Lifelong Learning Programme
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Nebula

Training course evaluation and assessment

Sambruk

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Executive summary

The aim of NEBULA, a two-year EU Lifelong Learning Programme co-funded project, is to develop and deliver of a novel vocational training programme on cloud computing skills that will equip current/perspective public servants with the required skills to evaluate the benefits of cloud computing and to plan, implement, monitor and assess the migration from local IT infrastructures to cloud computing services, hence making them indispensable to employers who want to follow technological developments. In order to achieve best quality results, minimise risks and increase sustainability of its results and the potential for capitalisation actions, NEBULA applies a thorough quality assurance strategy. This strategy is based on role and task allocation, simple step procedures, iterative reviewing and continuous improvement.

The central responsibility for the quality of project outputs and results is held by the Project Manager (PROMEA), which also assumes the role of the Technical Coordinator. The Technical Coordinator collaborates closely with the work package (WP) leaders and the partners in charge of each project activity, output and deliverable. Quality standards and deliverables are defined for both project outputs and processes, sub-grouped into documents, dissemination & training online and offline materials, dissemination & training events, Project / Steering Committee meetings, internal communication and reporting.

Quality reviewing is foreseen for all project deliverables using purpose-built quality review charts, checklists and templates. Reviewing will be performed by partner representatives, the respective WP leaders and the Technical Coordinator. The Technical Coordinator also oversees the communication and reporting processes. Moreover, the evaluation on project quality is foreseen to be conducted by an expert independent who will actually offer external auditing services and will provide an audit certificate. This external evaluation of the project as a whole is necessary in order for the project coordinator and other partners to identify early enough potential hazards with project execution and take action so as to guarantee successful project completion.

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Acronyms & abbreviations

NEBULA Consortium	
PROMEA	Hellenic Society for the Promotion of Research and Development Methodologies
AELP	Association of Employment and Learning Providers
TECLA	Association for the Transregional, Local and European Cooperation
SAMBRUK	Swedish Association of Local Authorities and Regions
UCBL	Université Claude Bernard Lyon 1
FLORIDA	Florida Universitaria
TELESIG	Telesig Ltd

Quality and Project Management	
AF	Application Form
EACEA	Education, Audiovisual and Culture Executive Agency
SC	Steering Committee
WP	Work Package

1. Introduction

Cloud computing has recently emerged as an opportunity for businesses to become more efficient, enabling them to increase their productivity and to identify new business opportunities more readily. To fully exploit this, organisations, particularly public sector administrations, will need to adapt their IT models and processes if they are to embrace these modern-day challenges of doing more for less.

The NEBULA project aims to form a Sector Skills Alliance that will bridge the mismatch on cloud computing skills within public sector administrations, in order to improve employability of staff by enhancing their skills and bringing them up to speed with new technologies.

These aims will be achieved through the development and delivery of a VET program that will equip public servants with skills to evaluate the benefits of cloud computing and plan, implement, monitor and assess the migration from local IT infrastructures to cloud computing services.

The project objectives are to:

i. Derive an evidence-based definition of skill needs of the labour market for cloud computing skills and competences in Europe based on the targets set by the EU Digital Agenda

ii. Examine the available skill supply by public administration staff and determine the magnitude of the skill mismatch to be bridged

iii. Analyse the training requirements by liaising with all stakeholders, including territorial public administrations and staff/unemployed, for an innovative Cloud Computing Skills VET program

iv. Design a curriculum and develop VET programs that will introduce cloud computing skills courses and materials

v. Introduce innovative training delivery methods in the form of simulation games and social learning platforms to increase learner engagement and training effectiveness

vi. Investigate alternative paths to link the designed curriculum with training methodologies in order to standardise it according to learning outcome approaches, like ECVET, and make it transferable across EU members

vii. Establish a pool of trainers to initiate the VET program delivery by training and qualifying members of the project team to deliver the program

viii. Run pilot delivery sessions to test the new VET program with learners who belong to the actual target group; evaluate learning outcomes and verify assimilated skills by participants to ensure the

transferability and adaptability of the VET program; and help public administrations improve their vocational training capacities.

Anticipated outcomes that address the identified needs & challenges include:

i. A validated VET cloud computing program to train and improve the employability of public servants and adult learners. The program should enable this particular group of people to apply their newly acquired competence and knowledge of cloud computing services in their workplace and ultimately achieve the objectives of the "Digital Agenda for Europe".

ii. Learning content and material that is available in 7 major European languages (EN, ES, IT, FR, EL, SE, BG) and ready to be deployed to a signification proportion of the EU population

iii. An online social learning platform that will enable delivery of the learning content & material to geographically disadvantaged areas to improve public servant inclusion

iv. Eight dissemination events (seven national and one EU wide) and social networking to raise awareness and disseminate project goals and results, enhancing visibility of training course to stakeholders across Europe.

2. Training course evaluation and assessment

2.1 The conditions for evaluation of vocational training program

WP5 includes an evaluation and assessment of the developed VET program.

Performance indicators

- 1 “train-the-trainer” seminar
- 4 pilot VET program delivery sessions

The five training sessions used the training content/material that was developed in WP4.

This task includes the evaluation and assessment of the VET program by trainers, learners and other interested stakeholders. Sambruk was responsible of this task with contributions of TECLA and PROMEA. The purpose was to obtain feedback on the quality of the training content & delivery in order to improve subsequent versions of the material.

Only an independent organization can realistically provide an unbiased evaluation. An external consulting service generated the evaluation and assessment of the program, along with guidelines for improvement.

The evaluation were performed via feedback forms that were filled in by trainers and learners after the training sessions T5.2, along with online forms that were filled in by interested stakeholders like territorial public administrations, VET providers, etc T5.3.

This report provide suggestions for improvement of the fundamental components of the training course, including training content and structure, delivery style of trainer, evaluation method and exercises.

2.2 Suggestions for improvement of the fundamental components of the training course

The curricula of the Nebula VET Programme, learning and training material, simulation game and online platform are pedagogically sound. Learners thought it is a great need for skills in the subject field but asked in general for better adapted material to speicific conditions of the country using it. They also wanted to invite municipality/organization that could share concrete examples. Overal the material needs to be more cohesive, and a linguistic review is needed.

Use relevant practical examples and share and reuse success stories from public sector. A mix between theoretical information and practical application gives learners a better understanding. Include experts from public sector and legal expertise to clarify the possibilities and limitations. As there are a lot of materials developed, it is important to split up in different meetings and invite the right competencies to these meetings. The trainer needs to guide the learners through the material, to clarify and give learners the opportunity to ask additional questions.

Believe in the trainers' ability to educate as a subject, its goals and means as well as the connection between them. Make the training course more interactive as practical activities are of great help to consolidate and apply knowledge.

Be clear about that the program takes a holistic approach, which is much more than just a technical part. The program trains learners in all aspects of migration of IT infrastructure to cloud computing including technical, organizational, financial and procurement aspects.

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After completing the course, it is advisable to let participants evaluate the same. It can be done with a course evaluation. Working methods, contents, materials, teachers and the right level of skills are categories that should be evaluated

2.3 Suggestions for training content and structure

Using of the training course would have to start with discussions about costs for using the material. The material has a copyright content under the terms of the Creative Commons Attribution License by the UCBL and INSA de Lyon.

New participants in the VET program would have to charge a fee, to cover the costs of premises, food, trainers and also sharing the license cost.

Participants reported high satisfaction and efficiency in terms of skill improvement. Responses from learners to the survey about how learning was achieved; active involvement of the participants, feedback at participants' questions and knowledge will be used for strategic planning.

For best effort the trainer structure the training content with some single occasion for all the learners where the hole training content is specified. As a complement specific occassions with experts in different areas from public sector specifes. Figure 1 shows an extract of the different skills needed, and areas where further training is needed especially.

The simulation game matches exactly the course learning objectives, and appears fully integrated into the VET programme of the NEBULA project. The game includes materials for the learners active involvement and is used for role playing.

Type of skills	Thematic area of skills	Balance values	Skill covered	Status
Technical	System and Data Integration	43		Available skill supply
	Virtualisation	57		Available skill supply
	Service Delivery	78		Available skill supply
	User Support	-35		Limited skill supply
Managerial	Project/Process Management	-39		Limited skill supply
	Business Change Management	-61		Skill shortage
	Risk Management	-39		Limited skill supply
	Financial Literacy	-13		Limited skill supply
	Know of the Law	-35		Limited skill supply
Security	Security Strategy Development	70		Available skill supply
	Information Security Management	9		Available skill supply
Transversal	Negotiation	-52		Skill shortage
	Communication	-57		Skill shortage
	Analytical	-52		Skill shortage

Figure 1 Skills mismatch Analysis

Between the different meetings participants invites to discuss topics over digital networks. The conversation is guided by the interest of the participants, or that the trainer begin discussions to enable participants. The trainers goal is primarily to follow the discussion to understand the target audience, what level of knowledge is, current situation and needs of their organizations, cultures, codes etc. This will be input for forthcoming lessons. The trainer may, after following the discussions determine what level will be appropriate for coming occasions.

The material needs to be kept up to date to support the development of Cloud computing. Organizations that are in a process for Strategic planning and are interested in define Cloud computing as its strategy could make decisions about how resources should be allocated to achieve the defined strategy.

An online social learning platform is available at http://moodle.nebula-project.eu/login/index.php that hosts the learning content and all materials produced by the project. Material at the platform is available in 7 major European languages (EN, ES, IT, FR, EL, SE, BG). The technical performance of the on-line platform does not allow good synchronous communication among participants in the training process.

NEBULA trainers become familiar with the entire library of the project's resources in order to know what materials must be included in their lesson plans and what materials could be used in students self-studies.

2.4 Suggestions for delivery style of trainer

The most successful approaches used to encourage participation in the training sessions are email, social networking, personal invitations and advertising the training session at conferences, mouth-to-mouth.

Learning material and content used should be reviewed, both to adapt to audience, language and requirements of the country, and also for continuing to make the material useful and informative. Be aware of that the trained trainees will replicate their knowledge in their administrations. The learners at the pilot training suggested more cohesive material, linguistic review and smaller number of slides and to speed up the training.

The learners at the pilot trainings requested also more interactive slides, in the form of a course where practical activities help to consolidate and apply knowledge gained interactively from the trainer and students.

One way to be more interactive is to launch a network for the participants where discussion can be conducted between or after training session. Keep discussions alive and support them repetitively.

Figure 1 show areas where further training is needed especially for the learners. The trainer can usefully involve the right skills for different areas such as; knowledge of legal aspects and procedures of public procurement. In these sessions the Simulation game for role playing can be used.

2.5 Suggestions for evaluation method

The method for the pilot training was summative, used by each partner after the seminar. The objective was to obtain feedback on the training content delivered in WP4 and to improve future versions of the material.

In the future it´s important to think about "why the evaluation is to be carried out" and what decisions should be made before the evaluation begins.

- Why is the evaluation important?
- External or internal evaluator?
- Identify all affected groups/learners
- Make a survey of the different groups' needs and wishes
- What issues gives the survey?
- Collect and process data
- Inform about the results
- How will the results be translated into reality?

The evaluation could then be done in three different ways. It all depends on what the goal of the evaluation is.

An *diagnostic evaluation* gives a diagnosis of the state right now, and the participants' opinions, feelings and conclusions. This method is a common form of evaluation and answer standard questions as what works or does´nt and what can be improved. The method can be used where

participants primarily evaluates its own performance or as a group effort where participants primarily evaluate someone else's effort. The method can be used at any time - at the beginning, between or after any sessions.

An *summative evalutation* gathers experiences - success factors and setbacks, the strengths and weaknesses and the like during a defined time period. The method is commonly in the end of a period.

Formative evaluation is a kind of process evaluation. The method consists in searching and identifying changes in the process: new information, new knowledge, changing behavior patterns or/and reassessed values. The focus of formative assessment is placed on lessons learned, experiences and practical use, not only of individuals but collectively throughout the entire organization. For example to make visible changes in concrete action plans and strategies for the future.

2.6 Suggestions for exercises

The learners at the pilot training seminar opinions were that all material produced for Nebula are relevant for future learners. But, the most interested parts, would be the handouts and the case studies. Other specific exercises mentioned were the Simultation game and transversal activities. During the pilot training there alse were many opportunities in the slides for issues to be discussed using examples from those attending the course. Attendes would then be able to learn from each other, rather than the strict didactic.

During the training, the trainer will meet participants with different backgrounds and skills. The trainer have to motivate the learners so they will be able to see and make connections between the abstract image with their real world. The exercises therefore needs to be a mixture of theory and practical knowledge. Learning needs to be owned by the participants themselves, which can be achieved if the focus change from the trainer to the learners.

Let learners take place through discussions, and active participation will give great impact on the learners knowledge learning. Then use the exercises as complement to what is discussed.

At specific times when experts participating together with the learners, an important element is to collaborate. Divide into smaller groups where each learner has its own role and should cooperate in exercises. Perhaps everyone should have a different role from what they are used to?! The goal of the exercise is, in addition to weld the group, strengthening the ability to make decisions and solve problems. This is the first step to build relationships and then evolve to network.