

Boosting ICT Entrepreneurship by means of cooperation

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Abstract. Entrepreneurship is recognized nowadays as the driving force of a market economy and technology-driven entrepreneurship tends to become a standard for early-stage businesses in Europe and worldwide. In fact, Information and Communications Technology (ICT) holds a major part of any business nowadays. In this paper, Computing Innovation for Technology Entrepreneurship (CITE) project is presented. The project addresses the development of education for ICT Entrepreneurship in Romania, aiming to increase the development of new businesses, based on innovation and new technologies. By means of this project, both human capital and entrepreneurship initiatives will be enhanced. Founded by the EEA Grants Programme and developed in cooperation between University Politehnica of Bucharest (Romania) and Østfold University College (Norway), the primary targets are the development of teaching materials at master and bachelor level in order to train students in Management and Engineering and in Computer Science but also the development of entrepreneurial skills among academics. Increasing the quality and quantity of Romanian IT-driven business initiatives addresses directly the first two priority sectors of the EEA grants: Innovation, Research, Education and Competitiveness, as well as Social Inclusion, Youth Employment and Poverty Reduction.

Keywords: Entrepreneurship, Lean Startup, Collaboration.

1 Introduction

In this paper, a project called Computing Innovation for Technology Entrepreneurship (CITE) is presented. The project, adopting a Lean Startup approach, is aimed to increase the development of new businesses, based on innovation and new technologies in Romania by means of a collaborative project funded by EEA Grants. The main aims and outcomes of the project will be presented in the last section of the paper.

2 Lean Startup

The lean startup framework is considered as one of the most popular contributions in the practitioner-oriented entrepreneurship literature [12] to become a worldwide practice nowadays [13]. The approach is inspired by the “Lean philosophy” originated in the manufacturing world [14].

The lean startup presents five main aspects in its approach, combining a set of tools from previous approaches:

1. Seeking and prioritizing market opportunities
2. Designing business models
3. Validated learning (including customer development)
4. Minimum viable products (MVPs)
5. Learning whether to persist with or pivot from the current course of action

3 ICT panorama in Romania

Currently, Romania presents just 28 startups per million citizens, compared to 58 in the Central and Eastern Europe (CEE) region and 215 among Digital Frontrunner markets. This is the gap we aim to bridge through this project.

4 The project

In this scenario, there is a need to act in order to maximize the opportunities in the country. In this scenario, the project addresses the development of education for ICT Entrepreneurship in Romania, aiming to increase the development of new businesses, based on innovation and new technologies.

The main objective of the project is the development of materials for the ICT Entrepreneurship discipline in two versions – for master programs in Management and Engineering, as well as for master programs in Computer Science. The transfer of knowledge from the Norwegian side to the Romanian academic staff will help the professors to deal with this challenge in the years to come. Teaching materials like case studies for ICT Entrepreneurship in Romania and in Europe will be provided and developed. Another objective of the project partners is to perform research in IT by means of future projects and related scientific publications. There will be addressed not just the scientific and technical issues related to ICT, but also the methodologies to develop businesses and products. In order to do so, lean startup will be the method to guide these developments.

The target groups for this project are the staff from the Romanian Institution (University Politehnica of Bucharest) receiving assistance in developing new subjects as well as research projects and the Romanian students facing the possibility to start their own companies and to materialize their ideas. Researchers from Romania and Norway will have to guide them in this endeavor, performing research in IT in order to find out convincing business designs and to validate the student's ideas for start-ups.

The best results will be given by successful IT businesses developed in Romania. Research in IT will be performed together with Norwegian researchers in order to foster collaboration in the broad field of computing.

The project integrates well in the efforts to increase the economic, educational and research capabilities of Romania through this cooperation project in higher education. The objectives of the project, together with the activities which will permit their achievement are presented, as follows:

Obj1. Develop materials for the courses. The activities which will target the objective are:

O1 Develop specific curriculum, including teaching materials for the “Information and Communications Technology Entrepreneurship” discipline to be included in the teaching portfolio.

O2 Prepare teaching materials of the subjects included in the curriculum. They will include case studies and business models in ICTE. Former students will participate in the creation and at the assessment of the materials. Practical results from the concluded projects will be included. This represents a lifelong learning strategy, reinforcing the link between higher education and the working force.

O3 (continuous). Prepare web portal with learning materials, included in the website of the project. Include also success stories. Include specific aspects and teaching materials for women.

Obj2. Strengthen the relationship among partners. The activities to target this objective are:

O4 Perform trainer of trainers events. Personnel from the Romanian institution will visit Norway in order to learn from their experience in the field.

O5 Create jointly research papers as well as proposals and look for ideas that can be transformed in practice.

Obj3. Prepare the Romanian students in an established and competitive environment. The activities to target this objective are:

O6 (continuous). Constant training using the web portal

O7 Involve the students to create jointly research papers in ICT and look for ideas that may be transformed in practice.

5 Conclusions and future work

Technology has disrupted the business panorama in general and entrepreneurship in particular. In fact, the so-called Information Technology Entrepreneurship has demonstrated significant contributions to the economical and societal development. Given the relevance of the topic, higher education institutions have not only acknowledged the need to focus on this aspect but also have taken action to enhance IT Entrepreneurship education. One of these attempts is the CITE project, which is a collaborative effort between University Politehnica of Bucharest (Romania) and Østfold University College (Norway). This project adopts a Lean Startup approach and aims to enhance the development of education for ICT entrepreneurship and to encourage the flourishing of new innovative businesses in Romania.

The aforementioned objectives will be achieved through activities undertaken in two directions. Firstly, we intend to develop and provide materials for Romanian students enrolled in the master programs of Management and Engineering and Computer Science. Additionally, trainer of trainers events will be organized to transfer the knowledge in the field from Norwegian to Romanian professors. The collaboration continues with jointly research papers between Norwegian and Romanian professors, with the involvement of students. Another interesting aspect that we will address is increasing the number of woman entrepreneurs in ICT. Despite the fact that the literature focused on women and ICT entrepreneurship is scarce, success cases do exist in practice. By replicating the actions undertaken by other countries, we believe the enhancement of this aspect in Romania will be noticeable.

Future work will focus on preparing the web portal with learning materials, which will be included in the website of the project. This portal will be of use for Romanian students, who will be trained and prepared in this competitive environment. Furthermore, it would be interesting to deeply focus on the phenomena of brain drain and analyze the impact of our undertaken actions on this particular aspect.

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