Up-skilling the VET sector to Cloud Computing

KA220-VET - Cooperation partnerships in vocational education and training

NATIONAL REPORT

Italy

UMBRIA TRAINING CENTER

Content

1. Desk Research and Best Practices

2. Field Research

3. Implications and Conclusions

The research report consists of three parts; Desk research, Survey and Focus group research and implications and conclusions.
Objectives of the research;
1- To define and to understand the state-of-the-art regarding the specific sector of Cloud Computing in partners countries, analyzing the specific needs and gaps in the sector

2- To assess the professional skills needed in the labor market for a VET provider, designed in accordance with the European lifelong learning instruments (EQF).

Desk Research and Best Practices

The four best practices will need to address at least one of the topics associated with the project. Some example of topics are listed below:
- Adapting vocational education and training to labour market needs;
- Addressing digital transformation through development of digital readiness, resilience and capacity;
- Cloud Computing teaching;
- ICT skills for VET providers;
- qualifications and skills in the cloud computing field

Please consider that the best practice research has to focus on the existing best practice focusing on the specific target group of the project (VET providers and VET learners).

Best Practice n: 1
Best Practice title: RE-ENGAGING YOUNG PEOPLE IN EUROPE
Project partner: Implemented by Fondazione Centro Produttività Veneto (IT) in the ComNetNEET project

Topic	Adapting vocational education and training to labour market needs
Best practice Title	**RE-ENGAGING YOUNG PEOPLE IN EUROPE**
Keywords	Labour market, vocational education and training

Best practice

The Project is based on the provision of flexible and customised interventions based on vocational education and training pathways and links with the labour market.

Objectives and Target group

The project aims to involve young people NEET (Not (engaged) in Education Employment or Training) to promote youth employment and prevent social exclusion of young people. Possible activities include: increasing work skills, addressing mismatches between labour supply and demand, providing traineeships in local communities.

Target groups

- NEET young people aged between 15 and 19, mainly from disadvantaged socio-economic and family backgrounds.
- VET providers and their staff including teachers / trainers / technicians / tutors / counsellors and other education and training professionals; employment services / counsellors; political representatives of education and training; enterprises and social partners; local / regional authorities with responsibilities in VET and active labour market policies; families and communities

Steps of intervention

1 - Good practices of social inclusion: The project intends to analyse experiences in other European countries aimed at the social inclusion of young NEETs and aimed at promoting a multi-sectoral network approach. The project also involves the main stakeholders at local level in order to develop and implement effective social inclusion actions by improving the cooperation between schools, training institutions and enterprises.

2 - Intervention Model: The project envisages the development of a targeted and customised intervention model for young NEETs consisting of flexible pathways and a methodology to improve the transition to the labour market. The developed methodology will be tested through the active involvement of young NEETs in individual and group mentoring and coaching sessions, work experiences in order to facilitate contacts with the labour market.

3 -Guide "Social Inclusion, Development of Local Partnerships and Employability": The guide will provide information on the main measures adopted in different European countries to intercept the most critical NEET target groups, as well as the prevention policies adopted to promote an effective transition between school and work. Issues such as social

inclusion, development of soft skills such as motivation, self-esteem, flexibility, creativity and others will be addressed.

4-Impact evaluation and model review: Impact evaluation of the proposed model through: the use of different approaches and tools, the involvement of experts, the analysis and contextualisation of the results of the experimentation phase carried out in Portugal, Spain and Italy as well as the challenges and opportunities offered by the model to young NEETs, employers, vocational training centres/schools, employment and career guidance services and social partners. The project envisages the organisation of group discussions, awareness-raising sessions and seminars for the presentation, validation and transferability of the project results.

5 A training course based on the intervention model : The aim is to prepare field professionals, technicians and researchers to apply the intervention model. A good and thorough understanding of the basic concepts, intervention rationale, tools and resources and how to use them is essential for successful use

Reference Link (if any)	https://neetsinaction.eu/ https://www.cpv.org/comnetneet
Provided By	*- Name of the Institution/Partner that implemented the practice:* **Fondazione Centro Produttività Veneto (IT) and CEOA-centro de Formação Profissional para o Comércio e Afins (PT)** *- Contact of the Institution/Partner (name, email, telephone):* *- Name of the Strategy/Programme:* **ComNetNEET "Community Networking for Integration of Young People in NEET Situation"** *- Other useful information (if any):*
Language	ENGLISH

Best Practice n.2 : EU Project "Pane e Internet" - "Bread and the Internet"
Best Practice title: Digital online training for citizens
Project partner: Emilia Romagna region (Italy)

Topic	Addressing digital transformation through development of digital readiness, resilience and capacity; Adapting vocational education and training to labour market needs

Best practice Title	"Pane e Internet" - "Bread and the Internet"
Keywords	ICT training, Digital literacy, Digital facilitation, Digital culture
Best practice	Online training activities addressed to all citizens in need of digital education in order to enhance their abilities to use Internet and consequently their adaptation to the labour market needs

Objectives and Target group

Pane e Internet ("Bread and the Internet") - PeI, started in 2009 as a pilot initiative of the Emilia Romagna (Italy) regional government (RER). It has been developed in collaboration with local administrations and several other public and private actors. PeI's strategic goal is to enhance citizens' digital competence and reduce digital exclusion.

The project's main target groups are citizens who do not use the Internet and citizens who use the Internet, but ignore security aspects and lack awareness and critical usage capacity (e.g. many high school students > VET LEARNERS).

Activities

PeI's initiatives for digital competence development revolve around three main activities:

1. Digital literacy for citizens with low or no digital skills. RER redesigned its training offer with two courses, called Digital literacy for citizens level 1 and 2, reflecting DigComp three proficiency levels

2. Digital facilitation or "e-facilitation". This service provides citizens with continuous non-formal digital competence training and customised support to enhance Internet usage

3. Digital culture programme. PeI organises workshops, conferences and other events aimed at developing personal and professional potential through digital technologies and promoting their safe and creative use among citizens.

Outcomes

In 2014-17, 3,750 citizens attended digital literacy courses and about 8,000 the e-facilitation service in over 60 municipalities; 7,700 citizens attended 175 digital cultural events; 110 teachers and 100 tutors delivered the training.

 In all three-action lines, RER used DigComp to create a common language and promote understanding of digital competence, with some differentiations.

With digital literacy courses, DigComp was used as a methodological tool to redesign existing training goals and outcomes, learning resources and activities.

DigComp was used as a "knowledge tool" in the training of e-facilitators (mostly public library staff and volunteers). The aim is to develop e-facilitators' soft skills and educational skills and to enhance their awareness of digital competence relevance for inclusion and full citizenship.

DigComp is presented in a dedicated Learning Unit and taught as the common language to understand and describe citizens' skills and the gaps to be filled in facilitation sessions. In the Digital culture programme, DigComp is a source of inspiration to design events and seminars and stimulate citizens' curiosity about variuos information society topics.

Since 2020, "Bread and the Internet" training activities have taken place online, expanding the audience of potential participants to all citizens residing in the region.

The training activities are designed and delivered with the cooperation of the network of municipalities and Unions of Municipalities, which have set up their own "Bread and the Internet Point" offering citizens training, digital facilitation services and digital culture events on a permanent basis.

The Emilia-Romagna Region provides the "Bread and Internet" Points and all other local authorities and promoters with a Regional Service Centre through which to share teaching projects, facilitation best practices, communication materials and management and communication support.

Reference Link (if any)	https://www.paneeinternet.it/
Provided By	- *Name of the Institution/Partner that implemented the practice:* **Emilia-Romagna Region** - *Contact of the Institution/Partner (name, email, telephone):* **Regione Emilia-Romagna** **Viale Aldo Moro, 30 - 40127 Bologna Italy** - *Name of the Strategy/Programme:* **Pane e Internet ("Bread and the Internet")** - *Other useful information (if any):*
Language	ENGLISH

Best Practice n. : 2
Best Practice title: Book in Progress
Project partner: Lead by the ITS Ettore Maiorana – implemented by national networks of schools

Topic	Addressing digital transformation through development of digital readiness, resilience and capacity; Cloud computing teaching; ICT skills for VET providers
Best practice Title	**Book in Progress**
Keywords	ICT training, Digital competences, Digital education, Innovative education, Digital skills policy

Best practice

The project helps combat early school leaving through the use of cloud computing in the digitisation of teaching material. The project is innovative in that the school books are written by the school's teachers themselves, with a very low financial impact on the students' families, and with a high level of attraction for the learners, who are now digital natives.

Objectives and Target group

At the Institute, Industrial Technical and Scientific High School, Ettore Majorana in Brindisi (http://www.majoranabrindisi.it/), the successful combination of innovative pedagogical theories and the use of new technologies as the cloud computing made it possible to launch a unique and highly advanced digitisation project. The experimentation is based on web-based textbooks, with content created by the teachers themselves, student information accessible online by parents and teachers, video lessons and online afternoon tutorials, but also sharing of information via the web for the use of both pupils and parents, paperless class assignments the use of paper and certificates through electronic signatures.

The structure of the Book in Progress allows for the creation of a flexible product that can be updated from year to year, varying the content to be transmitted on the basis of the educational and training needs of the students, and of the stimuli coming from the territory. Currently, the Book in progress initiative covers 13 disciplines: Italian, History, Geography, Integrated Science Chemistry, English, Integrated Science Physics, Law and Economics, Mathematics,

Computer Science, Technology and Drawing, and Natural Sciences for the first and second classes of Licei, Technical Institutes and Professional Institutes. Within a broader perspective aimed at the renewal of the scholastic and educational reality, one year after its inception and with Majorana acting as leader, the initiative has already expanded to a circuit of 14 scholastic institutes located throughout Italy: Apulia, Campania, Sicily, Abruzzo, Calabria, Molise, Lombardy, Liguria, Tuscany, Friuli, Marche and Umbria. Today the national Book in Progress network involves 73 schools

From "Book in progress" to "Net in Progress"

The Book in Progress Project evolves and expands on the Net thanks to the Net in Progress Project. The Net in Progress Project concerns books, written by the school's teachers, but contained in a pen drive to be used with the netbook that the institute makes available to families at a cost of around 350 euros (against a market value of 700 euros). This cost includes not only the personal netbook and the pen drive, with the educational content, but also the books printed by the school to be kept at home for study in the classical sense.

This has made it possible to create a true national academic network. Productivity systems were loaded onto the students' computers, to be used within teaching. Thanks to the *Cloud technology platform Bpos* - business productivity online suite - the application of collaboration tools inspired by social networking are exploited to improve the educational and training performance of the students and to promote distance learning.

Within the virtual community, represented by the Ettore Majorana Institute, all the protagonists of school life find the possibility of an active and fruitful confrontation:

- teachers, adequately trained in the new digital teaching methods thanks to the *Intel teach* programme, can interact with students through online multimedia repetition lessons;
- the material can then be put online and shared by students who, in turn, meet and discuss through forums created ad hoc and on specific topics.

Reference Link (if any)	https://www.bookinprogress.org/site/it/home/ http://www.majoranabrindisi.it
Provided By	- *Name of the Institution/Partner that implemented the practice:* **Istituto Ettore Maiorana di Brindisi** - *Contact of the Institution/Partner (name, email, telephone):* - *Name of the Strategy/Programme:* **Book in Progress / Net in Progress** - *Other useful information (if any):*
Language	ITALIAN

Best Practice n.: 4
Best Practice title: EIPASS Teacher
Project partner: Implemented by the Joint Research Centre on behalf of the European Commission

Topic	Cloud Computing teaching; ICT skills for VET providers; qualification and skills in cloud computing
Best practice Title	EIPASS Teachers
Keywords	ICT training, Digital competences, e-learning, Innovative education

Best practice

ICT certification for teachers that enables them to become familiar with cloud-based tools to make teaching and school provision more efficient and attractive

Objectives and Target group

EIPASS Teacher is the first digital skills certification programme dedicated to Trainers and Teachers, which we promote by pursuing the mission of diversifying and specialising EIPASS certification services, for specific areas of intervention and/or professional categories, as indicated in the e-Competence Framework, where we explicitly talk about job profiles.

- Teachers, from schools of all levels, who want to learn about the potential of the new tools offered mainly by the Web, but not only, to integrate them into teaching; and who want to certify their specific skills for the sector,

through a real knowledge of digital tools and a methodological reflection on their application in the school environment.
- Trainers and educators, who wish to exploit the resources offered by the new digital tools and media in the educational and training spheres, in order to carry out training in step with the times and be educators aware of the current digital reality.

The training, aimed at the final certification and recognition of competences, is developed on following modules:

- **CONTENT CREATION TOOLS** Know the advantages of the cloud for teaching, identifying the best cloud services. Know how to use the G Suite for content creation, sharing and collaboration.
- **CREATING TEACHING MATERIALS** Use the appropriate tools to create your own video lessons or adapt content created by others.
- **INTERACTION ENVIRONMENTS ON THE WEB** Can create a virtual classroom on Google Classroom, can create a course and organise an activity.
- **SOCIAL LEARNING PLATFORMS** Knows the advantages and usefulness of social learning platforms where students, teachers and families can interact.
- **BYOD (BRING YOUR OWN DIVECES) CONFIGURATION** Knows BYOD and its ideal configuration for maximum performance. Know the critical points and be able to identify them in order to solve them. Know how to implement a "BYOD pact" between school, family and students. Know the technical characteristics needed to create a good school network infrastructure, functional for BYOD.
- **E-LEARNING AND TEACHING PLATFORMS INNOVATIVE** Know the eLearning teaching and use modalities. To know the most important and popular platforms for realising eLearning courses. Become familiar with the possibilities offered by MOOCs and MOODLE and recognise the functional teaching value of using WordPress and Altervista.
- **COMPUTATIONAL THINKING - ITALIAN AND EUROPEAN PROJECTS** Getting to know the main skills for effectively using IT in one's own life. life. To know how to define computational thinking and the concepts, practices and attitudes related to it. related to it. To know the main Italian and European projects to introduce students to coding.

The **EIPASS** Teacher certification is recognised by the Ministry of Education (MIUR) and is valid for scoring in the Childhood and Primary, Secondary I and II Grade, ITP, Support and Educational Personnel GPS. The certifying body is CERTIPASS, which has translated the European directives (providing for 4 levels of IT) into objective, measurable and recognised competences, in full compliance with the e-competence Framework for ICT Users (e-CF) and the Digital Competence Framework for Citizens (DigComp).

Reference Link (if any)	Eipass: https://it.eipass.com/
Provided By	*- Name of the Institution/Partner that implemented the practice:* **EIPASS teacher** *- Contact of the Institution/Partner (name, email, telephone):* *- Name of the Strategy/Programme:* **CERTIPASS** *- Other useful information (if any):*
Language	ENGLISH

Field research: Analysis of Survey Results

The survey consisted of two parts that focused on two separate target groups; VET providers and VET learners.
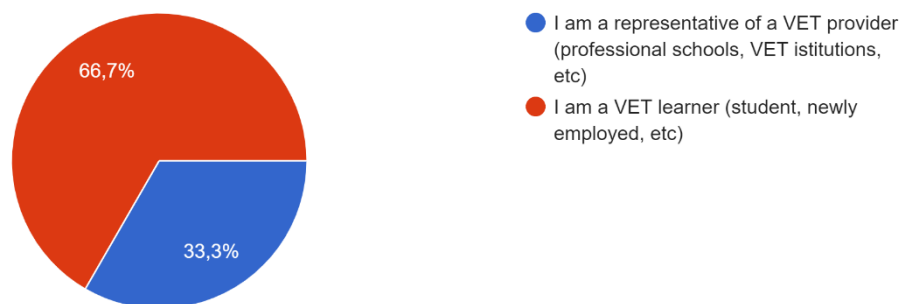
The survey was completed by 15 participants in total.

VET learners = 10 (66,7%)

VET providers = 5 (33,3%).

Are you representative of a VET provider or a VET learner?
15 risposte

- 🔵 I am a representative of a VET provider (professional schools, VET istitutions, etc)
- 🔴 I am a VET learner (student, newly employed, etc)

VET PROVIDERS

In regard to the specific field in the VET sector, the following are the answers received:

- Administration
- Training and evaluation
- Language
- Education and Training
- Project assistant

2. In relation to the familiarity with cloud computing and its applications in the workplace 3 out of 5 are very familiar with the topic. The other 2 respondents are not that much confident with cloud computing.

How familiar are you with cloud computing and its applications in the workplace?
5 risposte
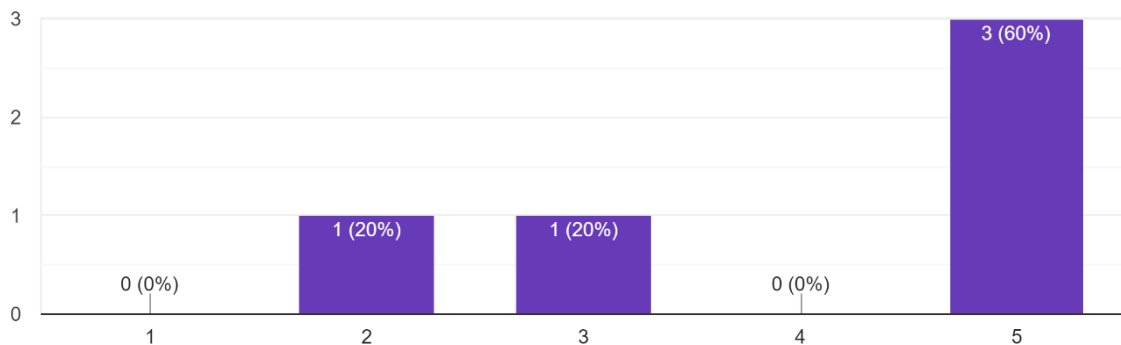
3. About any kind of educational path on cloud computing offered by their company, a consistence 40% answered "yes", a 20% "no" and a 40% is considering to start a specific educational path.

Do you, or the institution you work with, already offer any kind of educational path on cloud computing?
5 risposte

- ● Yes
- ● No
- ● I am considering it
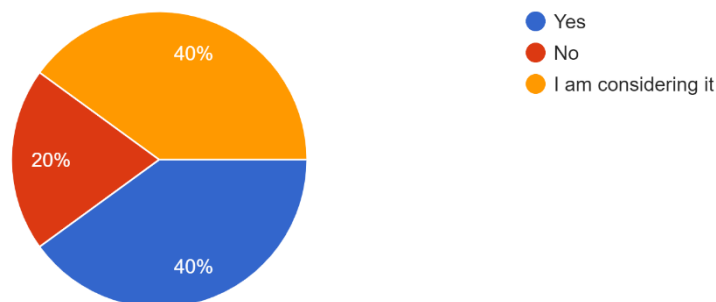
4. Even if there are positive answers to the previous question, there are no answers to the question "If you, or the institution you work with, are already carrying any kind of education path on cloud computing, have you encountered any challenges when teaching cloud computing to VET students, and if so, what were they?".

5. Among the options, the most voted option overall is this Cloud Computing Platform (80%), and 3 other highly voted (40%) are Cloud Security, Cloud Storage and DevOps Culture:

In your opinion, what are the most important cloud computing skills that VET students should learn?

5 risposte
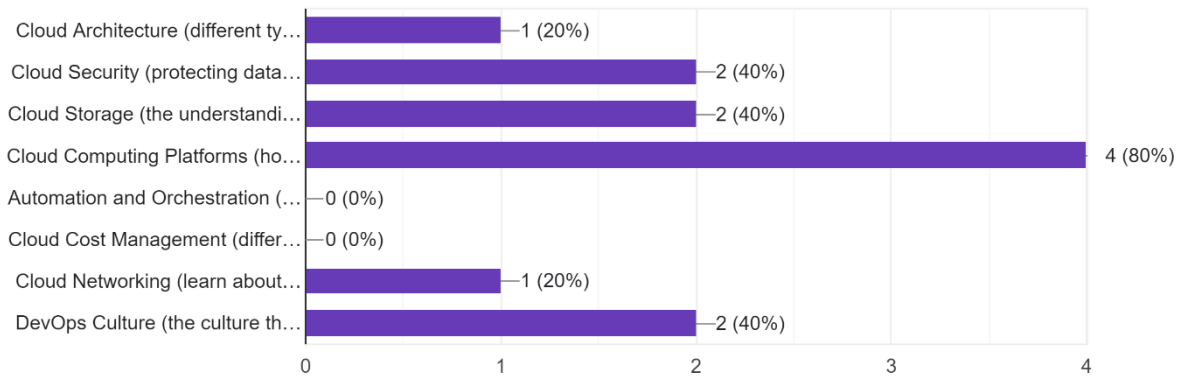
6. When asked if they received any requests from employers for VET graduates with cloud computing skills, 3 persons replied positively and 2 negatively.

Have you received any requests from employers for VET graduates with cloud computing skills?

5 risposte
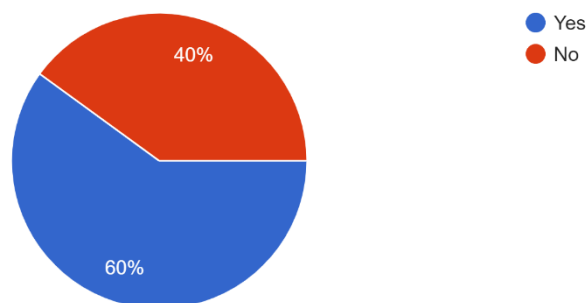
7. The VET providers are mostly **not that** confident in their ability to teach cloud computing skills to VET students. Only one respondent feels highly able to.

How confident are you in your ability to teach cloud computing skills to VET students?

5 risposte
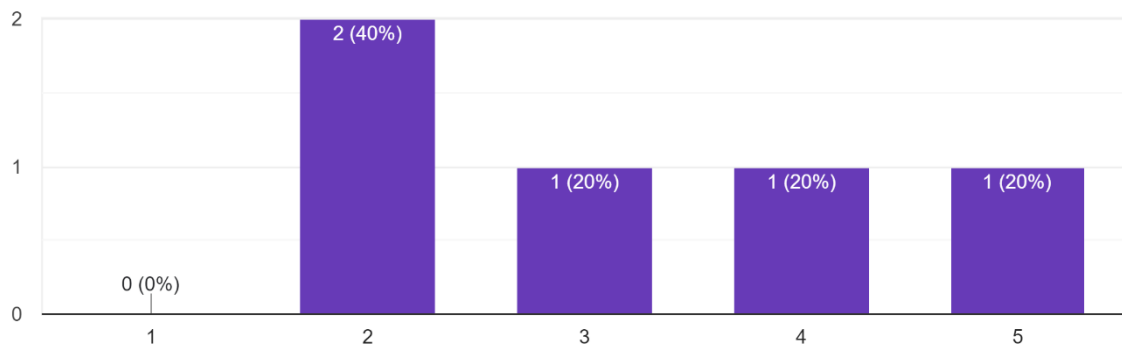
8. Agree to previous question, there is little demand from VET students about cloud computing.

How much demand do you see for cloud computing courses among your VET students?

5 risposte
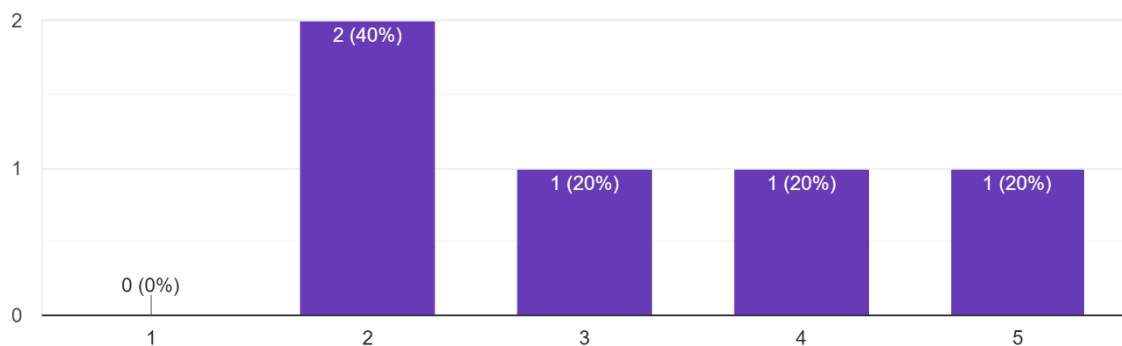
9. Despite the not too much confidence in the teaching of the topic and the low demand from students, VET providers think it is very important to stay up-to-date with the latest developments in cloud computing

How important is it for VET providers and educators to stay up-to-date with the latest developments in cloud computing?

5 risposte
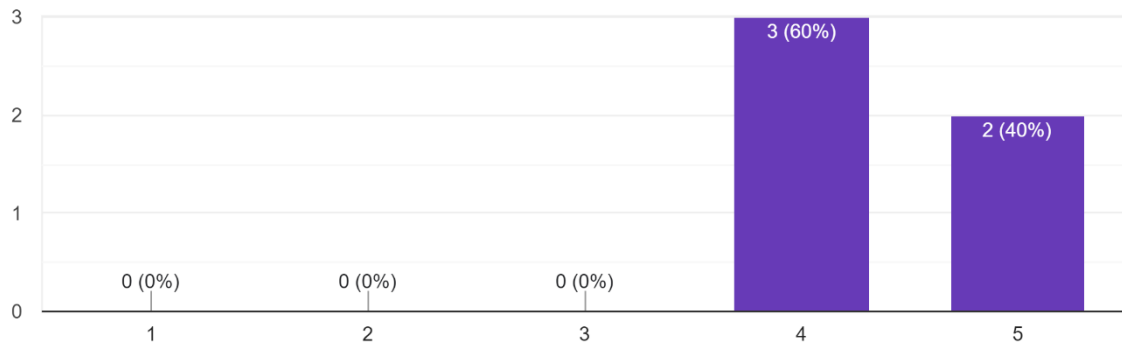
10. VET providers are mostly interested in receiving professional development materials or take part in specific educational mobilities on cloud computing to strengthen their teaching skills

How much would you be interested in receiving professional development materials or take part in specific educational mobilities on cloud computing to strenghten your teaching skills in this field?

5 risposte
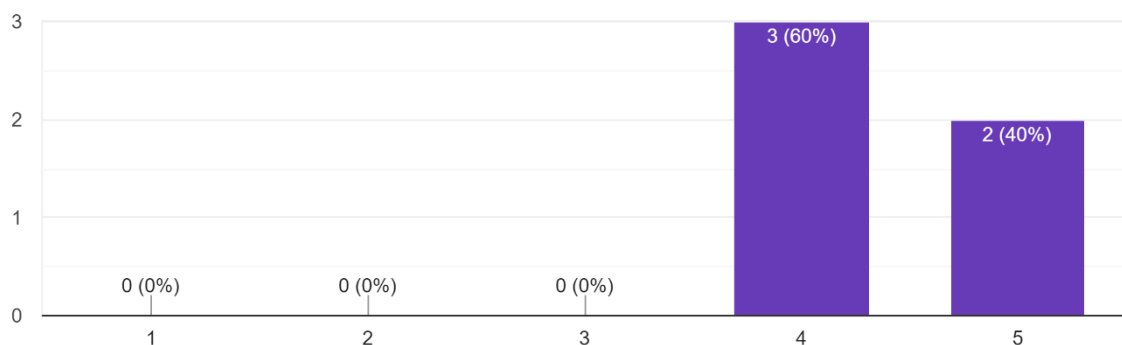
VET LEARNERS

1. The level of familiarity with cloud computing technology is very different among the VET learners interviewed. Although 20% replied that they are familiar with cloud computing, 50% are not that much familiar and a 30% are not at all.

What is your current level of familiarity with cloud computing technology?

10 risposte
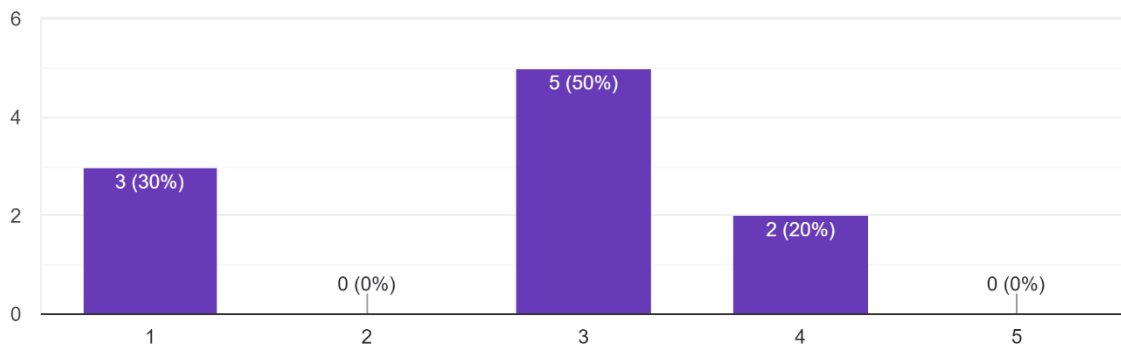
2. 80% of respondents answered negatively. Only 10% of respondents attended courses or training around cloud computing, and only 10% is considering this option. From this response emerges a not too marked interest in the topic, which corresponds perfectly to the responses of the VET providers on the low demand from students with respect to the topic.
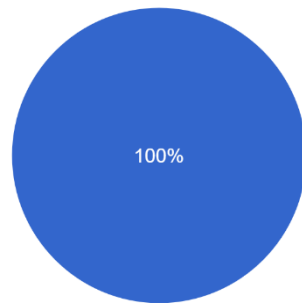
Have you taken any courses or training related to cloud computing?

10 risposte
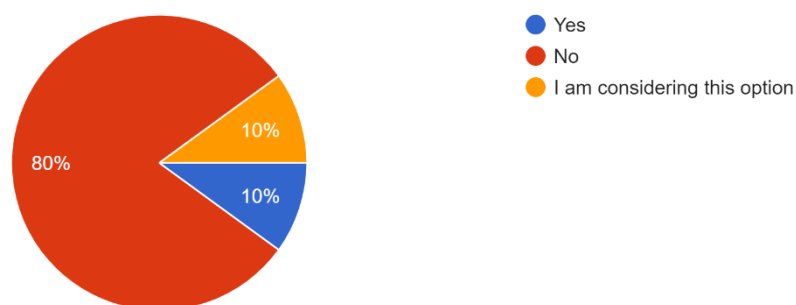
3. About the kind of organization that organized the course on cloud computing, answers are 100% "Public" as in Italy is the main providing service.

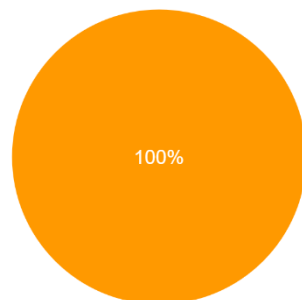what kind of institution the provided was?

1 risposta

- ● Public
- ● Private
- ● NGO (Non governmental organization)

100%

4. Respondents agreed that their level of expertise after the course is Level 3: Ability to implement cloud computing solutions

what level of cloud computing expertise do you possess after taking the course?

1 risposta

- ● Level 1: Basic awareness of cloud computing
- ● Level 2: Familiarity with cloud computing terminology and concept
- ● Level 3: Ability to implement cloud computing solutions
- ● Level 4: Advanced knowledge and expertise in cloud computing

100%

5. Most of VET learners (90%) agree that is important or important enough to possess cloud computing skills for their professional future career.

How important do you think cloud computing skills are for your future career?
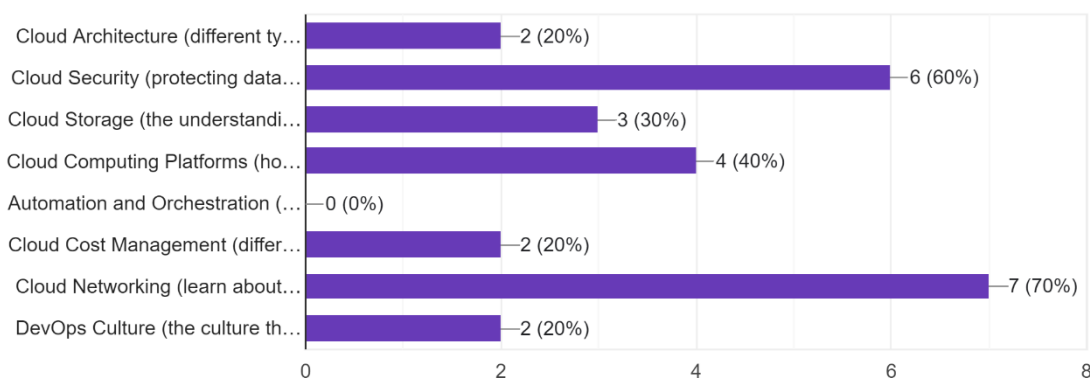
10 risposte
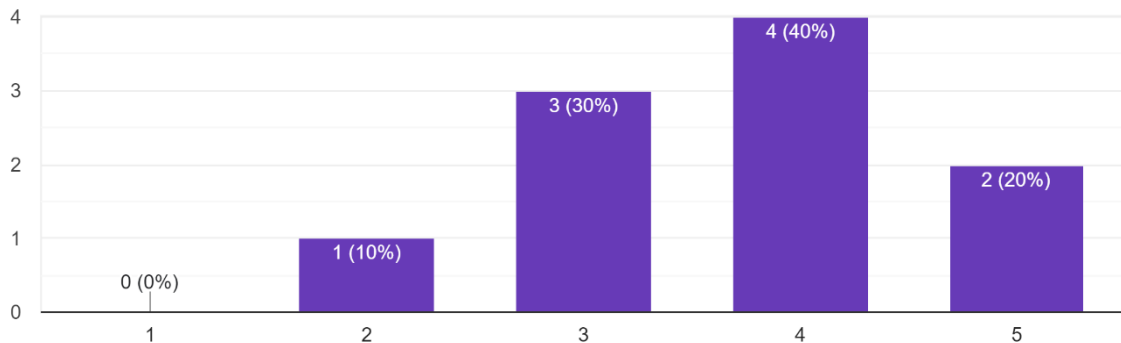
6. In relation to the most important cloud computing skills that VET students should learn, the opinions are different. The most chosen skill are "Cloud Security" – with 6 respondents and "Cloud Networking" – with 7 respondents. However, there is a quite general interest around all cloud computing skills, except for the option "Automation and Orchestration" that none of the voters selected.

In your opinion, what are the most important cloud computing skills that VET students should learn?
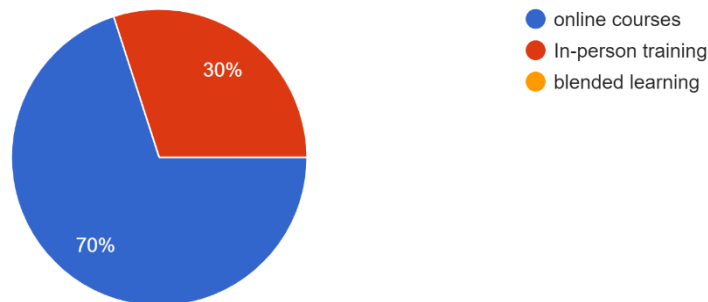
10 risposte

7. Most of VET learners prefer an online training format around cloud computing (70%). None is considering the blended training

What kind of training format do you prefer for learning cloud computing skills?

10 risposte

- online courses
- In-person training
- blended learning

8. Generally, there is a good level of confidence on personal ability to use cloud based software and services. Although most of the respondents have not attended a specific course, they have skills acquired independently.

How confident are you in your ability to use cloud-based software and services?

10 risposte
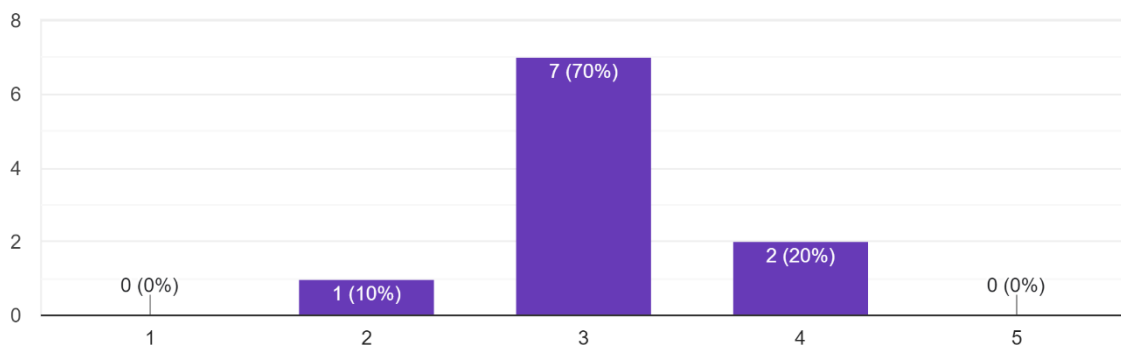
9. Only 10% of the respondents is not interested. All the other VET learners that answered the survey are interested in receiving professional development material or take part in specific educational mobilities

How much would you be interested in receiving professional development materials or take part in specific educational mobilities on cloud computing to strenghten your competences in this field?

10 risposte
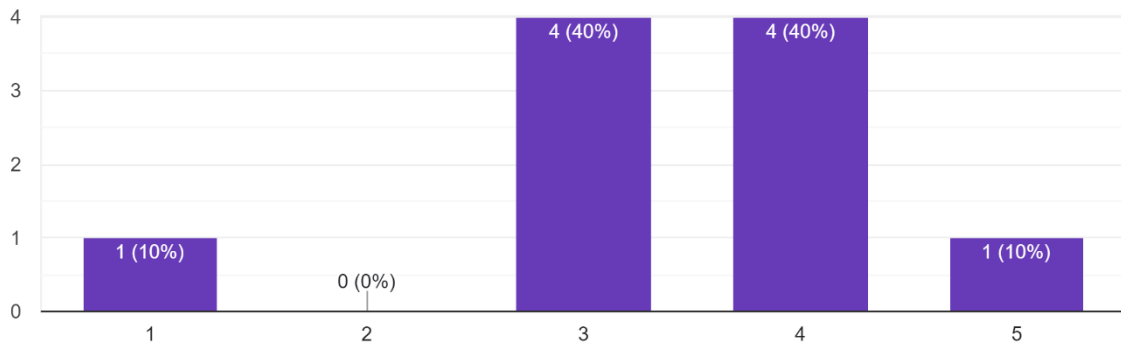
2.2. Analysis of Focus Group Study

This focus group was held under the desk research of the "Up-skilling the VET sector to Cloud Computing" Project with aim of to defining and understanding the state-of-the-art regarding the specific sector of Cloud Computing in partner countries, analyse the specific needs and gaps in the sector, and assess the professional skills needed in the labor market for VET providers. The focus group followed the directions in the research guideline that was elaborated at the beginning of the project.

The following topics were discussed:

1. General Information about Respondents

2. Information about VET situation on the labor market and the existing education opportunities in the cloud computing sector

3. Challenges/obstacles that VET learners are facing to establish a career in the ICT and cloud computing-related professions

4. Comments and personal opinion

Participant Demographics

Moderator: Project referent person of Umbria Training Center

Participants of the focus group research are;

- 3 VET providers
- 16 VET learners (17-18 yo)

Of the Technical Institute Franchetti Salviani school https://www.franchettisalviani.it/

Summary of results

(Including representative quotes, results of yes or no questions, and quantitative data)

Outcome 1: General Information about Respondents (VET providers and VET learners)
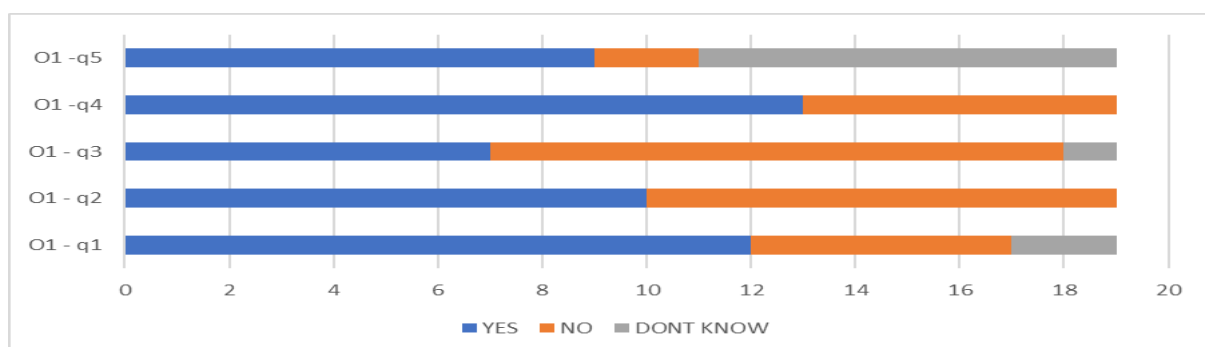
Do you know what cloud computing is?

Are you confident in using cloud computing tools and platforms in your daily life?

Do all of you have a cloud account?

Do you use online storage?

Do you think that having cloud computing skills can improve your possibilities in the labor market?

Outcome 2: Information about VET situation on the labor market and the existing education opportunities in the cloud computing sector (for VET providers)

How well known is cloud computing in the Italian education and professional training system?

How many companies use cloud computing? (in Umbria context)

In student outward orientation activities, is there a relationship between supply and demand regarding cloud computing?

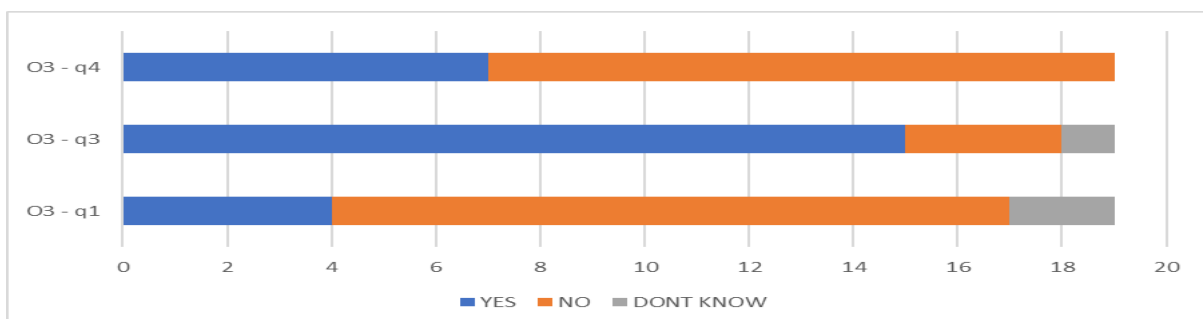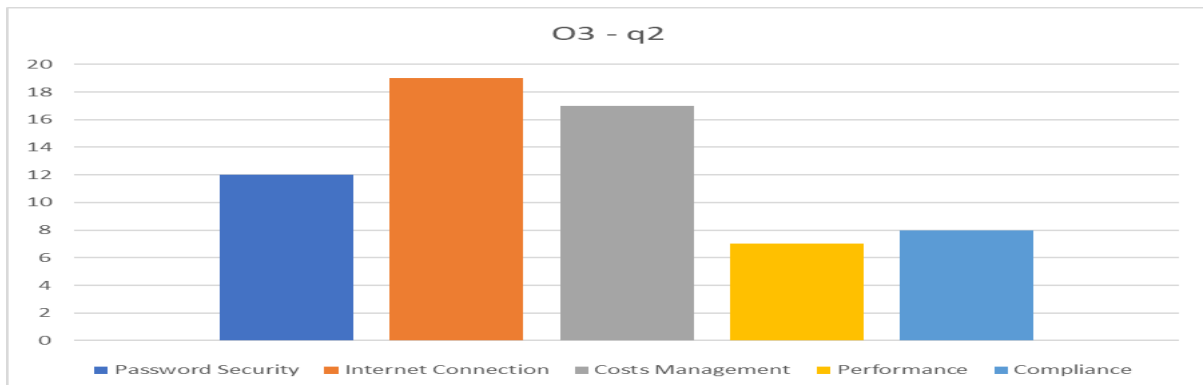Is there a subject/course or training in your school curricula about cloud computing?
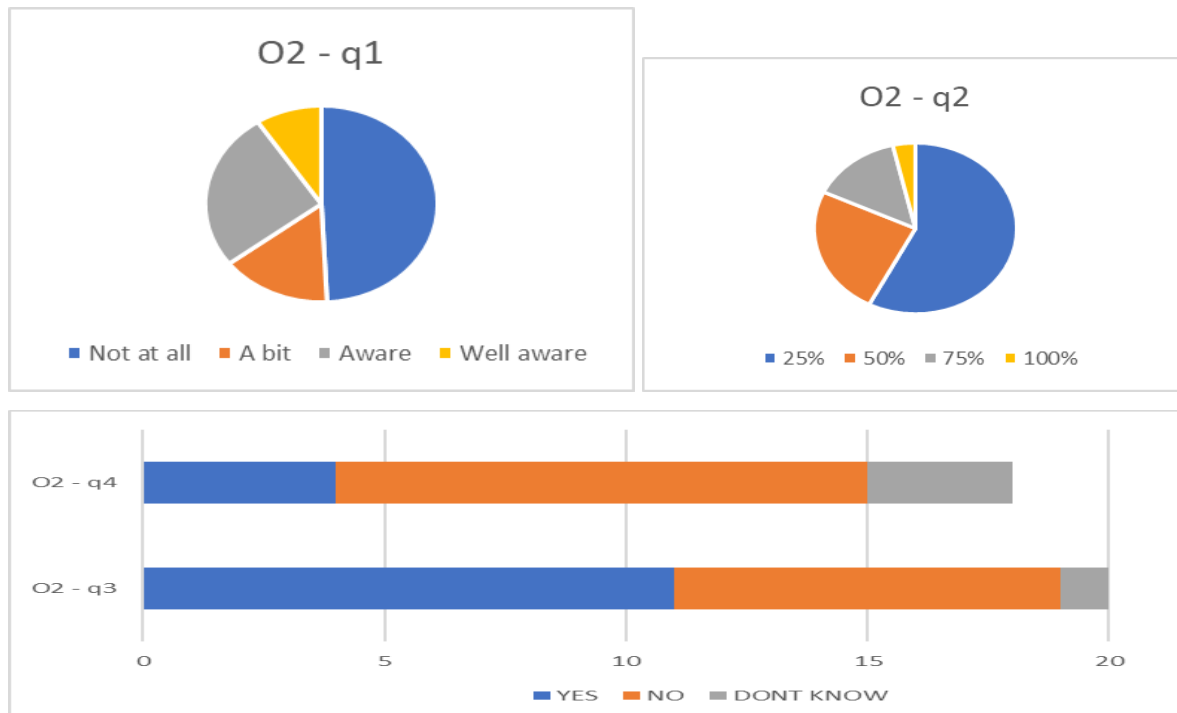
Outcome 3: Challenges/obstacles that VET learners are facing to establish a career in the ICT and cloud computing-related professions (VET providers and VET learners)

Is cloud computing well known and well taught in VET Italian schools / training centers?

What are the main challenges and obstacles that VET learners are facing to start attending a cloud computing course?

Do you think there is a gender gap for those who would like to make a career in cloud computing?

Are you informed about the current training opportunities about cloud computing in Italy?

O3 - q2

Password Security	12
Internet Connection	19
Costs Management	17
Performance	7
Compliance	8

(Legend: Password Security, Internet Connection, Costs Management, Performance, Compliance)

O3 - q4 / O3 - q3 / O3 - q1

(Legend: YES, NO, DONT KNOW)

Conclusions

During the focus group we divided the targets - students and providers. Subsequently we activated a moment of discussion by mixing the targets and the result was strongly positive.

Although it has emerged that in Italy - particularly in Umbria and in the school that lent itself for the focus group - there is still not much knowledge of the importance of cloud computing, young people are strongly interested.

Furthermore, already projected into the world of work and in particular in the ICT sector, they know well that the demand for cloud computing skills is now in great demand.

VET providers must improve their relationship with the local fabric and with businesses and must increase student participation in cloud computing, using it more frequently and systematically in the classroom.

In general, cloud computing is of great interest and the project was innovative and useful for increasing knowledge and attractiveness of the topic.