THE ROLE OF VET CERTIFICATIONS IN MOOCS

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Abstract

Currently cloud computing is an innovation enabler for small and medium enterprises. It fosters cost-effectiveness and competitiveness in companies. However, many of them do not give a stepforward in this transformation process mainly because of lack of knowledge and understanding of the technology. For that reason, the IN-CLOUD project is currently working on developing professional qualifications based on MOOCs to train European SMEs. The resulting courses will be associated to a set of Vocational Education and Training qualification at different levels. Thanks to these courses students will be able to update their technical skills, improve their employability opportunities and get certifications of their acquired knowledge.

Keywords: MOOC, certifications, vocational training, cloud computing.

1 INTRODUCTION

Cloud computing is changing the way SMEs approach to ICT. It is facilitating new corporate and entrepreneurship models at all levels. This breakthrough paradigm applies to companies, public administrations and Universities, and can enhance their innovation, cost-effectiveness and competitiveness [1].

However, there are factors still inhibiting SME’s decision to migrate to a Cloud Computing environment [2][3]. Some of these factors are related to privacy and lack of control over the infrastructures. Other factors are more related to education [4]:

- The lack of understanding of the infrastructure, cost, and appropriateness to the needs and scenarios of different companies from different business environments.
- The ICT skill levels of users, managers, and entrepreneurs.
- The readiness of SMEs to adopt Cloud Computing from a business perspective.
- Less time.

Some of these issues can be addressed by educating employees on the concept of Cloud Computing and developing business-based ICT skills in SMEs [5]. This will allow them to make informed decisions about the appropriateness of Cloud Computing to their business strategy and what aspects can benefit them the most.

In this scenario MOOCs appear to be a good tool to train SMEs employees about this disruptive technology. However, the value of the certificates provided to those students finishing the MOOCs are not usually valid in the labour market. For that reason, UNED is currently working on developing professional qualifications based on MOOCs. We are developing training programs on cloud computing for businesses and Universities [2]. Based on detailed needs and professional skills analysis several courses will be created to cover the current needs on cloud computing.
The resulting courses will be associated to a set of VET (Vocational Education and Training) qualification at different levels. VET is an initiative fostered by the European Commission to have a common academic credit framework for vocational training certification. Thus, thanks to these courses students will be able to update their technical skills, improve their employability opportunities and get certifications of their acquired knowledge.

2 METHODOLOGY

The IN-CLOUD project has been designed in order to raise awareness among European Companies, Public Administrations and Universities regarding how cloud services and technologies can boost economical growth and innovation [6]. This result is pursued by creating VET qualifications for professionals inside European Companies and Public Administrations, and training them to introduce and manage cloud technologies and services inside their systems. The IN-CLOUD partnership involves 8 partners coming from 6 different countries (Italy, Spain, Germany, United Kingdom, Greece and Portugal).

The methodology followed to reach our goals are:

- Analysis of the training needs and of the professional skills related to cloud services and technologies;
- Design of VET Qualifications in the area of cloud computing, based on the European Lifelong Learning instruments (EQF, ECVET and EQAVET);
- Collection of interview and showcases, demonstrating real applications of cloud services and technologies;
- Production and delivery of training courses aimed at achieving the VET Qualifications;
- Virtual bootcamp for an open and continue training in the area of cloud computing.

The learning methodology behind the certifications is based on video-lectures together with additional materials such as interviews to experts (figure 1) and showcases to create a set of concrete examples of application of the Cloud technologies. This will be a real support to the training course and an instrument to facilitate the diffusion of the Cloud technologies.

Figure 1. Example of video interview.

Concise and effective video-interviews (max length 15 min each) will be carried out at distance by all the partners and recorded in terms of videos, that will be available on the project website [7]. People to be interviewed will be selected by the partners at national and international level in Europe and USA. Experts, ICT specialists, managers of ICT infrastructures, researchers, managers of companies and public administrations, experts in technological innovation, creators of ICT start-ups can be among the potential interviewed people.
Showcases will present practical examples of introduction of cloud computing technology into companies and public administrations in order to enhance their services and efficiency. Showcases will be produced in English in terms of texts that will be available on the project website. Each showcase will present the characteristics of target, the reasons why it decided to adopt cloud computing technologies in its infrastructure and an analysis of the obtained benefits.

Regarding the training courses, they will be produced in different languages and addressing different aspects of Cloud computing. The courses will have different targets (companies, public bodies and people in general) and will be created by Universities, SMEs and experts of the sector (work based learning).

3 PROFESSIONAL CERTIFICATION

The IN-CLOUD project will provide 4 different certifications on cloud computing depending on the student profile:

- **Certified Cloud Professional for Business**: it is a basic qualification for all the operators in the business sector. It provides the basics of Cloud computing and an entry-level knowledge of the main applications for business. The certified professional, even without advanced ICT competences and skills, is able to use the most common Cloud technologies and services, is able to evaluate their utility for the company and their cost-effectiveness. Its main didactic units are:
  - Unit 1 Introduction to cloud computing
  - Unit 2 Security basics
  - Unit 3 Cloud models
  - Unit 4 Cloud services and applications for business
  - Unit 5 Legal and technical aspects of cloud computing for business

- **Certified Cloud Professional for Public Administrations**: it is a basic qualification for all the operators in the public administration. It provides the basics of Cloud computing and an outline of the main Cloud applications for the public administration and the citizens. The certified operator is able to adopt (or suggest the adoption) of Cloud services and technologies both for the internal management of the public administration and for the services to the citizenship, evaluating their utility and their cost-effectiveness. Its main didactic units are:
  - Unit 1 Introduction to cloud computing
  - Unit 2 Security basics
  - Unit 3 Cloud models
  - Unit 4 Cloud services and applications for public administrations and for citizens/community
  - Unit 5 Legal and technical aspects of cloud computing for public administration and for citizens/community

- **Certified Cloud Professional for Education**: it is a basic qualification for teachers and instructors operating in schools, Universities and training centres. It provides the basics of Cloud computing and an outline of the main Cloud applications for teaching and learning. The certified operator is able to adopt Cloud services and technologies for managing, creating and delivering didactic contents and to organize new Cloud-based didactic activities, evaluating the utility and the cost-effectiveness of the solutions. Its main didactic units are:
  - Unit 1 Introduction to cloud computing
  - Unit 2 Security basics
  - Unit 3 Cloud models
  - Unit 4 Cloud services and applications for Education and Training
  - Unit 5 Legal and technical aspects of cloud computing for Education and Training

- **Certified Cloud Technology Professional**: it is an advanced qualification for all the operators in the business sector. It provides advanced concepts of Cloud security, Cloud infrastructures and architectures, Cloud virtualization, Cloud storage services. The certified professional is able
to introduce and manage advanced Cloud technologies and services, is able to evaluate their utility for the company and their cost-effectiveness. Its main didactic units are:

- Unit 1 Cloud security
- Unit 2 Cloud models and providers
- Unit 3 Cloud architecture
- Unit 4 Cloud virtualization
- Unit 5 Cloud service and application development and implementation.

4 CONCLUSIONS

The competitiveness and the cost-effectiveness of small and medium enterprises are key aspects to survive, especially in the first five years of their life. Sustaining their grow is essential for the European economy and this can be pursued also improving their digital competences.

MOOCs will have to go on innovating and evolving to be able to meet the labour market needs. Authors have designed several VET official certifications to be launched in 2017 to fill the gap between market needs and current vocational training.

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