

Emerging Technologies: Adding Dimensions to Lifelong Learning

Maria-Iuliana Dascalu, University Politehnica of Bucharest, Ro

Constanta Nicoleta Bodea, Radu Ioan Mogos, Bucharest University of Economic Studies, Ro

George Dragoi, Alin Moldoveanu, University Politehnica of Bucharest, Ro

Martina Huemann, Matthijs Schilder, Vienna University of Economic and Business, At



What is the framework of the talk?

- **START-SoPI Project** - Feasibility Study on Implementing a Pan-European Social Platform to Support Lifelong Learning and Employability: <http://startsopi.ase.ro/>



16_PA07-C2, START-SoPI

Stadt Wien

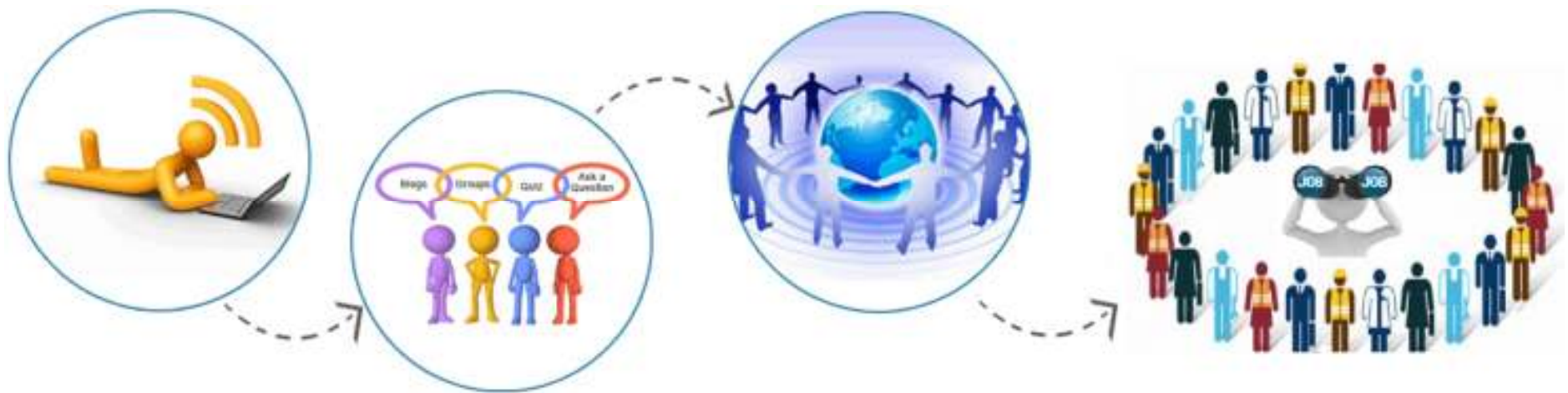
This project is partly financed by the European Union and the City of Vienna.

How to boost graduates' employability through technology supported learning (TEL)?

- debate the adoption of a *social* learning platform to support the highly dynamic industry of consumer electronics' providers (and not only)
- identify the role of emerging technologies on the delivery of such a lifelong learning (LLL) solution



How to get from a *social* learning platform to having a *job*?



Roadmap

- Argumentation
- IT supported-LLL approaches
- Innovative **idea** of IT supported-LLL approach to boost employability
- START-SoPI Project
 - Research methodology
 - Results and analysis
 - Proposed **concept** of IT supported-LLL approach to boost employability
- Conclusions

Argumentation

- Both providers and consumers of new technology have to be highly adaptable and capable of dealing with change: “change is the only constant”.
- Advanced electronic devices open opportunities:
 - for applications running on those devices
 - for the processes which are supported by those applications
- New paradigms of learning have occurred as a consequence of the emergence of virtual reality devices, big data and cloud computing, sensory and ubiquitous technologies, semantic or social ones.
- There is a casual influence between learning and technologies.

IT supported-lifelong learning approaches

- have multiple benefits on the development of:
 - specific knowledge
 - skills for digital inclusion
 - (digital) communication skills
 - interviews skills
 - job searching skills
 - skills to build social relations
 - community engagement skills (for joining groups and taking actions in communities)
- have various forms:
 - virtual learning communities: promote peer-to-peer learning
 - social networks: are major facilitators in the exchange of information
 - online learning environments: revolutionize learning (e.g. MOOCs, xMOOCs, cMOOCs, DOCCs)
- are among the most important providers of opportunities to increase one's employability

Idea of IT supported-LLL approach to boost employability

- Although LLL is known to have positive impact on one's employability, its efficiency is hard to prove.
- Statistics related to graduate unemployment are considered indicators for quantifying educational efficiency.
- A platform which sustains LLL and, in the same time, gives its users the possibility to become visible to employers would clearly show the efficiency of such an educational initiative.
- In order to check the feasibility of such an idea and materialize it in a concept, we conducted a regional study on Danube countries, within the framework of **START-SoPI** project.

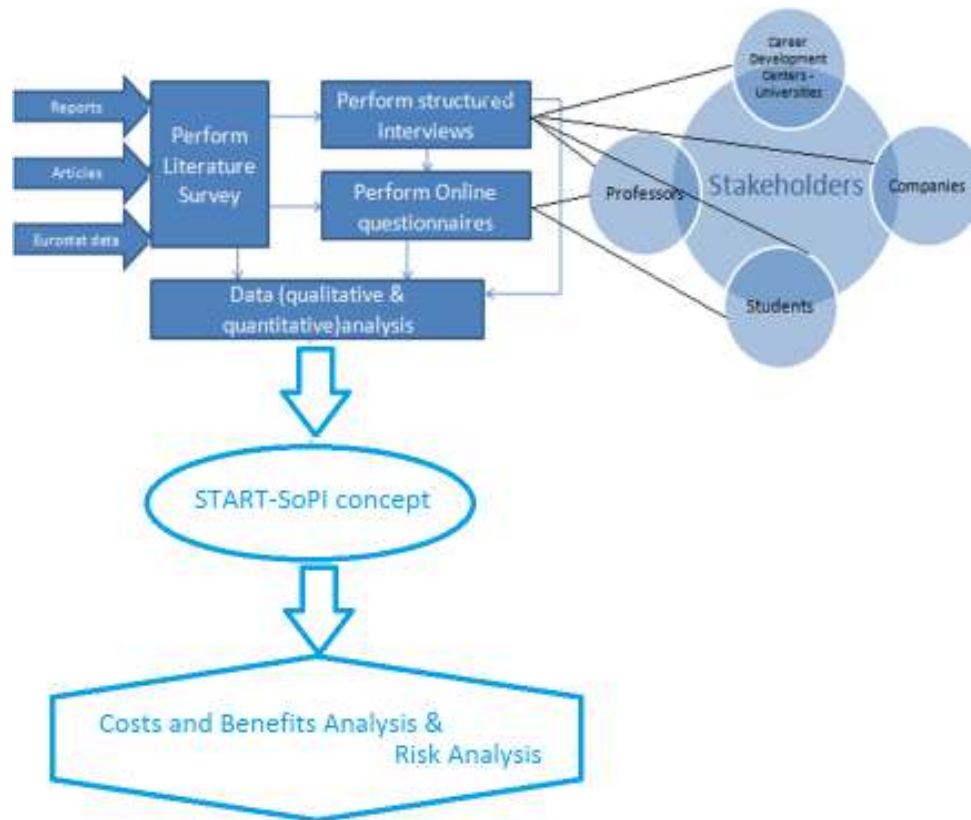
START-SoPI Project: Feasibility Study on Implementing a Pan-European Social Platform to Support Lifelong Learning and Employability

- The project is part financed by START – Danube Region Project Fund, an EUSDR initiative: <http://www.danube-capacitycooperation.eu/>
- START is financed by the European Union and the City of Vienna
- The Danube region includes 14 countries:
 - EU Member States: Germany (Baden-Württemberg and Bavaria), **Austria**, Hungary, Czech Republic, Slovak Republic, Slovenia, Bulgaria, **Romania** and Croatia
 - EU Accession Countries: **Serbia**, Bosnia and Herzegovina and Montenegro
 - Non-EU Countries: Moldova and Ukraine

Pillars	Priority Area	
Connecting the Region	PA 1A	Mobility – Waterways
	PA 1B	Mobility – Rail – Road – Air
	PA 02	Energy
	PA 03	Culture & Tourism
Protecting the Environment	PA 04	Water Quality
	PA 05	Environmental Risks
	PA 06	Biodiversity, landscapes, quality of air and soil
Building Prosperity	PA 07	Knowledge Society
	PA 08	Competitiveness
	PA 09	People & Skills
Strengthening the Region	PA 10	Institutional Capacity and Cooperation
	PA 11	Security



START-SoPI research methodology



- Start: December 2015
- Perform literature survey: January and February 2016
- Perform structured interviews: February 2016
- Online Questionnaires: March 2016
- Data analysis: April and May 2016
- START-SoPI platform concept: May 2016
- Costs and Benefits and Risk Analysis: June and July 2016
- End: July 2016

Structured interviews

Students:

- (A) Data related to the interviewee's profile
- (B) Employability as achievements gained at the university
- (C) LLL activities
- (D) Opinions about the intention to use a social learning platform to increase one's employability.

Professors:

- (A) Personal data
- (B) Employability as curricular process
- (C) The usage of social networks in didactic activities
- (D) Opinions about the intention to adopt a social learning platform to increase employability

Universities/CDC:

- (A) Demographics about the CDC and the interviewee's profile
- (B) The students' employability
- (C) LLL and employability
- (D) Opinions about a social learning platform to increase employability

Companies:

- (A) Data related to the company and the interviewee
- (B) Company recruiting practices
- (C) Methods of maintain/ evaluating the employees
- (D) Opinions about the intention to use a social learning platform as a tool to recruit people

Online questionnaires

Students:

- (A) Data related to the interviewee profile
- (B) Employability as achievements gained at the university
- (C) LLL activities
- (D) Opinions about the intention to use a social learning platform to increase one's employability.

Professors:

- (A) Data related to the interviewee profile
- (B) Employability as curricular process
- (C) The usage of social networks in didactic activities
- (D) Opinions about the intention to adopt a social learning platform to increase employability

- less open questions
- multiple-choice questions
- single choice questions

- yes/no questions
- questions using a 5-point Likert scale

Results - review

- 21 interviews: 4 in companies, 4 with professors, 5 with representatives/collaborators of CDC in universities and 8 with students (enrolled in a bachelor/master/PhD program)
- 391 validated questionnaires of students (out of 394) from various countries
 - Most respondents were students in their last year of bachelor studies or students currently enrolled in a master/PhD program, 71.6% of them having already a job experience.
- 59 validated questionnaires of professors from various countries
 - 15 professors with more than 20 years of experience; 13 professors: between 10 and 19 years; 9 professors: between 5 and 9 years; the rest: less than 5 years

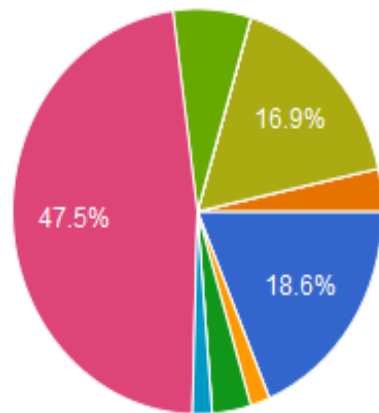
Data related to the interviewee profile - students

Please select the country of provenience: (391 responses)



Data related to the interviewee profile - professors

Please select the country of provenience (59 responses)



- Austria (AT)
- Bulgaria (BG)
- Croatia (HR)
- Czech Republic (CZ)
- Hungary (HU)
- Germany (DE)
- Romania (RO)
- Slovakia (SK)
- Slovenia (SL)
- Bosnia and Herzegovina (BA)
- Moldova (MD)
- Montenegro (ME)
- Serbia (RS)
- Ukraine (UA)
- Other

▲ 1/2 ▼

▲ 2/2 ▼

Results– students (1)

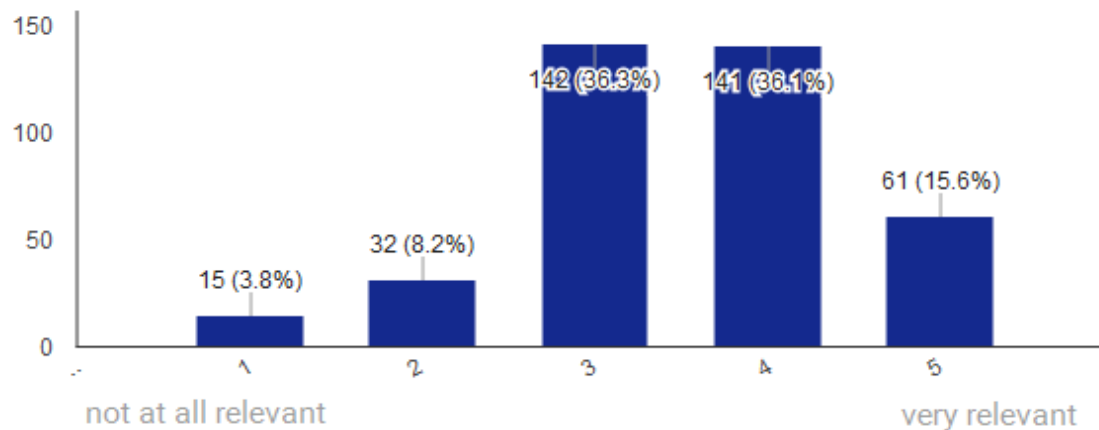
- Most students are active users of SN (82.1%) and use a LMS in classes (75.2%), but only 26.6% of them are members of a professional e-community.
- In LMS, students share content (82.5%), are assessed (48.5%) and collaborate (40.2%).
- Most students consider forums, webinars and chats to foster online collaboration.
- **Unfortunately, even if LMS are highly used in universities, only 32% of the interrogated students see this useful for gaining employability, but 53.6% of them are not decided, so they can be convinced with the right LMS features.**
- Almost 60% of them are connected on SN with colleagues and professors and among the activities they do on SN are: ask and answer questions, friendly chat, make announcements.
- Almost 70% of them acknowledged the role of SN in LLL.

Results– students (2)

- 88% of the respondents admitted that a social learning platform would have considerable enough benefits to the employability level in Danube Region.

Do you consider the development of a social learning platform to increase employability in the Danube region as a relevant initiative?

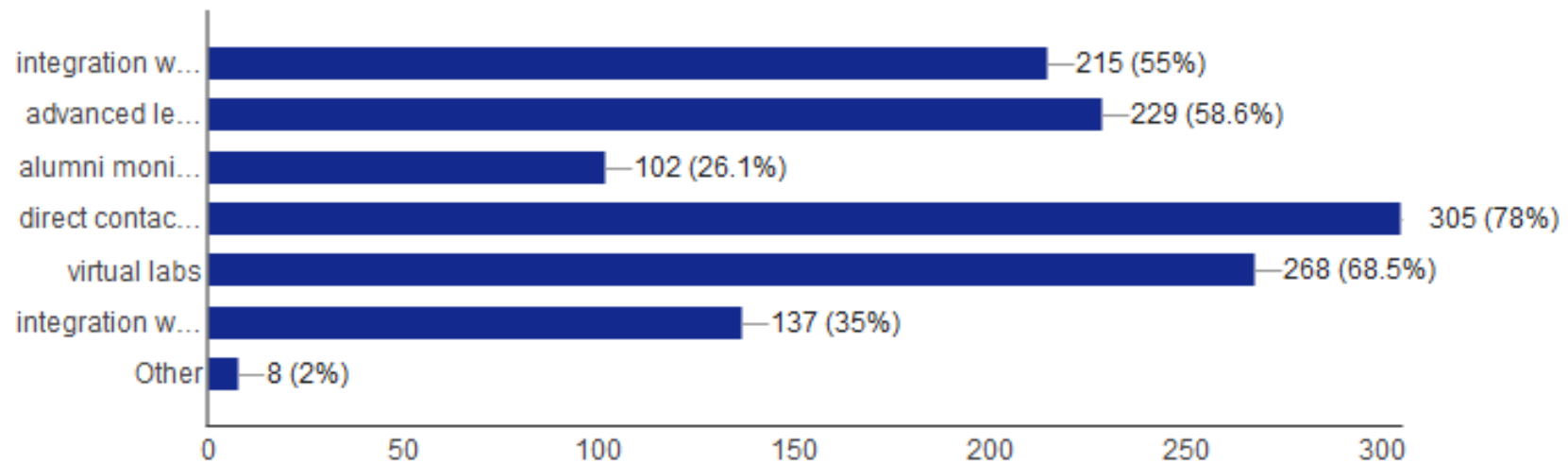
(391 responses)



Results– students (3)

What characteristics and functionalities do you expect for such platform?

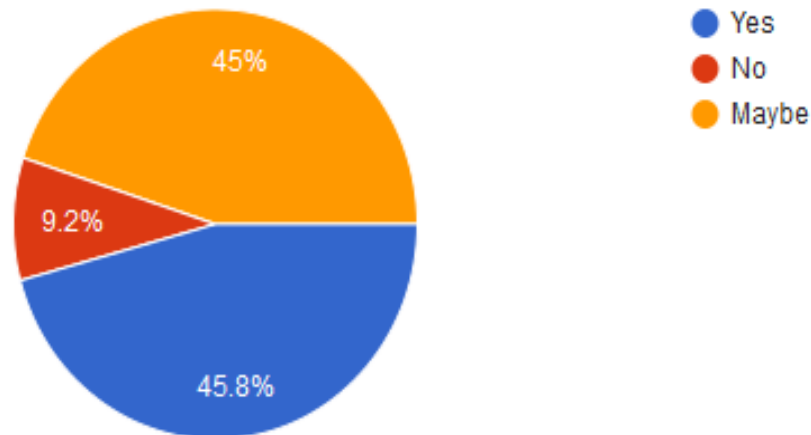
(391 responses)



Results– students (4)

If this kind of social learning platform is available, are you interested in using and promoting it among your peers?

(391 responses)



Results– professors (1)

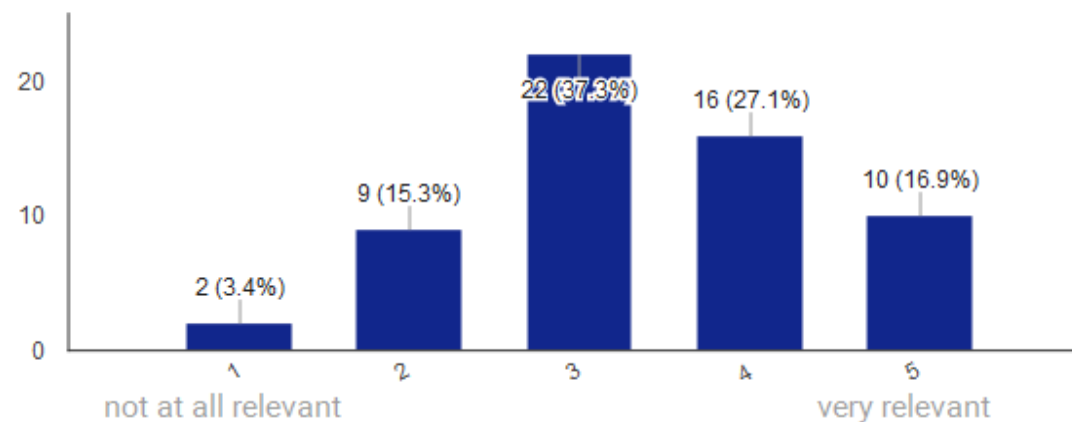
- More than half of the interrogated professors use a LMS in class, especially for content sharing and communication via forums and chats and a SN for keeping the connection with their students.
- The majority of professors is reluctant to grade the students based on the SN activities and they did not notice any clear connection between activity on SN and employability of their students.
- Although more than half of the teachers are aware of the employability status of the students, they did not notice any correlation between grades and that.

Results– professors (2)

- Most professors consider a social LLL platform to be a useful project within Danube Region.
- A respondent mentioned that this kind of social learning platform would be especially useful for domains with lower unemployment rates, than the IT sector.

Do you consider the development of a social learning platform to increase employability in the Danube region as a relevant initiative?

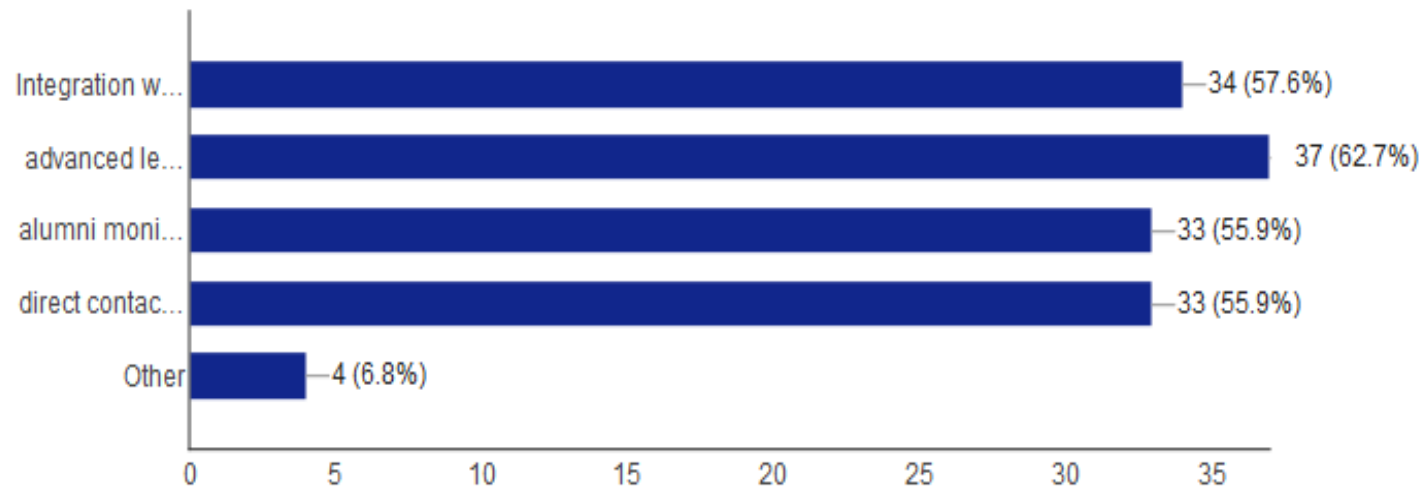
(59 responses)



Results— professors (3)

What characteristics and functionalities do you expect for such platform?

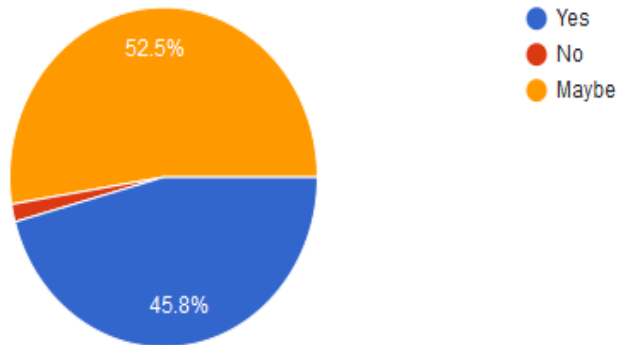
(59 responses)



Results– professors (4)

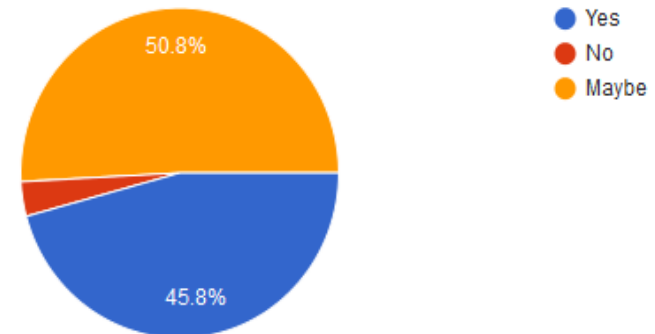
Do you consider that the university would benefit from using such a platform?

(59 responses)



If this kind of social learning platform is available, are you interested in promoting it among your students?

(59 responses)



Results from the interviews

- The results obtained in online questionnaires were similar with the ideas we grasped during the interviews we performed with students and professors.
- Companies admitted they also use SN to recruit.
- CDC from universities are not at all visible, most professors and students did not know about them.

Analysis - objectives

- (O1) to determine the place of LMS and SN within the current practices related to learning/teaching and searching for/offering a job
- (O2) to determine the desired features of an efficient social learning platform, where efficiency means increasing the employability and satisfaction of its users
- (O3) to check whether the idea of the platform would raise any interest among the stakeholders

Qualitative analysis (1)

- The majority of students and professors to whom we talked frequently use both LMS and SN, so a combination between those two would bring benefits.
- Students are very active on social networks, but not so active on LMS, thus using the current social networks or just featuring LMS with social flavor will increase the interests of students towards LMS.
- The perceptions of professors and students regarding activities which increase the employability is slightly different, consequently an analytics module is necessary and a clear presentation of the analytics results, both for students and professors, is also mandatory.

Qualitative analysis (2)

- The following features have to be embedded into our platform :
 - integration with current university LMS
 - advanced learning analytics
 - alumni tracking
 - direct contact with companies which have to have account on the platform
 - virtual labs
 - integration with other social networks
 - possibility to include and share MOOCs in the platform
- Many respondents won't use the platform unless it provides features serving their specific needs => the platform has to be highly customizable.

Qualitative analysis (3)

- Some features require exploitation of emerging technologies:
 - virtual labs imply the use of virtual/augmented reality devices (e.g. head-mounted devices, markers or even mobile phones)
 - connection to other social networks or current LMS can be done only using semantic and social technologies
 - customization can be done via artificial intelligence methods, but also sensors could provide useful information about learners' habits

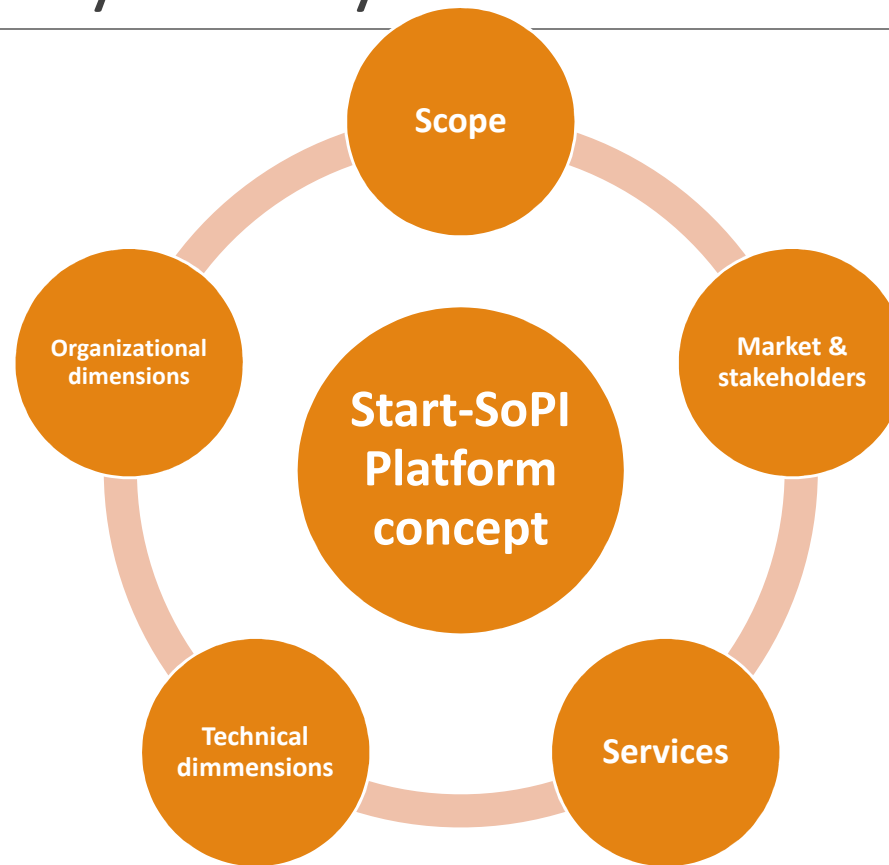
Qualitative analysis (4)

- The idea of a social platform for LLL, which connects companies with students and professors, is seen to be a good idea.
 - Students and professors admit the value of such a platform, especially for Danube Region.
 - Students and professors are willing to promote it (depending on certain aspects, e.g. who is the owner of the platform – universities, companies or they share the ownership? will it be open?)
 - Companies are willing to join such an initiative.
 - Although students ask for a stronger collaboration between universities and companies, they don't use or know the career services which are provided by universities.
- The participants in our study were mainly from Danube Region, but we claim the study is world-wide valuable, especially for countries with a high unemployment rate.

Quantitative analysis

- Dependencies between various variables using the Fisher statistical test:
 - The relationship between the level of education and use of social networks: most educated students do not use social networks; the age factor might be an explanation to this result
 - The relationship between the level of education and job experience: along with the education level, the percentage of the survey participants who have job experience also increases
 - The relationship between the level of education and importance of education to obtain a job: those who have a higher level of education believe that education has helped them in a larger extent to get a job

Concept of IT supported-LLL approach to boost employability



Scope

- interconnect social learning and recruiting, with the purpose of increasing graduates' employability
 - supports **several types of users** – learners/students and recruiters/companies (displays all the recommended e-learning communities based on user's profile: the learner has the choice of enrolling in a community, while a recruiter can follow a community), professors and universities/career development services can follow graduates.
 - facilitates the access of knowledge workers to suitable e-learning communities, taking into account their profiles, through an **ontology-based recommendation mechanism**
 - builds learners' profiles, in a quick and accurate manner, via **social network connectors** (developed with existent social network APIs)
 - promotes collaboration and makes it a central driver in e-learning, by providing a dedicated forum for each **e-learning community**
 - motivates learners by implementing a **gamification principle**: awards their exceptional virtual behavior with points given by communities' members
 - gives high visibility to the most appreciated learners and **recommends them to employers** who joined the platform

Market and stakeholders

➤ Market

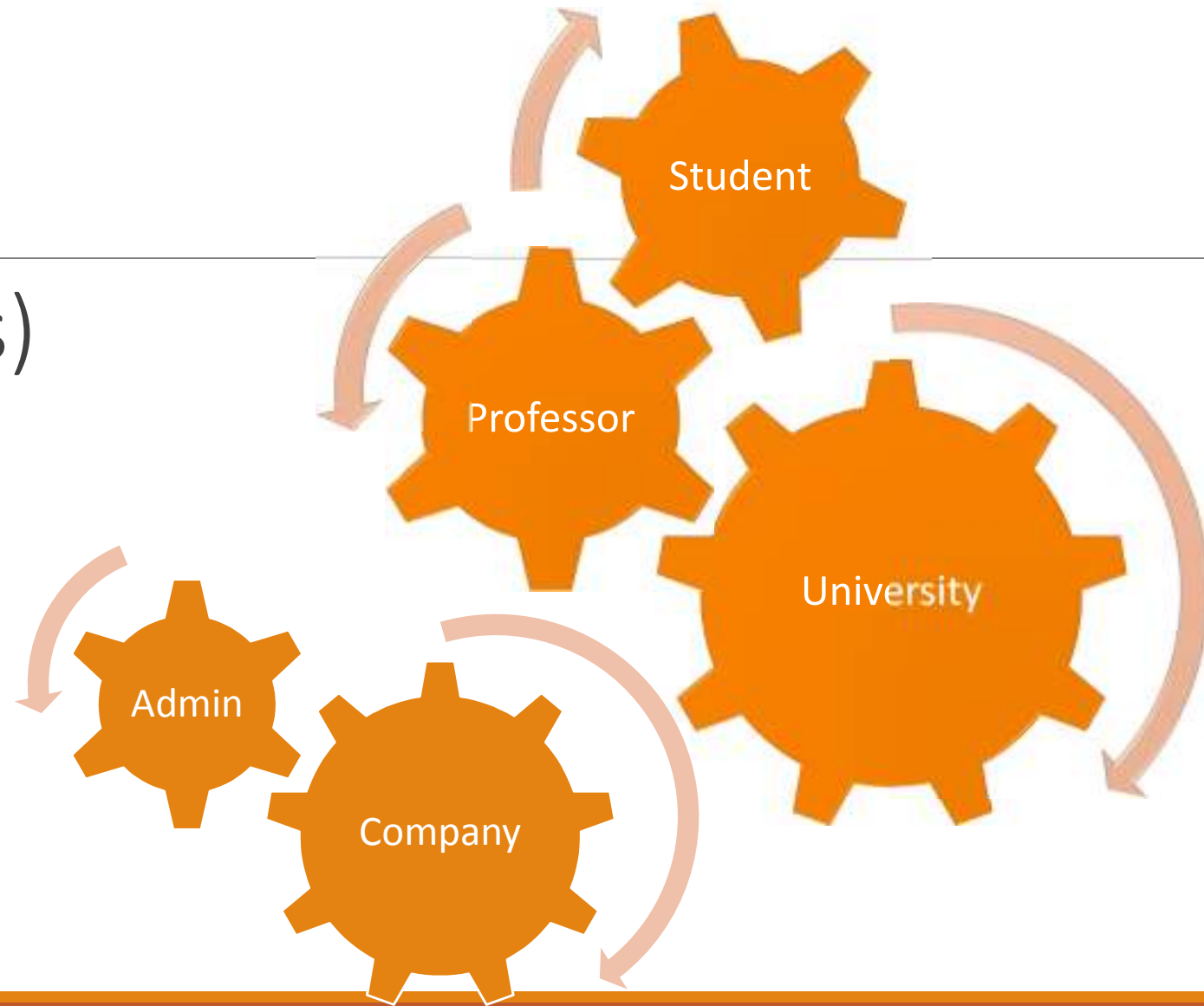
- Danube Region (mainly)
- World-wide (secondary)

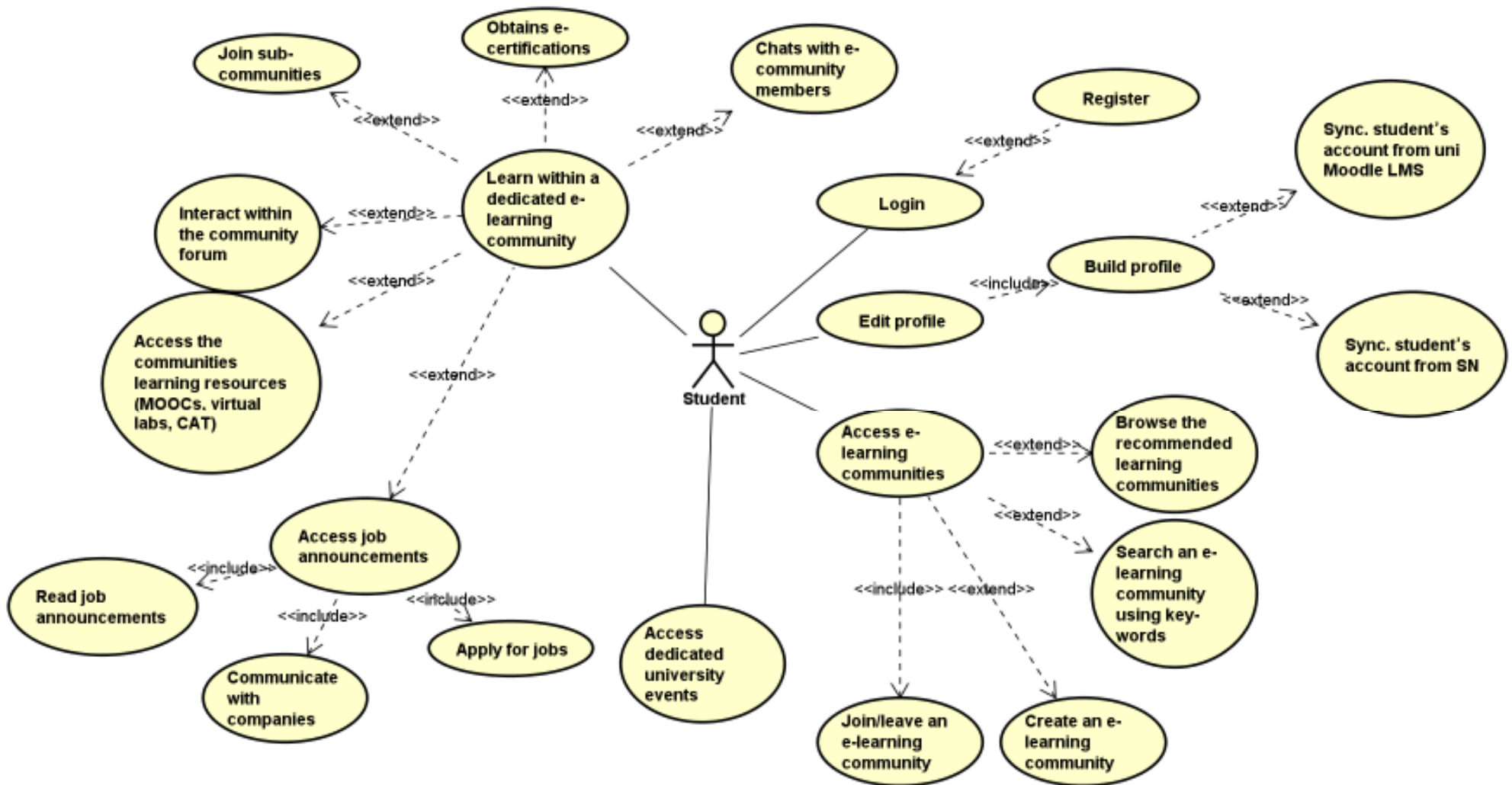
➤ Stakeholders and main target groups of the platform

- Students/graduates
- Universities/career development centers
- Professors
- Companies

- **Other users or subgroups may be:** young professionals, (senior) professionals, SMEs, corporates, executives, senior programmers, personnel department representatives, professors and lecturers, career development centers, universities of applied science, high schools

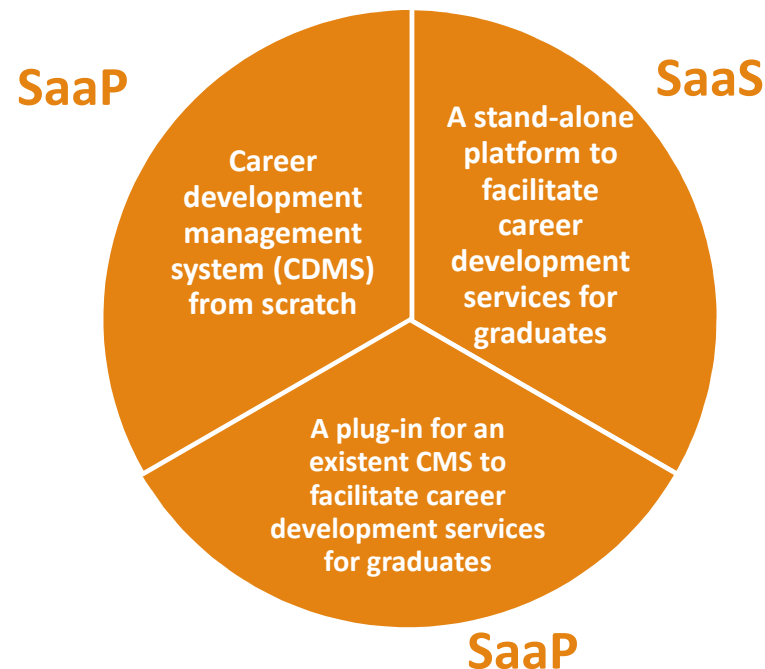
Services (modules)





Professors	Universities	Companies	Admin
<p>Login (after the account is validated by the admin)</p> <p>Build one's profile</p> <ul style="list-style-type: none"> Sink student's account from Facebook/LinkedIn/Twitter social network (optionally) Edit profile <p>Access e-learning communities</p> <ul style="list-style-type: none"> Join sub-communities Browse through/analyze community forum Post learning resources <ul style="list-style-type: none"> MOOCs, integrate university LMS courses, other educational resources Virtual labs Computer Adaptive Testing Chats with e-community members <p>Track alumni</p> <p>Access dedicated university events (posted by universities)</p>	<p>Login (after the account is validated by the admin)</p> <p>Build one's profile</p> <ul style="list-style-type: none"> Sink student's account from Facebook/LinkedIn/Twitter social network (optionally) Edit profile <p>Track alumni</p> <p>Create university events</p> <p>Communicate with companies</p> <p>Make statistics</p>	<p>Register</p> <p>Login (after the account is validated by the admin)</p> <p>Build one's profile</p> <ul style="list-style-type: none"> Sink student's account from Facebook/LinkedIn/Twitter social network (optionally) Edit profile <p>Access e-learning communities</p> <ul style="list-style-type: none"> Join sub-communities Browse through community forum Post learning resources <ul style="list-style-type: none"> MOOCs, other educational resources Virtual labs Computer Adaptive Testing Post job announcements Search for possible employees and contact them <ul style="list-style-type: none"> Using keywords Using ranks: the most appreciated learners (the ones with more points) are recommended to employers Post certifications Chats with e-community members <p>Access dedicated university events (posted by universities)</p>	<p>Super-account (can do anything)</p> <p>Specialized tasks:</p> <ul style="list-style-type: none"> Validate accounts, taking into account the faculty, specialization, group etc Make statistics Imports/exports accounts in specific formats

Technical alternatives and details



- Computer Adaptive Testing (CAT)
- Ontology-based recommendation:
 - each user the possibility to find virtual communities tailored on one's profile, in which members can learn from each other and increase their professional visibility, thus becoming more employable
 - The mechanism is based on users' data retrieved from platform activities and social interactions, passing it through an ontology in order to classify the user, with the aid of a reasoner, and obtain relevant information for the platform

Organizational dimensions

- The organization of the platform is divided into the following roles:
 - SoPI developer
 - Owner
 - company
 - university
 - joined consortium
 - Company
 - University (includes students, professors, CDC)
- The responsibilities of each role depend on the chosen technical alternative

Conclusions

- The **idea of Start-SoPI** project was to check the feasibility of a social learning platform, embedding recruiting features and aiming to increase graduates' employability level
- The **concept of the Start-SoPI** social learning platform was defined based on the answers received during interviews and questionnaires mainly from Danube Region respondents
- If implemented, the concept might bring a regional value, but also a global one

Thank you!

Contact: sopi@ase.ro

<http://startsopi.ase.ro/>

Questions?

Please join **START-SoPI** team at the workshop

“Multiple stakeholder perspectives on costs and benefits of an innovative social learning platform: the case of SoPI Learning platform”

