCO Chair in University Management and Policy at the Technical University of Madrid focused on innovative experiences for the Universities of the future.	University of Salamanca

http://www.slideshare.net/grialusal/proyecto-europeo-vals-y-semester-of-code-practicas-virtuales-en-empresas-y-fundaciones-relacionadas-con-el-software-libre-a-nivel-europeo-versin-pster

VII.	EDUCON 2015 Conference "Engineering Education towards Excellence and Innovation”. 18-20 March 2015. Tallinn Estonia. http://www.educon-conference.org/educon2015/ ○ **Description:** The IEEE EDUCON conference provides a forum for academic, research and industrial collaboration on global engineering education.	University of Salamanca

http://www.slideshare.net/grialusal/semester-of-code-piloting-virtual-placements-for-informatics-across-europe

VIII.	Android Day Salamanca 2015. March 14, 2015. ○ **Description**: Local developers event focused on technology, code and computer sciences.	University of Salamanca
IX.	Erasmus+ Knowledge Alliances Cluster Meeting. Brussels. January 26, 2015 ○ **Description:** Thematic Cluster meeting organized by the Education, Audiovisual and Culture Executive Agency (EACEA) of the European Commission	University of Salamanca
X.	Betabeers Salamanca. January 22, 2015 ○ **Description:** Local developers event focused on technology, code and computer sciences.	University of Salamanca

http://es.slideshare.net/jesusmerinoparra/semester-of-code-betabeers-salamanca-enero-2015

https://www.youtube.com/watch?v=whP6vVtyl_M

XI.	Participation to Open Source Day at University of Udine, 29 November 2014. ○ Description: this is an annual event, concerning the Open Source Software. It takes place in the University of Udine, and it is organised to offer several seminars, workshops, talks, and conferences about the different aspects of the Open Source Software. It is mainly addressed to people who is not completely new to Open Source, but it has free entrance, so anyone could participate. Usually, the difficulty and specificity levels of conferences and talks are communicated, in order to make the choice easier.	University of Udine
XII.	Erasmus+ Knowledge Alliances Cluster Meeting. Brussels. November 7, 2014 ○ **Description:** Thematic Cluster meeting organized by the Education, Audiovisual and Culture Executive Agency (EACEA) of the European Commission	University of Salamanca
	http://www.slideshare.net/grialusal/vals-project-one-year-after	
XIII.	Seminar "VALS – Building a bridge between Industry and Academia", Venue: Department of Computer Science, University of Cyprus, October 30, 2014. ○ **Description:** The presentation will introduce the VALS project to Cyprus companies, to academic supervisors and students of the Dept. of Computer Science, University of Cyprus. The applied educational open innovation process model and the developed Virtual Placement System (VPS) will be presented to show how companies, academics and supervisors can be involved in the VALS Semester of Code pilot. The different roles, the timeline and procedures will be described and the online VPS platform will be presented so that participants learn how they can perform actions such as browse and view available projects, register, post industry projects, etc. The presentation will be concluded with questions from the participants. **Audience:** Faculty and students of the Dept. of Computer Science and companies in Cyprus.	University of Cyprus
XIV.	Participation to fairs linked to virtual placement: ALIG Job Fair, Udine 25th October 2014. ○ Description: this is an annual event, organised by	University of Udine

	the association of the management engineering graduates (Associazione Laureati in Ingegneria Gestionale – ALIG). Its aim is to offer the graduated students the opportunity to open their perspectives to the work world, meeting the delegates of the local enterprises, proposing their CVs and participating to the proposed events. During the event, a lot of seminars are proposed, mainly dealing with job finding and entrepreneurship. The event is open also to the non-graduated students, and a part of the event is also focused on the placements.	
XV.	Frontiers In Education (FIE) 2014 Conference. October 22-25. Madrid, Spain http://fie2014.org/ ○ Description: The Annual Frontiers in Education (FIE) Conference is a highly-respected major international conference focusing on educational innovations and research in engineering and computing. FIE 2014 continued a long tradition of disseminating results in these areas. FIE Conference is an ideal forum for sharing ideas; learning about developments in computer science, engineering, and technology education; and interacting with colleagues in these fields. http://www.slideshare.net/grialusal/vals-fie-2014-frontiers-in-education-conference	University of Salamanca
XVI.	Presentation “Virtual Alliances for a Learning Society – VALS LLP Project”, Venue: Dept. of Computer Science, University of Nicosia, September 26, 2014. ○ **Description:** The presentation introduced the VALS project, the applied educational open innovation process model and the developed Virtual Placement System (VPS) were presented to show how companies, academics and supervisors can be involved in the VALS Semester of Code pilot. The different roles, the timeline and procedures will be described and the online VPS platform will be presented so that participants learn how they can perform actions such as browse and view available projects, register, post industry projects, etc. The presentation concluded with questions from the participants. **Audience:** Faculty of the Dept. of Computer Science, Frederick University of Cyprus.	University of Cyprus
XVII.	Presentation “Virtual Alliances for a Learning Society –	University of

	VALS LLP Project", Venue: Faculty of Pure and Applied Sciences, Open University of Cyprus, September 19, 2014. ○ **Description:** The presentation introduced the VALS project, the applied educational open innovation process model and the developed Virtual Placement System (VPS) were presented to show how companies, academics and supervisors can be involved in the VALS Semester of Code pilot. The different roles, the timeline and procedures will be described and the online VPS platform will be presented so that participants learn how they can perform actions such as browse and view available projects, register, post industry projects, etc. The presentation concluded with questions from the participants. **Audience:** Faculty of the Dept. of Computer Science, Frederick University of Cyprus.	Cyprus
XVIII.	Presentation "Virtual Alliances for a Learning Society – VALS LLP Project", Venue: Dept. of Computer Science and Engineering, Frederick University of Cyprus, September 17, 2014. ○ **Description:** The presentation introduced the VALS project, the applied educational open innovation process model and the developed Virtual Placement System (VPS) were presented to show how companies, academics and supervisors can be involved in the VALS Semester of Code pilot. The different roles, the timeline and procedures will be described and the online VPS platform will be presented so that participants learn how they can perform actions such as browse and view available projects, register, post industry projects, etc. The presentation concluded with questions from the participants. **Audience:** Faculty of the Dept. of Computer Science, Frederick University of Cyprus.	University of Cyprus
XIX.	TEEM Technological Ecosystems for Enhancing Multiculturality. Salamanca, 1st-3rd October 2014 http://2014.teemconference.eu/ ○ **Description:** The Conference is focused on topics like "Education Assessment and Orientation", "Human-Computer Interaction", "eLearning, "Computers in Education",	University of Salamanca

	"Communication Media and Education", "Medicine and Education", "Robotics in Education", "Engineering and Education, "Information Society and Education" and promotes internationalization and knowledge sharing with other researchers. The VALS project was presented at the Projects Presentations track.	

http://www.slideshare.net/teemconference/developing-winwin-solutions-for-virtual-placements-in-informatics-the-vals-case

https://youtu.be/i7F-fr2Hcqo?list=PLboNOuyyzZ87JqXss9jJlZTmmqJbbmzX4

XX.	TEEM Technological Ecosystems for Enhancing Multiculturality. Salamanca, Spain, 14th-16th October 2013 http://2013.teemconference.eu/ ○ **Description:** The Conference is focused on topics like "Education Assessment and Orientation", "Human-Computer Interaction", "eLearning, "Computers in Education", "Communication Media and Education", "Medicine and Education", "Robotics in Education", "Engineering and Education, "Information Society and Education" and promotes internationalization and knowledge sharing with other researchers. The VALS project was presented at the Projects Presentations track.	University of Salamanca and University of Bolton

https://youtu.be/5HrRpPbrxz0

Formal publications

The project consortium authored and contributed publications to relevant academic conferences and journals, oriented towards the different project target groups, in an effort to promote, raise awareness and generate interest in the VALS project. An ongoing effort is conducted currently to collectively author and contribute in a journal publication the VALS concept and approach and the experiences, feedback and results from the evaluation of the Semester of Code pilots.

Formal Publications	**Contributing partners**
I. Francisco José García Peñalvo, et. al. (2013). **"VALS: Virtual Alliances for Learning Society."**, *Proceedings of the TEEM'13 Track on Knowledge Society Related Projects,* http://dx.doi.org/10.13140/RG.2.1.2321.1044	All partners
II. Francisco J. García-Peñalvo, et. al. **"Developing win-win**	

	solutions for virtual placements in informatics: the VALS case". *In Proceedings of the Second International Conference on Technological Ecosystems for Enhancing Multiculturality (TEEM '14). ACM, New York, NY, USA, 733-738,* http://dx.doi.org/10.1145/2669711.2669982	
III.	García-Peñalvo, F.J., Conde, M.Á., Cruz-Benito, J., and Griffiths, D., 2014. **"Virtual placements for informatics students in open source business across Europe".** *In Proceedings of the IEEE Frontiers in Education Conference (FIE), Madrid, (2014),* http://dx.doi.org/10.1109/FIE.2014.7044411	University of Salamanca, University of Bolton
IV.	García-Peñalvo, F.J.; Cruz-Benito, J.; Conde, M.A.; Griffiths, D., **"Semester of Code: Piloting virtual placements for informatics across Europe"**, in Global Engineering Education Conference (EDUCON), 2015 IEEE, vol., no., pp.567-576, 18-20 March 2015, http://dx.doi.org/10.1109/EDUCON.2015.7096026	
V.	García-Peñalvo, F. J., Cruz-Benito, J., Griffiths, D., & Achilleos, A. P, "**Virtual placements management process supported by technology: Proposal and firsts results of the Semester of Code",** IEEE Revista Iberoamericana de Tecnologías del Aprendizaje (IEEE RITA) *Vol 11, Issue 1*. February 2016. http://dx.doi.org/10.1109/RITA.2016.2518461 *(English version).*	University of Salamanca, University of Bolton,
VI.	Francisco J García-Peñalvo, Juan Cruz-Benito, David Griffiths, AP Achilleos, **"Tecnología al servicio de un proceso de gestión de prácticas virtuales en empresas: Propuesta y primeros resultados del Semester of Code"**, *VAEP-RITA Vol. 3, Núm. 1, Mar. 2015, IEEE-ES (Spanish version).*	University of Cyprus
VII.	Francisco J. García Peñalvo & Juan Cruz-Benito, **"Informe de Buena Práctica-Proyecto Europeo VALS y Semester of Code: Prácticas Virtuales en Empresas y Fundaciones relacionadas con el Software Libre a nivel Europeo"**. Poster presented at the seminar "La universidad digital. Taller de buenas prácticas: presentación de experiencias" organized by the UNESCO Chair in University Management and Policy at the Technical University of Madrid, June 2015	University of Salamanca
VIII.	Francisco J. García-Peñalvo & Juan Cruz-Benito, **"Proyecto Europeo VALS y Semester of Code: Prácticas Virtuales en Empresas y Fundaciones relacionadas con el Software Libre a nivel Europeo"** Publication derived from the seminar "La universidad digital. Taller de buenas prácticas: presentación de experiencias" organized by the UNESCO Chair in University Management and Policy at the Technical University of Madrid,.	

IX.	Francisco J. García-Peñalvo, **"Entrepreneurial and problem solving skills in software engineers".** *Journal of Information Technology Research*, *8*(3), v-vii.	
X.	Francisco J. García-Peñalvo, David Griffiths, Juan Cruz-Benito, Edwin Veenendaal, Achilleas Achilleos, Scott Wilson, Georgia Kapitsaki. **"Understanding the barriers to virtual student placements in the Semester of Code".** *Education in the Knowledge Society 17*(1) 142-168. http://dx.doi.org/10.14201/eks2016171142168	University of Salamanca, University of Bolton, Raycomm B.V., University of Cyprus, Oxford University – OSS Watch

Informal publications – Presentations at Academic Institutions Communities

The project consortium authored and contributed to blogs, press releases, social media postings and other informal publications of the work performed in the VALS project. Informal publications to blogs, social media, OSS, professional associations and other personal publication channels. These channels were an important source for dissemination activities, and strong focus was given mainly because of the influence and outreach that these resources have in terms of use and access by students, supervisors but most importantly by companies and professionals of the OSS community.

Informal Publications	**Contributing partners**
I. Informal publications for VALS dissemination and events in social media, blogs, industry and academic websites: ○ Achilleas Achilleos, "VALS: Virtual Alliances for a Learning Society", June 24, 2014. ▪ Posted on: Academic Website: http://www.cs.ucy.ac.cy/~aachila/vals.html ○ Achilleas Achilleos, **"Half-Day Meeting: Alliances between Academia and Industry"**, Friday, 10 July 2015, – 09:45-10:30 EET. ▪ Posted on: Cyprus Computer Society (CCS) – Events and News Announcements: https://ccs.org.cy/events/listing ○ Achilleas Achilleos, **"Seminar: VALS – Building a bridge between Industry and Academia"**, Thursday, October 30, 2014 – 09:45-10:30 EET. ▪ Posted on: Facebook Page, Dept. of Computer Science, University of Cyprus: https://www.facebook.com/csdeptucy/posts/767766193285388 ▪ News/Events Page Dept. of Computer Science, University of Cyprus:	University of Cyprus

http://www.cs.ucy.ac.cy/index.php/en/component/content/article/31-news/student-corner/584-vals-university-industry-october-2014

II.	**Publication of VALS in:** ○ News Website, Barcelona School of Informatics, Universitat Politècnica de Catalunya: http://www.fib.upc.edu/fib/noticies.html?id=8fe933de-61bd-4ce0-a057-815d07b9feb1	Mindshock
III.	**Publication of VALS in Blogs:** ○ Scott Wilson, "Semester of Code: Involving students in free and open source software", Posted on December 3, 2013: http://osswatch.jiscinvolve.org/wp/2013/12/03/semester-of-code-involving-students-in-free-and-open-source-software/ ○ Mark Johnson, "VALS Semester of Code – FOSS Projects Wanted", Posted on May 23, 2014: https://osswatch.jiscinvolve.org/wp/2014/05/23/vals-semester-of-code-foss-projects-wanted/ ○ Mark Johnson, "VALS Semester of Code open for project idea submissions", Posted on August 6, 2014: https://osswatch.jiscinvolve.org/wp/2014/08/06/vals-semester-of-code-open-for-project-idea-submissions/ ○ Mark Johnson, "Over 20 FOSS projects join the VALS Semster of Code pilot", Posted on September 5, 2014: https://osswatch.jiscinvolve.org/wp/2014/09/05/over-20-foss-projects-join-the-vals-semster-of-code-pilot/	OSSWatch
IV.	**Publication of VALS flyer/poster:** University of Udine, Area Science Park (Trieste) and other companies of Assinform (the Italian Association for Information Technology), University of Venice, University of Ferrara.	University of Udine
V.	**Press appearances:** Publication of two articles about VALS Project on the University of Udine e-magazine and another scientific magazine.	University of Udine
VI.	**Publication of VALS in social media, blogs, industry and academic websites:** ○ Company blog by Project Team KolibriOS, Open source *, "«VALS Semester of Code» after «Google Summer of Code», or «You opensource project? - Freestuff developers come to you!", Posted on September 9th, 2014 at 23:34: https://habrahabr.ru/company/kolibrios/blog/236265/ ○ Security-Corp.org (blog removed), http://itnewsline.blogspot.com.es/ ○ Steve Lee, "VALS EU project - mentoring opportunities for students", Posted on: June 2014: https://discourse.mozilla-community.org/t/vals-eu-project-mentoring-opportunities-for-students/50	External Partners
VII.	**Publication of VALS in social media, blogs, industry and academic websites:** ○ Article in a local digital newspaper, http://salamancartvaldia.es/not/807/hernandez-ruiperez-inaugura-el-congreso-internacional-sobre-sociedad-del-conocimiento ○ Article/Blog in a national Institutional website, http://www.educa2.madrid.org/web/goretti.alonso/blog/-/blogs/teem-	University of Salamanca

technological-ecosystems-for-enhancing-multiculturality-congreso-internacional;jsessionid=5D39C74D8D79CC7D1759EF9C1443843

- Article in a local digital newspaper, http://salamancartvaldia.es/not/12796/congreso-internacional-sobre-la-sociedad-del-conocimiento-en-la-usal
- Article in a scientific news agency, http://www.dicyt.com/noticias/en-busca-de-una-comunidad-de-investigadores-de-la-sociedad-del-conocimiento-y-la-multiculturalidad
- Article in the University of Salamanca website, http://www0.usal.es/webusal/pt/node/36464
- Blog post, http://iculturas.com/?reqp=1&reqr=
- Article in a regional digital newspaper, http://www.noticiascyl.com/noticia/Revisan-en-la-USAL-nuevas-vias-para-potenciar-la-multiculturalidad-desde-la-perspectiva-interdisciplinar-de-la-Sociedad-del-Conocimiento/48256/5
- Article in a local digital newpaper, http://www.salamanca24horas.com/local/98066-congreso-internacional-sobre-sociedad-del-conocimiento-y-multiculturalidad
- Article in the University of Salamanca website, http://www0.usal.es/webusal/node/36495
- Article in a scientific news agency, http://www.innovaticias.com/ciencias/19455/busca-comunidad-investigadores-sociedad-conocimiento-multiculturalida
- Video presenting VALS at TEEM'13 Conference, https://www.youtube.com/watch?v=5HrRpPbrxz0
- Article in Open Education Europe, http://openeducationeuropa.eu/node/135208
- Article in a scientific news agency, http://www.dicyt.com/noticias/proyecto-europeo-para-la-movilidad-virtual-de-ingenieros-informaticos
- Article in a local digital newspaper, http://www.salamanca24horas.com/universidad/106900-los-alumnos-de-ingenieria-informatica-podran-realizar-practicas-en-grandes-empresas-sin-salir-de-casa
- Article in a national Engineers website, http://coddii.org/los-ingenieros-informaticos-podran-hacer-practicas-en-empresas-de-toda-europa-sin-moverse-de-casa
- Article in a national Engineers website, http://www.ingenieriainformatica.uniovi.es/visor/-/asset_publisher/pM6Z/content/los-ingenieros-informaticos-podran-hacer-practicas-en-empresas-de-toda-europa-sin-moverse-de-c?p_r_p_564233524_tag=
- Video presenting VALS at TEEM'14 Conference, https://www.youtube.com/watch?v=i7F-fr2Hcqo
- Video presenting VALS at TEEM'15 Conference, https://www.youtube.com/watch?v=h2QFWogfk-A
- Blog post at the GRIAL Research Group website (University of Salamanca), http://grial.usal.es/node/349
- Blog post at the GRIAL Research Group website (University of Salamanca), http://grial.usal.es/node/355
- Blog post at the GRIAL Research Group website (University of Salamanca), http://grial.usal.es/node/361
- Blog post at the GRIAL Research Group website (University of

Salamanca), http://grial.usal.es/node/369
- Blog post at the GRIAL Research Group website (University of Salamanca), http://grial.usal.es/node/372

Contact networks (extracted from Deliverable 7.3 Dissemination Exploitation events *D7.4a VALS_Dissemination_Exploitation_Events.pdf*)

OSS Community, Academic Community, OSS Industry Companies, Academic Institutions	Contributing partners
• Free/Libre Open Source Software (FLOSS) Foundations http://flossfoundations.org/	• RayCom B.V. • University of Bolton • University of Oxford - OSS Watch • OpenDirective Ltd • Mindshock S.L.
• Free Open Source Software (FOSS) Foundations http://freeopensourcesoftware.org/	• RayCom B.V. • University of Bolton • University of Oxford - OSS Watch • OpenDirective Ltd • Mindshock S.L.
• Professors Open Source Summer Experience (POSSE) Community http://www.redhat.com/posse/	• RayCom B.V. • University of Bolton • University of Oxford - OSS Watch • OpenDirective Ltd • Mindshock S.L.
Public and Private Universities in Cyprus • University of Cyprus - http://www.ucy.ac.cy/en/ • Open University of Cyprus - http://www.ouc.ac.cy/ • Frederick University - http://www.frederick.ac.cy/ • University of Nicosia - http://www.unic.ac.cy/	• University of Cyprus • University of Oxford - OSS Watch *

- Paris 8 University *

http://www.univ-paris8.fr/en/

- University of Salamanca - http://www.usal.es/webusal/en
- University of León - https://www.unileon.es/en
- University Politechnical of Catalonia - http://www.upc.edu/?set_language=en
- Technical University of Porto (Portugal) https://www.isep.ipp.pt/
- University of Castilla La Mancha (Spain) http://www.uclm.es/
- Ostfold University (Norway) http://www.hiof.no/english
- University of Córdoba (Spain) http://www.uco.es/

- University of Salamanca

- University of Zurich (Switzerland) http://www.uzh.ch/de.html
- Université Paris-Sud (France) http://www.u-psud.fr/en/index.html
- Universitat Oberta de Catalunya (Spain) https://www.uoc.edu/portal/ca/index.html
- Telecom ParisTech (France) http://www.telecom-paristech.fr/
- University of Deusto (Spain) http://www.deusto.es
- Hellenic American College (Greece) http://haec.gr/en/
- Pontifical University of Salamanca https://www.upsa.es/
- Google Developers Groups Spain http://gdg.es
- Betabeers Spain http://betabeers.com/
- University of Udine - http://www.uniud.it/ Contacts with 10 informatics professors, presentation of VALS project in their academic courses. More than 20 students shown interest in VALS, one student started working on a project.
- University of Trieste - https://www.units.it/

- University of Udine

Contact with the faculty of Informatics and Economics.

- University of Venice - http://www.unive.it/nqcontent.cfm?a_id=1

Contact with the Department of Informatics, and particularly with the coordinator of the students' internships. The students (20-25) shown interest in VALS project. One student presented a project proposal.

- University of Ferrara - http://www.unife.it/ Contact with 2 professors of Informatics Engineering, and with the students during the project presentation.

Conclusions – Communication with Industry and Academic Communities

This document defines the dissemination activities performed during the execution of the VALS project, on the basis of the defined dissemination plan documented in Deliverable D7.3. The main objectives of the dissemination activities were:

I. To define and develop the proper technology tools (i.e., "static" dissemination as defined in D7.3) that will assist partners in the execution of the more "dynamic" dissemination tasks.

II. To increase project outreach through "dynamic" dissemination tasks such as workshops and events, conferences, formal publications, informal publications and using or establishing new contact networks.

The goal from the two above objectives was to make the VALS project known to the main target groups, i.e., students, academics and industry mentors. Most importantly though, the effort was to get these stakeholders involved in the piloting activities of the project. This was performed along two lines: (i) engage and involve direct contacts, with which partners had already established networks and (ii) use dissemination tools and events to form new networks, so as to engage and involve students, academics and industry mentors.

A variety of dissemination tools have been developed and defined, as well as multiple workshops, presentations, seminars, open source fairs and other events were organised by partners or partners have actively participated in these events (at a national or international level). In addition, various formal and informal publications were authored, mainly taking advantage of open-source and e-learning communities. These dissemination and communication activities were performed in an effort to forge and enable collaboration on open-source industry projects, between Universities, companies and foundations, so as to engage them in the pilots of the VALS project but also attempt to establish long-term academia-industry alliances.

Additional valuable resources that were used in these dissemination activities were the public deliverables and documents (e.g., user guides) defined in the VALS project and documented in section 2 of this deliverable. These deliverables and documents provide the primary outputs, which can be used by the target groups to learn about the project results and possibly apply the innovation process model and

platform in the context of their organisation. These public resources help promote and exploit as a result the outputs of the project.

The dissemination activities provided the capability to attract 291 industry projects from 67 different industry companies and foundations, which were posted in the VPS platform for the execution of the pilots of the VALS project. In specific, 233 projects were posted and were available for students in the first pilot, while the industry projects increased to 291 in the second pilot. In the second pilot, 23 unique students were registered (Pilot 2 http://vps2.semesterofcode.com) from which the following 10 proposals were accepted and completed by students in collaboration with their supervisors and industry mentors.

In overall, the second pilot can be described as more successful than the first pilot where students participated but no proposals were completed. This showcases that the experience gained from the development and execution of the first pilot provided many insights that allowed improving the second pilot. In overall, VALS is a rather innovative and new concept that proved to have been embraced by industry mentors, which is attested by the large number of projects submitted to the platform. On the academic side, the virtual placement approach needs to set out and be cultivated in the mentality of students and academics, which currently look at this activity as out of their curriculum and proved to be challenging to convince them and involve them in the Semester of Code process. Based on academic and students comments the approach is promising but the proper incentives need to be identified and used to attract more students. In specific, during the second pilot it was decided to involve students and academics through the thesis and course projects that the students needed to perform as part of a course. This drastically increased student participation (from the first to the second pilot) and proved that including virtual placements as part of the curriculum of the Universities could be one of the most promising methods to further increase the participation. Additional methods such as digital badges could be also interesting to investigate in future work.

Future (and current) exploitation

The VALS project made a large number of presentations to students (more than 600 students have known about the VALS project directly by the presentations made). The fact that the project was so successful in attracting companies and OSS foundations also indicates that the overall performance of the project was not unsatisfactory, although we have received a very limited response from students.

The VALS project brought together many enthusiasts for the use of open source software in education, from both industry and education. The poor response of students to Semester of Code has not dampened this enthusiasm, as is shown by the loyalty of project owners, who were willing to maintain their projects in the Semester of Code for a second round of activity.

We are aware that introduces a very significant innovation in the complex processes of Higher Education all over the Europe is not easy. This needs time to reflect about the obstacles we have found, and this reflection means one of the most outstanding outcome of VALS project. But also, taking into account the perceived enthusiasm in the all the involved project stakeholders, including the students that liked too much the VALS background, the VALS partners have organized a set of actions to

continue with the exploitation of the project activities after the official project ending. These actions may be summarized as follows:

- We made the decision to develop a virtual placement system for VALS meant that the project had complete control over the workflow for virtual placements, and could adjust this as required, making it flexible enough to support the different schedules of European universities. This virtual placement system will be continuously open to receive placement applications. This way we take the advantage of a virtual placement system that worked well, and all feedback was positive on its functioning.
- Enthusiasts could be more effective in persuading Higher Education institutions to engage with open software and Semester of Code if there were a well-known and established initiative to coordinate the use of open software in education, whose professionalism was recognised. Unfortunately, no such initiative exists yet. Semester of Code therefore has the opportunity to engage with these people who have commitment to the Semester of Code approach, and to bring them under an umbrella, creating the conditions to move forward together. We have established The Semester of Code Association to take this work forward.

The project also has provided a valuable perspective on the European education landscape. To this end we will present our experience of running the Semester of Code initiative, and our theories about the constraints on take up placements among students.