T.I.M.E. Project

Boosting Relationships between Academia and Industry (BRAIn)
Final Report

Summary of the Project

The BRAIn Project focuses on bridging the competencies gap between university education outcomes and the demands of industry, being implemented in collaboration with KTH Royal Institute of Technology in Stockholm and Instituto Superior Tecnico of Lisbon. The project aims at developing the innovation competence of bachelor’s and master’s students in the three partner universities.

By the end of the project, the students will be able to:
- to practice innovation related tasks (solving real, low-structured problems, understanding societal issues);
- to develop innovation self-efficacy;
- to practice teamwork in an intercultural environment;
- to practice design-based learning in authentic learning contexts entailing the process of framing, researching, and testing solutions to real problems.

The project blends face-to-face training with online learning.

Between 20th to 24th of May 2019 University POLITEHNICA of Bucharest hosted the first training session focused on design thinking (DT) methodology.

Design Thinking Training Session in Bucharest

Objectives of the first training session

This first session aimed at achieving the following goals:
- develop new capabilities related to the use of DT methodology;
- develop a student teams to practice DT when working on real-life challenges/themes proposed by the industry partners;
- have templates and toolbox to take DT into daily routine;
- make 6-8 coaches from industry partners familiar with DT methodology of IDEO/HPI.
- enable the overall purpose of the project by creating more “hireable” workforce.

Activities

Day 1 & Day 2

During the first two days, the participants were introduced to design thinking methodology, as a specific approach to consumer-oriented innovation. Being a Human Centred Approach, in the middle of the whole approach stays the interaction with the client. Thus, the focus of the training session was on methods of customer interaction during the product definition phase with a methodological focus on Design Thinking.
The program delivered support for student innovation teams in all the phases of Design Thinking:

- **Understand**: Framing a proper Challenge and Formation of the Innovation Team
- **Empathise**: Deep Immersion in Customer Needs
- **Define**: Breakdown and Reframe the Challenges
- **Ideation**: Use of proper Ideation Tools in order to increase Productivity of the Ideation Process and get Radical Ideas
- **Prototype**: Fast Prototyping and Evaluation methods
- **Test**: Prototypes are tested and the solutions are Iterated further towards MVPs

In addition to this, the industry partners assigned coaches who offered technical support and provided insight on projects that the participants embarked on.

Figure 1. Design Thinking Training Outline - Day 1

Figure 2. Design Thinking Training Outline - Day
The students worked in four teams, on the chosen topics:

- **Challenge 1**: Mobility as a Service in your Cities;
- **Challenge 2**: Electro Mobility (E-Mobility);
- **Challenge 3**: Intelligent and flexible system of advanced monitoring and inspection based on elements of artificial intelligence for critical infrastructures (with drones);
- **Challenge 4**: Mobile autonomous communication system based on aerial platforms.

### Day 3
Following the stages of design thinking methodology, on the third day, the participants reviewed the prototype stages and worked in teams to develop prototypes. The activity of each team was assisted by industry partners and UPB teachers.

### Day 4
On the fourth day, the teams tested the prototype and started working on the final presentations, having also a public speaking workshop in support.

### Day 5
On the last day, the students had to pitch their ideas in front of a jury, being also video recorded for further analyses and discussions. The participants had the occasion to carry on cultural activities in the meanwhile, visiting the capital of Romania, Bucharest.

Watch [here](#) a short video presenting the students activity.

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**Figure 3. Students, teachers and business partners working during the training session**

Training materials are available [here](#)
Online Training Session

On October 25th took place an online training session addressing team leadership skills. Participants in the Leadership Skills seminar learned to:

- Implement practical steps for self-improvement
- Master the fundamentals of leadership
- Build confidence
- Set long-term/visionary goals
- Understand how leadership styles affect team members and how to adjust those styles to gain commitment
- Build trust and reduce resistance to change
- Sharpen communication and people skills to energize your entire team for higher productivity and greater success

![What Does It Take To Be a Great Leader?](image)

The participants also completed asynchronous assignments. The designed learning activities targeted both individual study and reflective activities, as well as activities that can be performed in dyads or small groups, respectively self-evaluation activities (see Figure 5).
Training and Pitching Sessions in Lisbon

Between 4-5 November 2019, Instituto Superior Tecnico in Lisbon hosted the final training session focused on refining the prototypes and delivering the final pitching presentations. The students worked together with their mentors and refined the stages of the design thinking methodology.
Firstly, the students were guided to design and to administrate a short survey in order to test the opinions on their proposed prototypes. The results were briefly analysed and presented.
In order to facilitate the design of the prototypes, two instruments were developed (see Figure 9 and Figure 10).

Figure 9. Initial solution canvas

- **Title of the solution**: 
  - Initial solution canvas

- **Challenge addressed**: 
  - 

- **Solution description**: 
  - Please describe your solution. What is your final product/service/idea? How does the solution address the challenge?

- **Target group**: 
  - Who is the target group for your solution?

- **Innovativeness**: 
  - What makes your solution different and original? How innovative is it?

- **Impact**: 
  - What is the impact of your solution? How do you measure it?

- **Transferability**: 
  - Can your solution be applied in other contexts? How can it be applied to other contexts?

- **Sustainability**: 
  - What is your plan for the implementation of the solution and how do you ensure its long-term viability?

- **Teamwork**: 
  - How well did you work as a team? Could you continue to work as a team in the future?
As presented in Figure 10, the focus of the final session in Lisbon was on project management aspects (budget planning, risk, and time management).

Figure 10. Improved solution canvas

Figure 11. ElectroGuys Team’s Improved Solution Canvas
Academia and industry partners worked together through coaching methods to facilitate the achievement and development of innovation skills in order to reduce the gap between employers’ requirements and academic curriculum. The outputs of the project are:

- 1 training guide on developing innovation skills (work in progress);
- 1 face-to-face training session aiming at developing innovation and design-thinking skills students;
- development of the Brainners online community of practice to support problem-based learning and coaching interventions (www.brainners.ro);
- 1 online training session on Team Leadership Skills
- the first generation T.I.M.E. Ambassadors of Innovation (BrAIiners) who will be able to train and coach undergraduate students to develop innovation skills;

**Media channels to communicate project’s activities**

Facebook page available at https://www.facebook.com/BRAIn-270868280483156/

Instagram: https://instagram.com/brain.project19

Twitter: https://mobile.twitter.com/BRAInProject4

Website http://www.brain.upb.ro/

**Target group and impact**

The main target group of the project are BSc and MSc students enrolled in a university programme from all the three members of the consortium. The selected group of students participates in all activities proposed within the project: face-to-face and online training sessions, study visits, project-based learning activities, and coaching sessions.

The impact of the BRAIn Project is intended to be visible at the level of various beneficiaries as follows:

- The academic staff participating in the project will gain experiences and new skills regarding design thinking, design-based learning, and project-based learning, which could be easily transferred to new instructional contexts. In addition to this, the faculty members will sharpen their intercultural competence by working with intercultural teams of students.
- At the institutional level, the project will support the inception of a culture of innovation to be eventually transferred in the process of curriculum design. Moreover, the universities participating in the project will benefit from an increased support and involvement of other local and international stakeholders: organizations providing non-formal education and industry partners.
- At the local level, University POLITEHNICA of Bucharest is an active member of the Alliance of National Technical Universities. This will offer the ideal context to disseminate the results of the project and to promote the concept within the members of this
alliance. Other universities will be able to use the training guide and to benefit from the knowledge and skills of the BrAInners.

### Sustainability of the project

With support from the BrAInners and from the industry partners, the members of the consortium will work together to continue the annual implementation of the project.

<table>
<thead>
<tr>
<th>Year of Implementation</th>
<th>According to the current description of the project.</th>
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<tbody>
<tr>
<td><strong>1st year of</strong>&lt;br&gt;(2019-2020)</td>
<td><strong>Main activities:</strong>&lt;br&gt;- promoting the educational programme via social media;&lt;br&gt;- applying for new funding to support the project;&lt;br&gt;- open a call to coaches from industry in order to assure a dynamic implementation of the programme;&lt;br&gt;- organizing a new edition of the programme with multinational participation;&lt;br&gt;- organizing a training session for new BrAInners.</td>
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<td><strong>2nd year of</strong>&lt;br&gt;(2020-2021)</td>
<td><strong>Main activities:</strong>&lt;br&gt;- promoting the educational programme via social media;&lt;br&gt;- applying for new funding to support the project;&lt;br&gt;- inviting other international partners (universities and business representatives) to participate in the project implementation;&lt;br&gt;- inviting other local partners to participate in the project (e.g. universities members of the Alliance of National Technical Universities);&lt;br&gt;- organizing a new edition of the programme with multinational participation;&lt;br&gt;- inception of the BrAInners Alumni Community which will ensure the know-how transfer to newcomers.</td>
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<td><strong>3rd year of</strong>&lt;br&gt;(2021-2022)</td>
<td><strong>Main activities:</strong>&lt;br&gt;- promoting the educational programme via social media;&lt;br&gt;- applying for new funding to support the project;&lt;br&gt;- inviting other international partners (universities and business representatives) to participate in the project implementation;&lt;br&gt;- inviting other local partners to participate in the project (e.g. universities members of the Alliance of National Technical Universities);&lt;br&gt;- organizing a new edition of the programme with multinational participation;&lt;br&gt;- development of a MOOC on Innovation skills in Engineering; &lt;br&gt;- design of an elective course for undergraduate students.</td>
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<td><strong>4th year of</strong>&lt;br&gt;(2022-2023)</td>
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# Project expenses

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<td>International transportation</td>
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<td>Website &amp; Brainners.ro platform</td>
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# Members of the consortium

**University POLITEHNICA of Bucharest**

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