



**WINNOVATORS**

Boosting entrepreneurial and  
STEAM capacity

# Winnovators eTraining and Coordination

**WINNOVATORS** project

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“Boosting young women entrepreneurial spirit and skills to become the Women INNOVATORS of the future”

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## PUBLISHABLE SUMMARY

This report focuses on the WINnovators eTraining and coordination procedures. They were first implemented during the piloting phase of 2023 in Estonia, Serbia, and Slovenia. The WINnovators training practices and coordination strategies are designed to build the capacity of higher education institutions (HEIs), organizations for innovation and entrepreneurship (OIEs), and local communities. These methods specifically aim to empower young women in rural areas by facilitating their collaboration with HEI students and OIE experts to foster learning and develop innovative job ideas in a team-oriented environment.

The report highlights approaches to engage HEI students and young rural women in acquiring WINnovators competencies through e-learning tools. The first module, Community STEM and STEAM Entrepreneurship Challenges, features team-based learning activities. These activities guide young rural women in generating innovative ideas in STEM/STEAM, sustainability, and entrepreneurship. Given the diverse expertise of participants—including young women, students, and local mentors—unique challenges were developed in Estonia, Serbia, and Slovenia.

This document also lays the groundwork for Module 2 of the WINnovators e-learning platform, providing interaction guidelines for capacity-building training both in the WINnovators virtual space and local contexts. The content for this module was created with insights from the second year of the project's pilot phase and underwent testing in the third project year.

### KEY MESSAGES:

- WINnovators eTraining and coordination procedures were successfully implemented in Estonia, Serbia, and Slovenia.
- Strategies were developed to engage HEI students and young rural women in acquiring WINnovators competencies.
- Guidelines for capacity-building training in the WINnovators space and local contexts were established.

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## INTRODUCTION

The document describes the activities in Estonia, Serbia, and Slovenia's within the pilot I and pilot II programs. The WINnovators' program's planning, implementation, and evaluation will also be examined to determine how it promotes cross-university and local ecosystem capacity development in sustainability, digital transformation, STEM/STEAM, and entrepreneurship:

- Create empowering organizational structures that boost target group involvement and leadership.
- Improve target groups' problem-solving skills, including root cause analysis and resource mobilization.
- Improve community and organizational relationships.
- Give target groups more control over activity decisions and activities.

The following points are discussed to examine these issues:

- Strategies to attract and engage young women.
- Targeted student engagement strategies.
- Strategies to promote student-young woman collaboration, including student tasks.
- Higher education institution (HEI) mentors and teachers.
- Coordination results: learning outcomes + project results.
- Lessons from piloting.

The WINnovators project builds digital, entrepreneurial, STEM/STEAM innovation, and sustainability capacity to assist rural young women, college students, and instructors. STEM / STEAM involves creating innovative teaching tools that promote creativity, critical thinking, and problem-solving by integrating science, technology, engineering, art, and mathematics (White, 2014). It targets rural and outlying 19-29-year-old women. Due to the epidemic, lack of expertise and abilities, and lack of mentors and partners to help them improve their innovative company methods, these individuals are facing socio-economic issues. These young women are at risk because they lack local opportunities to meet people who can help them create new ideas. The WINnovators challenge promotes equity for young women in remote or rural areas, small islands, or peripheral regions who face economic and geographical barriers. The WINnovators project team believes that enabling rural residents can inspire them to update their ideas and pursue urban and beyond prospects. In many nations, equitable rural development is essential for balanced development since it expands the countryside's role beyond supplying urban regions. In addition, informal e-Learning provides "missing links" that traditional schools miss (Eshach 2006). It may help underprivileged students catch up to their peers by meeting their educational demands. It may not guarantee equal opportunity, but it gives marginalized groups new job options.

European institutions from Estonia, Serbia, Slovenia, Romania, and Italy form the project consortium that collaborates with the young women, as well as additional parties, such as:

- University teachers—experts from different fields (pedagogy, social sciences, computer science, information systems, finance, marketing, management, etc.) with skills in creating online courses.
- University students—primarily female students— who mentor targeted young women in their activities and help them come up with innovative, feasible, and sustainable business ideas.
- education management bodies and policy makers in the partner countries; individuals and organizations responsible for advancing educational regulations to enable disadvantaged individuals to get access to high-quality education and overcome geographical, social, financial, and other obstacles on that path.
- educational associations, networks, and training and research centers—organizations with large lists of contacts that provide knowledge transfer to targeted learners and encourage and incentivize the learners to develop their entrepreneurial skills.
- relevant SMEs and technology transfer consultants—IT, business, and educational technology companies with trained and skilled employees that support technical, innovation, and business aspects of the project.

The WINNovators project co-develops and implements innovative teaching and learning methods and concrete policies for capacity development in digital, entrepreneurial, STEM/STEAM innovation, and sustainability fields, which benefit rural young women and HEI students and educators in the short and long term. Four interdependent pieces make up the project results:

- The WINnovators Training Practices Collection aims to transform higher education practices and equip students with tools to become capacity-building agents in their communities, adding value to their learning.
- The WINnovators learning program uses gamification to create capacity through the construction of an educational Open Innovative Ecosystem (OIE). Gamified concepts are projected to help

marginalized young women in rural and peripheral areas develop entrepreneurial, STEM/STEAM digital skills.

- The WINnovators Interactive Working Space, an e-learning platform with rich tools for teachers and students. Gamifying the engagement promotes STEM, creativity, and entrepreneurship among college students and young women.
- WINnovators e-Trainings and Policies provide learning opportunities for young women at risk of marginalization in rural areas and suggest policy measures to improve cooperation and capacity building among policymakers, students, and businesses.

## WINNOVATOR'S SPACE: WEB PLATFORM FOR CAPACITY BUILDING

WINnovators aims to implement innovative teaching and learning methods, such as gamification, to enhance capacity development in the digital, entrepreneurial, STEAM, and STEM fields. The program specifically focuses on underrepresented groups, such as women from rural areas, with the goal of promoting gender equality. In order to achieve this objective, the WINnovators team has developed a competence-based gamification system for the WINnovator web platform, where new STEM/STEAM, innovation, and sustainability skills among young women from rural areas are promoted through developed online courses. This platform aims to stimulate the acquisition of new STEM/STEAM, innovation, and sustainability skills among young women from rural regions through online courses that have been designed. Specialized courses are designed for various industries with the aim of empowering young women residing in rural areas to improve their abilities and use them towards achieving a higher standard of living. A novel training methodology is suggested via the platform [winnovators-space.eu](http://winnovators-space.eu). The courses are structured into two modules, which are further divided into the following categories:

Module 1 introduces the courses focused on "STEM/STEAM entrepreneurship communities for young women," which are categorized into the "General learning resources" and "Challenges".

Module 2 consists of courses designed to showcase the benefits of the WINnovators platform and the outcomes of the WINnovators project to the stakeholders. Each module provides an opportunity to earn a badge, either by viewing the lesson or by successfully completing the test.

The platform also includes the Achievements section which encompasses the following categories:

- *Learning to be* (Achiever, Adapting, flexible to change of perspective, Autonomous, Self-caring, Protecting health and well/being, Coping with uncertainty and ambiguity, Creative, Generating ideas, Envisioning changes, Future literate, Proactive, Exploratory, Frustration tolerate, Individual initiative, Learning and unlearning, Managing digital identity, Passionate, Self-motivated, Persistent, Prepared to meet challenges, Resilient, Risk-taking, Role modeling, Inspiring engagement, Motivating others, Seeking for goals, Seeking for opportunities, Self-aware, With self-perception, Self-confident, Self-reflective, Self-regulative, Self-diagnosing for gaps, Taking ownership, Trustworthy, Reliable, Responsible, Envisioning, With a stretching mindset);
- *Learning to value* (Acting on values, Caring for others, Committed to common good, Digitally building of collective values, Embodying sustainability values, Empathetic, Equitable, Fair,



Honest, Inclusive, Inspiring hope, Lifestyle thinking, Open, Promoting nature, Seeking for common understanding, Socially responsible, Delivering sustainability values, Tolerant to multiple views and diversity, With normative and values' thinking);

- *Learning to live and work together* (Co-creating, Collaborating interdisciplinary, Collaborating interpersonally, Collective action, Communicating, Digital communication and co-creation, Negotiating for alternative futures, Networking, Persuasive, Seeking for common ground, Understanding, Creating and maintaining interdependent relationships);
- *Learning to comprehend and contribute* (Actuating for wellbeing and sustainability, Anticipatory and with futures thinking, Copying and appropriating, Creating shared opportunities, Critical thinking, Decision-making, Digital content creation, Digital problem-solving, Embracing and dealing with complexity, Engaging in citizenship through digital mode, Holistic approach, Information and data literacy, including digital information and data, Integrated problem solving, Knowledge of environmental sustainability, Learning from the past, Political agency, Socially entrepreneurial, Strategic thinking, Sustaining the transformative changes, System thinking, Transformative social change, Understanding and acting degrowth, Understanding and acting eco-design)
- *Learning to empower and lead* (Ability to lead by example, Ability to shape collective thinking, Coaching, facilitating and mentoring, Committed to work contract, Demanding efficiency and quality, Evidence based decision making, sound judgement, Focusing on tasks, Issuing conflict resolution, Leadership, Monitoring the progress, People management, Providing directions, strategies, Providing visions, Recognizing resistance and overcoming, Responsive project management, Systematic planning, Teamwork, Uptake sustaining).

## PILOTS WITH STUDENTS AND YOUNG WOMEN (MODULE 1)

Pilot activities in the WINnovators project are realized in two phases. The first phase (Pilot I) is realized from February to June 2023 in Estonia, Serbia in Slovenia.

### PILOTING IN ESTONIA

In Estonia, municipal youth workers were involved in engaging disadvantaged young women. The focus was on youth workers who had completed the youth employment program or hosted interns from Tallinn University in three rural regions of the country.. The local setting, everyday life, interests, and needs of young adults were mapped using HEI mentors.

In the pilot phase, local partner participation got more complicated. This complexity developed when one partner left the project owing to field staff changes and budget cuts. In another region, pre-pilot volunteers dropped out owing to personal life changes. It was harder than expected to find interested young adults quickly. The third partner struggled to recruit young adults from project information alone. Recognizing that many TLU youth work students are involved in local rural youth centers, they were encouraged to reach out to potential participants in their communities or through their professional and personal networks to find suitable project participants.

During a training to prepare second-year youth workers for project work, they participated in the WINnovator project. Students learned how to support and help children implement initiatives. The course asked: “How to engage young adults in an e-learning environment through project work?” and used Problem Based Learning (PBL). Students used project management skills to create youth initiatives for young adults, matching professional youth workers' real-world duties. Students addressed young adults to empower them through project work. This required analyzing the local social needs and interests of young people and building a tangible project proposal with young women based on a WINnovators team-based learning module challenge.

Five teams of students worked with young women to accomplish the challenge module. They brainstormed project ideas, found funding sources, and wrote project proposals for each endeavor. Three sustainability initiatives sought to raise awareness of consumption behavior and mobilize the community to combat overconsumption. An initiative to create a digital learning community for rural youth focused on team leadership, community participation, and event organizing. Additionally, another effort used comics, including digital ones, to raise youth understanding of social issues. All these projects sought to empower young adults as community leaders. Funding programs approved them, suggesting their possibility for implementation if young people or students had time to pursue them.

Youth work students led collaboration and learning in the WINnovator project to boost students' professional agency. A teacher/HEI mentor met with students monthly to provide assistance, but she did not interact with the young women in the project. These monthly 2-x-3-hour workshops addressed student difficulties and questions when working with young adults. These sessions also included project writing and management. The study meetings addressed topics and tools/methods that supported team development, project idea or proposal writing, etc., such as team canvases to get to know each other and map initiative interests and resources. This method helped students engage target groups and develop project-work entrepreneurial skills.

Young women were equally involved in efficient teams with frequent meetings and shared duties. When early team building and workflow creation failed, students took more responsibility for the final results, and young women often became consultants or withdrew from the process. Five foreign exchange students and 13 Estonian youth work students participated in the WINnovators pilot program. The exchange students used the site and solved a challenge together. They had trouble involving local youth owing to language problems. Eight of 12 young women joined the Estonian team and started WINnovators platform group work tasks. Unfortunately, the remaining participants dropped out early in the program, including two young moms who had family obligations.

Learning about work with the local community was easier when the student was already there. This gave them insights on local conditions, potential partnership partners, and financial sources. One of the two local youth workers communicated with students and the university mentor. This youth worker learned about the WINnovators platform and recruited new participants when the first ones dropped out. Other youth workers mostly mediated contact (for one participant).

Learning outcomes include project writing skills like needs analysis, goal setting, funding, action planning, and resource planning, and project management skills like risk analysis, team building, and seamless cooperation. Project writing improved collaboration and entrepreneurial daring. Students and young women emphasized the network and success of working with strangers.

The study course's outcomes, including student feedback, demonstrated the value of the pedagogical approach because it allowed students to develop their professional agency and identity through hands-on learning and reflection.

The self-driven PBL method enhanced youth worker students' professional agency because it aligned with non-formal learning and youth work values. Leaving primary responsibility to students lessened the Higher Education Institution's (HEI) effect on learning, which was a concern. In order to mitigate learning hurdles and collaboration breakdowns, it is important to prioritize continuing assistance for the learning process, particularly between study sessions. This support should include monitoring and resolving program issues.

#### *Activities in Pilot Two*

Before the first pilot, Estonian youth and community workers collaborated to engage vulnerable young women. As crucial community members, rural youth workers might immediately engage with the target group and develop networks to empower young people through active involvement and leadership. However, the initial pilot showed collaboration issues. Local realities, such as staff and budget cuts, and an unclear project framework for youth workers, tempered the initial excitement (possibly encouraged by earlier cooperation), making it difficult to motivate young people.

In the 2nd pilot, students were encouraged to contact local community members or professional/personal contacts to find project participants to build trust and community belonging. As in the first pilot, direct, personal contact and an invitation to collaborate on a project proposal engaged young adults.

The strategy adjustment altered the target group's profile. Young mothers and women without a local outlet were the initial target population. The second trial targeted young people, including students and young males interested in the project.

The collaboration between young adults and students was evident in the first prototype. The study course/subject "Project Work in Youth Work" (6 ECTS) prepared students for project work as part of a youth worker's daily activities to find and use funding for youth projects and to help young people implement projects. The course was designed based on the Problem-Based Learning approach with the main question: "How to engage young adults in an e-learning environment through project work?".

Despite a large body of knowledge about their developmental needs, motivational factors, and ways to support their active participation, young adults (up to 26 years old) in Estonian youth work remain underrepresented. The study course aimed to enhance the readiness of youth work students for professional practice, which encompasses supporting the development of young adults, by bridging the knowledge and capacity gap.

The study course was designed based on the Problem-Based Learning approach, with the main question: "How to engage young adults in an e-learning environment through project work?" The specific tasks assigned to HEI students were connected with collaborative (situated) learning, simulating a real professional youth work task. These tasks included applying the basics of project management to the preparation of a youth project (targeting and involving young adults) and preparing a project proposal that meets the criteria set by

the sponsor. The team achieved this by completing at least one Winnovators challenge module of their choice or initiating their own challenge. None of this year's piloting project ideas were directly based on the challenges in Winnovators Space, even though many of the ideas focused on sustainability, community involvement, and capacity building. It appears that this year, students wanted to adhere to one of the main principles of youth work: starting from a young person's interest and real-life situation.

Youth work students drove cooperation and learning in the WINnovator project and via difficulties. Teacher (HEI mentor) visited with students weekly to facilitate the process but did not directly interact with young WINnovators. Students met monthly (2 x 3 hours) to discuss project writing and management issues and their interactions with young adults. The research meetings' subjects and tools/methods helped create the team, project idea, or proposal. Team canvases helped the group bond, map interests, and find initiative resources. This method helped students engage the target audience and build entrepreneurial abilities in project work.

Monthly meetings with students in study sessions revealed that numerous teams struggled with doing independent projects between sessions, not so much with material but with time management—finding productive periods for teamwork and collaboration. This prompted problems concerning team members' task and role distribution. In later assessments, these teams noted that when the aim of involvement is unclear, young people are more likely to decline participation, especially if it's optional.

The chosen pedagogical strategy relied on self-directed learning and team cooperation driven by a student learning task based on a collaboratively defined problem question: "How to engage young adults in an e-learning environment through project work?" This question was investigated through real-life, collaborative learning. Students approached the target demographic to empower young adults through project work. This involves analyzing local youth needs and drafting a project proposal as an application with the young women involved.

Engagement with young people, primarily through personal or job contacts, originally went well. However, friendships sometimes interfered with "work relations." When teams worked well (weekly meetings, shared duties), young women/adults were as active as students. In teams where initial team building and workflow creation failed, students were responsible for the final results, and young women/adults consulted. The needs of the youth inspired all project concepts. The teams developed project concepts and identified funders, including local municipalities, KULKA (Cultural Endowment of Estonia), and the EU Youth Programme - European Solidarity Corps. All project ideas sought to energize and empower young adults in the local community; therefore, the latter was carefully researched, mapped, and analyzed as a social environment. Through this process, potential partners and stakeholders were identified. Youth workers in local youth centers were fewer this year, which may explain why project proposals involved less of the local community and ecosystems.

The pilot II examined the implementation of a flexible teaching approach to support the development of youth work students' professional agency and competencies in innovative topics or areas in the field, specifically engaging young adults within a developed syllabus (including pre-set learning outcomes). Learning assistance must mix directed tasks (e.g., collaborative activities on the Winnovator Space or progress reports) with student and youth self-direction and agency.

The pilots (both I & II) taught us how to incorporate collaborative learning activities like the Winnovator project into the syllabus, especially since session learning (meeting students only once a month) and many students work full-time. Working students and young adult women struggle with time management. Another important challenge is how to manage the study course's time allocation (including individual study time) and project tasks like fixing technical faults to keep study time within the curriculum's hours. Coherence between project activities and topic course/syllabus learning outcomes is another important question. However, student evaluation showed that it was a great learning experience with additional learning outcomes beyond those in the course material. However, these learning outcomes were only formed through constant and end-of-course reflection, which is necessary in problem-based learning. Both pilots demonstrated that a problem-based (collaborative) learning approach can be used to adapt the pre-developed course to address topics or issues (such as working with underrepresented target groups), better preparing students for their professional practice.

## PILOTING IN SERBIA

The Association of Business Women in Serbia (ABW) and the Balkan Distance Education Network (BADEN) have coordinated all piloting activities in Serbia. A series of discussions that included several members of these two partner institutions have been held on a regular basis before and during the piloting period. They helped shape up and fine-tune the strategies to attract and engage young women and students, as well as to promote student-young woman collaboration. All BADEN members who participate in the WINnovators project are university teachers. They helped recruit the students to form student-young woman teams in the pilot, specify the student tasks, and incite and maintain the collaboration in the teams. All ABW members who participate in the WINnovators project have been very active in helping run these activities and recruit the targeted young women.

### *Prequel*

Part of the project activities have been conducted in the context of population challenges. This type of approach was most relevant in the initial stages of the project, as well as in theoretical and empirical considerations of the significance of such a project from a demographic perspective. In addition, the BADEN and ABW teams wanted to make the selection of young women to participate in the eTraining activities in Serbia based on the demographic reality of the country.

In the first phase of the project, the most important population problems in Serbia were detected, which are related to the project objectives and provide a stable context for the selection of learners and the subsequent eTraining activities. The problem of depopulation in rural settlements and smaller urban areas is closely related to the migration of the population to larger cities or abroad,

where there are greater chances of gaining economic security. A devastated economy reduces or eliminates employment opportunities. Migration of women for education and then economic migration simultaneously represent a departure from traditional gender patterns practiced in smaller communities. Therefore, disrupted gender composition is a common phenomenon in rural communities outside the functional zones of bigger cities, particularly in peripheral, border, and mountainous regions.

Precisely these population challenges (depopulation, emptying of villages, gender asymmetry, reduction of the share of young people) were investigated for the purposes of the project. Based on data from official demographic databases, population development trends were analyzed by administrative units and type of settlement, and zones were identified in which the implementation of the project would be expedient and most useful for improving the status of women, changing their economic and social position, and reducing emigration. Data on the age composition of the population, representation of the younger female population, computer literacy, and economic activity were also included in the analysis. Thanks to social statistics, insight was also gained into women's self-employment, which is one of the mechanisms for improving the status of women and changing their economic and social position.

To rectify the previous mapping based on statistical data, we conducted an additional analysis using qualitative methods to more realistically identify the project's implementation possibilities in specific territories. We searched various databases on women's associations from rural areas, often formed spontaneously and on the initiative of the women themselves, to identify potential partnerships and their willingness to participate in the project. During this phase, we analyzed numerous media articles from the press, TV, or Internet content to understand the types of activities women's associations engage in and whether they include younger individuals who were the project's target group. We also noted their previous activism, participation in similar projects, and cooperation with domestic or foreign partners. These activities reduced the number of potential actors; some marginal areas were, unfortunately, left out because they did not meet the necessary criteria for the implementation of the project (use of computers, age of women,...). Therefore, in further work on the project, individual contacts were suggested for the purpose of recruiting project participants, as well as the inclusion of women from smaller and medium-sized cities in Serbia, where the prerequisites for the implementation of the project are met.

Blogs present some of the activities briefly discussed above, while co-authored works publish others.

Another type of activity in the project involved the creation of animation blogs, the recruitment of students as mentors, and the training process for them. To this end, several informative meetings were held, after which some female students joined the project as students in the WINnovators teams. During that period, a guest appearance by Prof. Sonja Radenković at the University of Belgrade's Faculty of Geography has been organized. She presented the WINnovators project to all demography students.

The third type of activity is being carried out these days for project dissemination purposes.

#### *Strategies to attract and engage young women*

Before the pilot started, all BADEN and ABW members who participated in the project had been very optimistic about the participation of targeted young women and students. ABW runs an entire network of women entrepreneurs and has also run several other projects targeting underrepresented

young women from undeveloped areas and from different minority groups. BADEN teachers are in touch with their students on a daily basis. This seemed to be an ideal partnership context for recruitment and matching targeted young women and students in the WINnovators pilot teams.

However, recruiting and maintaining both young women and students proved to be a challenging task. Looking back, and with the experience gained through the pilot, it seems that the major difficulty lay in the mindset differences between the three parties (targeted young women, students, and teachers). What looks obvious in the minds of teachers might look unconvincing in the minds of young women and students.

Targeted young women who ABW and BADEN approached initially did not "click" immediately with the WINnovators idea. When they initially learned about the idea, many of them were quite reluctant. Their priorities have been different, and it took quite some time to motivate some of them to participate in the pilot teams.

One of the major approaches used by BADEN and ABW in recruiting young women was sparking their interest by bringing up real-world examples and success stories ("Look at the benefits she had through participating in another similar project"). Although at first glance this looks like naive advertising, in practice it did help convince some young women to participate.

Another important strategy was that of using personal contacts. All BADEN and ABW participants in the WINnovators project "knew such a woman." Although not all such attempts have been successful, some have. In addition, if "such a woman" declined, she usually "knew another woman who might be interested".

Last but not least, EU endorsement proved to be a good "bait". On the labor market in Serbia, an EU experience is often welcome. WINnovators certificates and badges, clearly displaying successful participation in an EU-funded project, are something that young women like to put in their CVs and portfolios.

#### *Targeted student engagement strategies*

Students were initially uninterested in the project. Although they grasped the project idea quickly and did understand that they would be doing something that helps young women who did not have opportunity to go to college – a generally nice and altruistic idea – they did not bite immediately due to the lack of clear incentives.

To overcome this issue, female students were offered WINnovators student internships and extra credits at their universities. All universities where the BADEN members who participate in the WINnovators project teach have mandatory student internships as part of their curricula. It took some effort from the teachers' side to negotiate with the university management about recognizing participation in the WINnovators project as internship credits (or extra credits) for female students, but eventually it has been arranged.

Another factor that helped motivate some female students after having discussions with the BADEN teachers was their origin. Some students come from undeveloped areas and are aware of the hardships of living there. Thus they wanted to help and there have been cases when during the discussions with the teachers they would say something like "Yes, I had a classmate who could not make it to the college... Perhaps I can try to get in touch with them."

### *Strategies to promote student-young woman collaboration, including student tasks*

Before the pilot started, the recruited young women and students attended dedicated sessions to learn more about WINnovators and its courses. During these sessions, the teachers and mentors from BADEN and ABW have explained important technical and organizational details of working in teams and how the teams will be formed. Both young women and students have attended a detailed walkthrough of the WINnovators platform.

After the teams have been created, the female students and young women entrepreneurs in each team reviewed the course contents and have started their activities. Their mentors from BADEN and ABW have monitored their activities periodically in online sessions. An important strategy used to keep the teams engaged throughout the pilot has been to let them "show off" during the sessions while presenting their activities to everyone else. In addition, the mentors have introduced the teams to a few successful women entrepreneurs from the ABW network and the teams could learn about their experiences.

### *Higher education institution (HEI) mentors and teachers*

The expertise of the HEI teachers and mentors involved in the piloting has been complementary: IT, project management, marketing, demography, and financial management. This has created a suitable course development team and mentorship, given the project objectives.

Most young women participants in the pilot did not have any experience with entrepreneurship and business processes. Therefore, courses focused on business plan development, digital marketing, financial management, project management, time management, leadership, and similar topics have garnered significant interest from young women. The mentors and teachers have taken their roles according to their expertise in the related fields.

One of the participating teachers from BADEN has expertise in demography. She helped the piloting activities not only by her connections and professional network, but also in terms of reality check given the current demographic processes in Serbia in underdeveloped areas and elsewhere in the country.

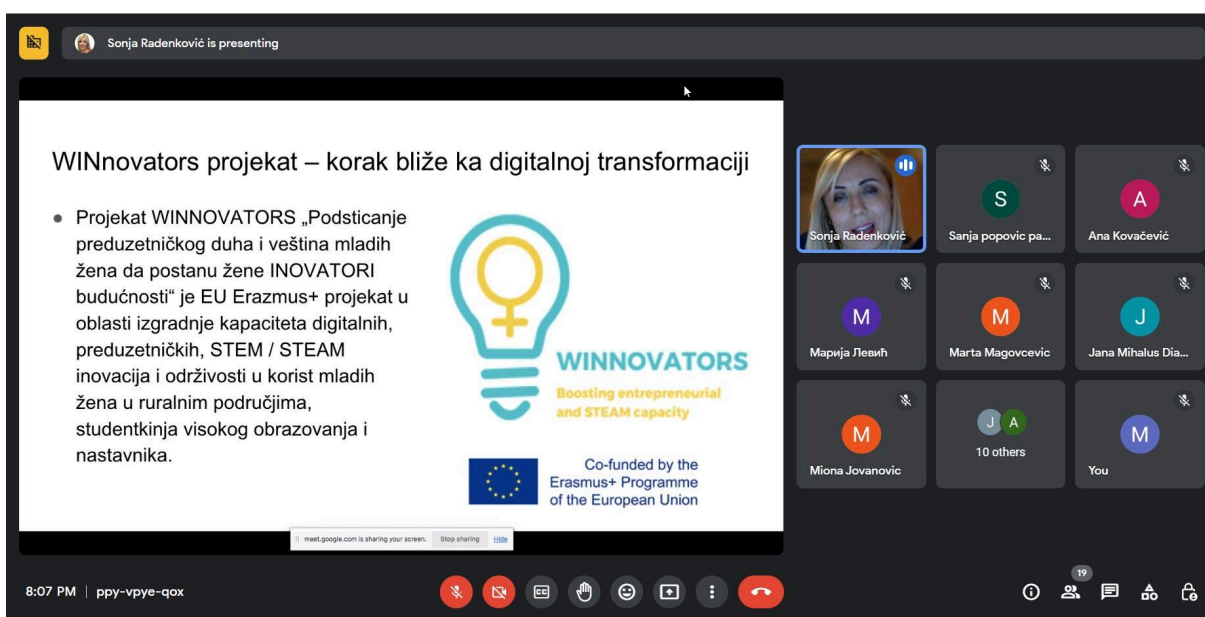
All BADEN teachers have helped run the pilot smoothly by explaining the project objectives to their university management and having them support the project activities administratively.

### *Running the piloting activities*

This section provides a brief overview of the piloting activities in Serbia, in the context of information provided in the previous sections.

The pilot program in Serbia began in early April 2023 (Figure 1) and involved 15 young entrepreneurs who were introduced to the WINnovators initiative by ABW and BADEN teachers' connections with Serbian entrepreneur organizations. All these young women have been assigned a female student to work together with in the pilot, and that has marked the creation of the piloting teams. Two BADEN teachers and one ABW member provided guidance and support to a total of 15 teams. Each mentor was responsible for overseeing and helping five teams. All the teams have got their spaces on the WINnovators platform. Over two months, the mentors met with their teams online. These meetings monitored the teams' progress and helped them overcome hurdles along the way.





**Figure 1.** Online meeting regarding the Pilot I Winnovators activities

In the beginning, the teams have been engaged in going through more introductory materials and courses on the WINnovators platform. Later activities included covering more advanced materials. Throughout the pilot, the recognition for the engagement, achievements, and results has been maintained by using the badging system run on the WINnovators platform.

As part of the initial activities, all teams had to create a detailed business plan for the entrepreneur's existing or new business. Twelve out of fifteen teams stayed active, whereas three young entrepreneurs abandoned their project ideas, leaving students looking for new young women entrepreneurs to team up with. Notably, seven teams completed the first task ("Business Plan Development").

In the second challenge, "Website Creation," and the third, "Utilizing Technologies for Business Marketing Presentations", more advanced topics have been covered. However, challenges two and three were postponed due to the short period allocated to the first challenge, "Business Plan Development" (i.e. the participants lacked more training time). These challenges were finished in the next few months by 7 teams that decided to follow up on the activities after the Pilot One term. During the Pilot One term, fourteen participants from Serbia completed the tasks and received badges on the WINnovators platform. They have got the *Learning to be*, *Learning to comprehend and contribute*, *Learning to empower and lead*, *Learning to live and work together*, as well as *Learning to value* badges.

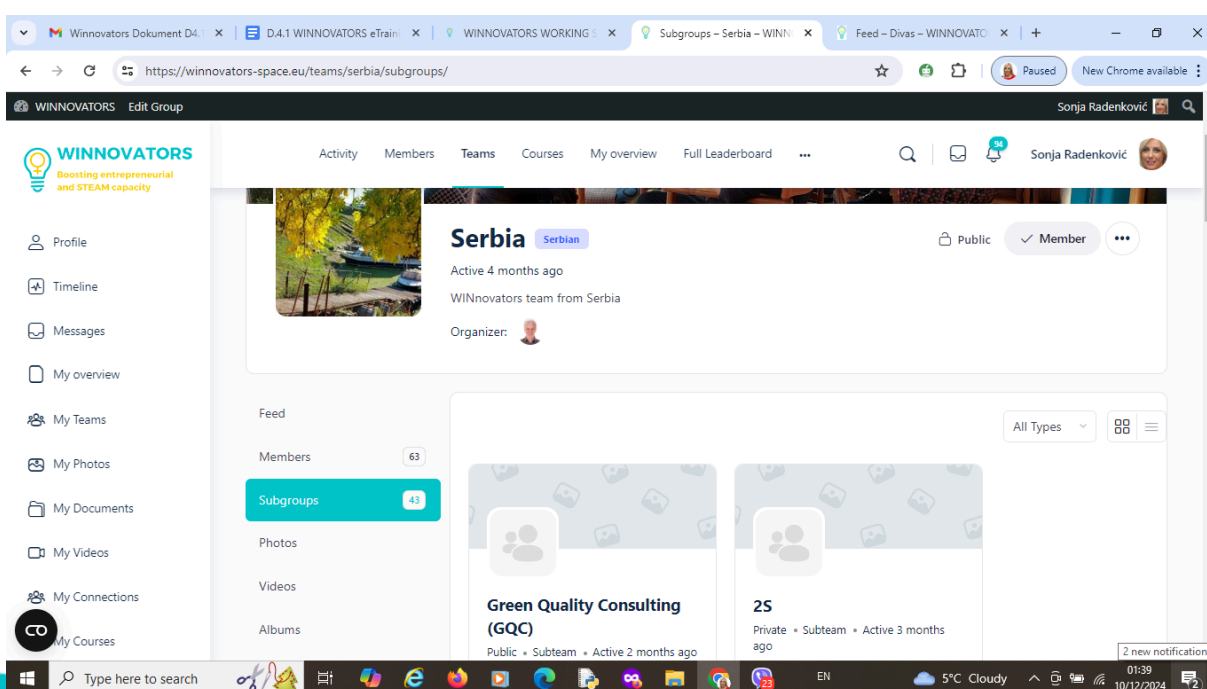
Interestingly, the young woman entrepreneur from one team ("Healer Hands") used her business plan to request financial support from the government to further develop her idea. She was able to buy supplies for her new business after winning the WINnovators challenge with her business plan. Seeing the potential, additional teams are interested in using their collaborative business plan to seek investment.

#### *Activities in Pilot Two*

The Pilot Two in Serbia was launched in Late February 2024 with an online meeting of women entrepreneurs and students. The initial meeting of the Pilot Two consisted of eight women - young women and students, who formed four teams on the WINnovators platform. They enrolled on the WINnovators platform and started learning with Module 1 - General Knowledge and Challenges. In the months of March, April, and May 2024, the BADEN and ABW teams carried out numerous effective dissemination initiatives, which resulted in an increased participation of young women and students in Pilot Two. By June 2024, a total of 28 young women and 22 students were involved in the piloting activities (figure 2). As a result, teams were formed consisting of one young woman and one student who were at different stages of capacity building, having completed courses in Module 1 - General Knowledge and Challenges on the WINnovators platform.

The challenge activities in Pilot Two in Serbia differed significantly from those in Pilot One. In Pilot Two, the students have been assigned the responsibility of creating a project for the business of a young woman in their team using the Trello application. Then they have been required to upload the project to the team area on the WINnovators platform. A student's project in Trello includes the following sections:

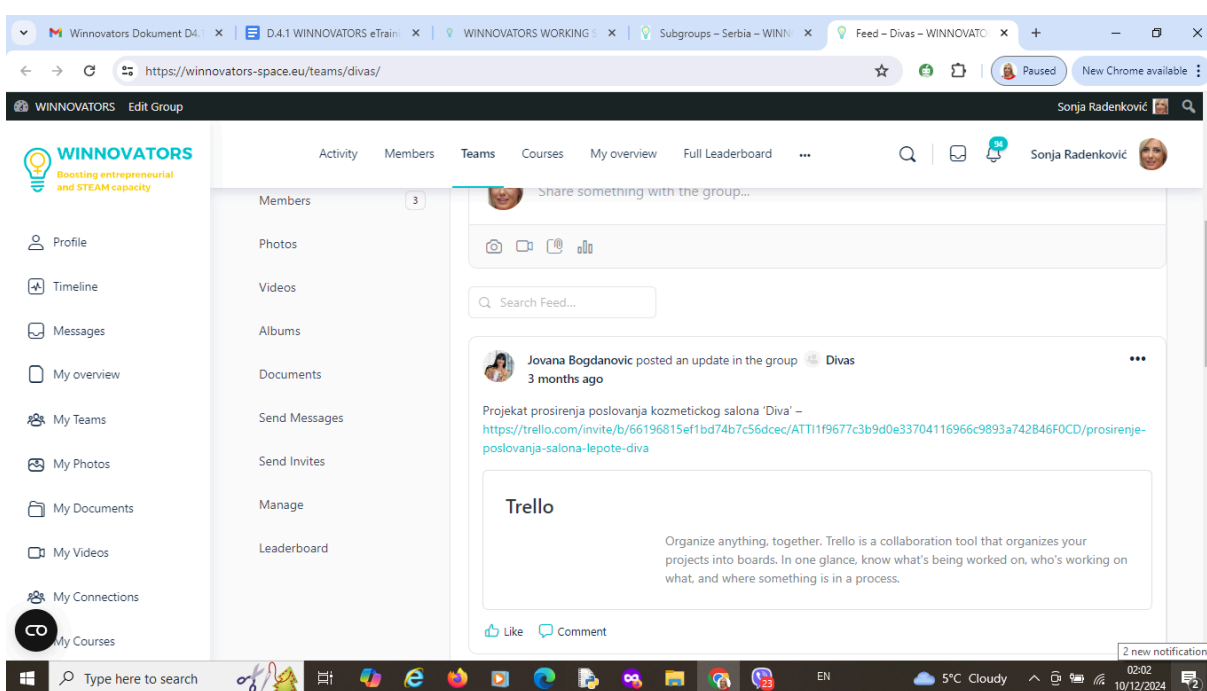
- Overview of the Business
- Operational procedures and activities carried out within the business
- Business integration management
- Business volume management
- Time management in the business
- Cost management in the business
- Quality management in the business
- HR management in the business
- Risk management in the business
- Procurement management for the business



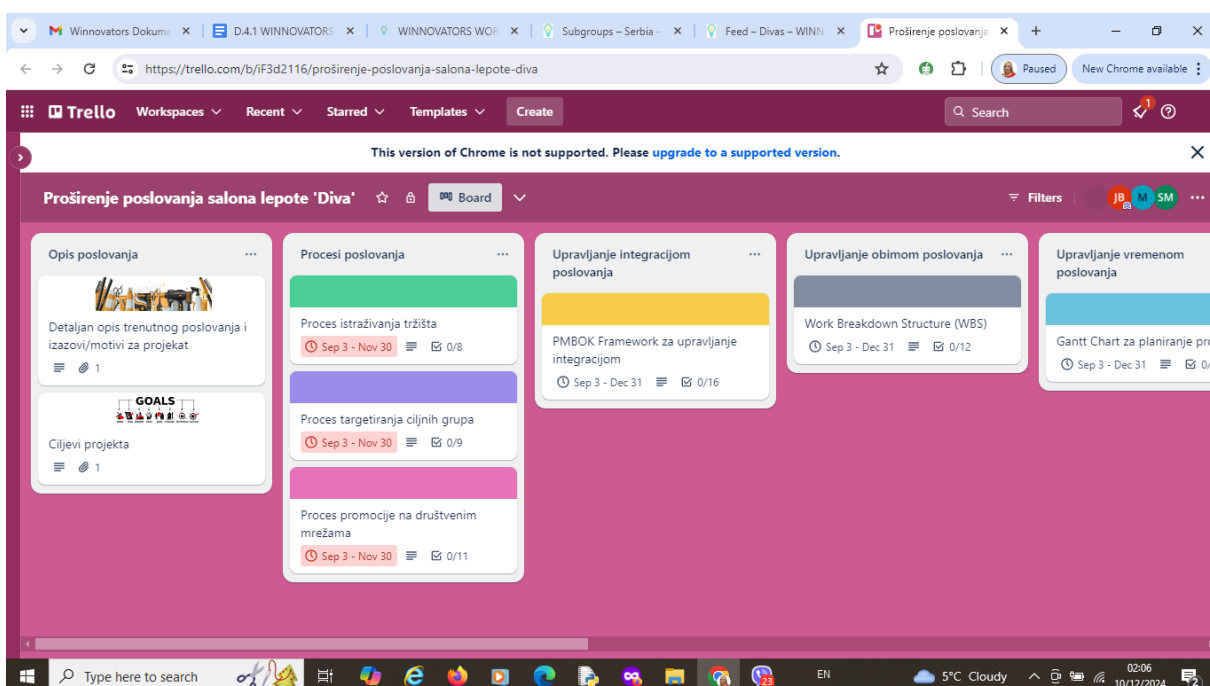
**Figure 2.** Serbian teams in the Winnovators platform created in Pilot I and Pilot II

The information provided in the Trello project done by the students (Figure 3 and Figure 4) was highly valuable for aspiring women entrepreneurs as it involved a thorough analysis of the precise operational activities that can be undertaken across their own businesses. The purpose of these data aims to help young women entrepreneurs in producing business plans that may be utilized for growing their businesses, as well as for securing funding for business growth.

Pilot Two demonstrated that women entrepreneurs had great enthusiasm for engaging with the activities of the WINnovators project and successfully completing the courses on the WINnovators platform. By contrast, a mere 25% of female entrepreneurs have completed their business plans, with only one young woman having developed a website of her own business. The majority of women are currently in the process of preparing their business plans. It is expected that they will complete the initial challenge in the WINnovators Pilot, consisting of two activities, within one month. Simultaneously, 91% of students successfully completed their Trello projects, which involved analyzing the business of their team partner as part of the WINnovators project. The projects are uploaded on the WINnovators website, allowing young women entrepreneurs to get detailed analyses of their firms whenever they require assistance in building and expanding their ventures.



**Figure 3.** Communication about the student's Trello project regarding the woman entrepreneur business in the Winnovators platform



**Figure 4.** Student's Trello project regarding improvement of the woman entrepreneur business

### *Lessons from piloting*

Starting the project enthusiastically is nice, but raising hopes too high can be misleading. "If you build it, they will come" did not work in the case of these pilots. The BADEN and ABW teams needed to lower their initial expectations and develop strategies to attract young women and students into the project.

Cultural differences between different countries have come into sight soon after the initial project rollout. For example, youth workers are widespread in Estonia and other EU countries and it is part of their job to help with activities like piloting. In Serbia, such youth workers are scarce. They do exist, but they are difficult to talk into the project activities unless they are one of the project partners. Thus it was only BADEN and ABW who ran all activities in the pilot, including recruitment of young women, networking, logistics, and the like.

The priority of personal, professional, and other commitments of young women and students is an important constraint. Given these issues, the Serbian teams from BADEN and ABW recommended an extension of the project deadlines, realizing that starting any kind of enterprise is difficult and time-consuming for prospective young female entrepreneurs. Luckily, out of all young women who participated in the Pilot One a significant 40% expressed their readiness to continue participating in the WINnovators project after the pilot. Future assistance and participation for these women entrepreneurs is an important project asset.

## PILOTING IN SLOVENIA

The Slovenian WINnovators project pilot I began with an online conference via Zoom to create accounts and familiarize members with the platform's design. The conference included 18 vulnerable women and two Ljubljana University Faculty of Education student groups. The first group contained 6 computer science students and the second 16 art education students. The gathering also included Chamber of Agriculture and Forestry, Rural Youth Association, and Slovenian Employment Service representatives. These project partners connected disadvantaged women and promoted the project through their communication channels. Promotion of the WINnovators education program generated enough interest to admit 20 candidates, double the budgeted number. A waiting list of 13 people was created as more applicants expressed interest.

Challenges had two parts. The first phase introduced participants to the tools and essential skills, while the second involved project creation. Participants were initially grouped by challenge. For each task, the "Slovenia" team created a WINnovators online subteam for information sharing, troubleshooting, collaboration, and assistance.

Challenge tasks were assigned every Monday for the following week. The goal was to increase their educational involvement over independent work. Increasing task difficulty while maintaining a sustainable weekly burden was a priority. Participants were encouraged to offer workload and task complexity ratings. The online platform fostered collaboration, whether seeking help, exchanging ideas, or having informal chats. Tasks for the following week were based on participant input.

Most participants chose "Co-creation with Canva" and "Virtual 360 Tour" challenges. Several contestants chose numerous tasks. Women from vulnerable groups worked with students who had joined up for the challenge. Mentors offered weekly feedback for each assignment solution to encourage participation in trainings and prevent disengagement due to lack of desire.

The challenge began with 8 vulnerable women and all University of Ljubljana Faculty of Education students submitting assignments and more vulnerable women signing up for the WINnovators online platform. Active participants dropped after three weeks. Three individuals consistently submitted assignments by the end of the first part. Several initiatives were implemented to re-engage inactive participants, such as weekly Zoom meetings for discussions, issue resolution, and direct guidance from students and mentors with adapted meeting schedules. Despite showing interest in this help, participants did not fully use these sessions after initial excellent attendance. Multiple email reminders and instructions to urge students using WINnovators' chat function or other channels were sent to encourage participation. Many women, especially rural ones, emailed their intention to leave the education program early. A tight deadline was the main cause. They had little time for other activities because they were busy with farm labor.

The second challenge was a project, and a form was created to simplify project planning. This plan requires participants to establish their goals, a detailed execution strategy, a step-by-step explanation of how to achieve project goals, and implementation deadlines. Participants were expected to discuss project items or materials and consider sustainability. This approach encouraged participants to explicitly state their goals and independently create a work plan and deadlines. The idea was to empower them to lead execution with support. Practical examples include generating promotional campaigns, flyers, posters, and logos for a computer repair and used computer equipment restoration

company helped with project writing. Following plan definition, participants, students, and mentors worked in smaller groups to fulfill project goals. After several reminders and attempts to understand their reasons, no participants submitted project plans by the deadline. Emails extended the submission date and offered project plan creation support, but participants did not respond or plan. When none of the first participants completed education, outreach was directed at waiting list prospects. Despite initial interest, only two women started training, and only one finished. She chose the "Co-creation with Canva" assignment. Despite being the only participant, she was given a weekly task plan with a shorter first activity. Two weeks into the program, the participant was asked to plan a "Exhibition Opening: The Biodiversity of Our Planet in Photographs." She wanted to motivate people to think about nature's importance and learn how to reduce human impact on the environment to improve our lives. Nature-themed picture collages, a promotional event flyer, a logo, and educational posters were created to promote reducing human effect on nature. Her project partners were computer science and art education students who provided technical and visual support. After the "Co-creation with Canva" challenge was successful, several students worked alone on their projects, creating many high-quality works.

The "Co-creation with Canva" challenge had 24 participants and 17 projects completed. Birthday party planning, alternative music concert organization, dog photography exhibition promotion, outdoor literary reading activities, pottery courses, beauty salon marketing, and textile printing company promotion were notable projects from this challenge. Four contestants in the "Creating Mini-games with Scratch" challenge failed to finish their mini-games to promote honey sales at a tourist farm. Five participants learned Scratch and created interactive animations to raise environmental awareness for the "Designing Simple Interactivities with Scratch" challenge, however they did not finish. The "Virtual 360 Tour" competition involved 17 participants exploring a virtual tour tool for Ljubljana's architectural highlights. But their projects remained unfinished.

Participating in WINnovators platform challenges allowed participants to uncover areas of their lives where they may pursue entrepreneurial ideas with help. They empowered themselves by taking charge of their tasks and achieving their goals. They led, while students and mentors supported them, helping them feel capable and accomplished. Collaboration with students and mentors also created informal bonds that may last after the schooling program.

Although many participants left early, the program helped develop relationships and potential collaborations. Collaborative learning and work fostered participant bonds. Communication and transparency, local environmental benefits, and project plans to support them were strategies. Sharing project results in the media spread instructional content to other organizations and applicants. The WINnovators education project sparked university conversations about connecting students and vulnerable groups to share knowledge and experiences. Systemic curricular modifications, integrating collaboration into important disciplines, and asking other university departments to participate are possible.

The WINnovators project training pilot gave useful information. Despite our expectations and efforts to accommodate more people, the high dropout rate was a major concern. The instructional material and structure were developed in conjunction with organizations that connect us with disadvantaged women to ensure relevance and appeal. Informal chats and survey research showed no education content discontent. Lack of personal interaction may have contributed to drop-out rate in the online

mode. Not all assistance, collaboration, and task breakdown efforts worked. The experience showed that rural individuals with seasonal work commitments must consider schooling time.

We'll use the pilot to redesign challenges and improve solutions. Participation statistics show that multimedia editing was more popular than block programming. Thus, the approach comprises adding video editing, technological, and live content streaming hurdles. An in-person pre-program gathering is also being considered to enhance relationships between vulnerable women, students, and mentors.

The schooling program has had great results despite hurdles. Successfully connecting university students with vulnerable women benefits both parties. This experience helped us comprehend disadvantaged communities' needs and concerns, underlining the need for inclusivity and assistance in society. The teaching program also produced many intriguing initiatives that offered new insights on various issues. The educational approach gave participants significant knowledge that we hope will help them in their careers and personal lives. The educational process gave participants essential knowledge that might help them in their careers and personal improvement. The program's greatest benefit is making new acquaintances. Their supportive network is built on shared learning, collaborative projects, and knowledge exchange. This relationship will encourage, support, and share ideas after the program ends.

#### *Activities in Pilot Two*

To recruit participants for the second pilot of the Winnovators trainings, collaboration took place with various organizations. Regional offices of the Slovenian Employment Agency were involved, along with the Slovenian Red Cross, which helped reach young women who had fled Ukraine and arrived in Slovenia due to the war. Cooperation also included the public institute "Cene Štupar," focusing on adult education. Additionally, the LGBTQ community in Slovenia was invited to share information through their website and social media channels. Partners from the first pilot, such as the association "Podeželska mladina" (Rural Youth) and the Chamber of Forestry and Agriculture of Slovenia, disseminated the information through their established networks. As part of the recruitment process, a newsletter with details about the Winnovators project and the second pilot launch was distributed to all faculty secretariats at the University of Ljubljana, which forwarded it to students via email. Initially, over 90 candidates applied for the second pilot. However, due to various factors, 64 women ultimately participated in the training. Among them, 24 were students from the University of Ljubljana, and 40 were young women from socially disadvantaged groups.

Building on the experience from the first pilot project, the training for the second pilot began with a hybrid meeting, allowing participants to meet in person initially. This approach was chosen to support several objectives: facilitating interpersonal connections, clearly communicating expectations, fostering a sense of community and belonging, and enhancing motivation for participation in the training. As the Winnovators training is a distance learning program, the in-person meeting was designed to address these factors and mitigate the high drop-out rate observed during the first pilot.

Feedback from participants in the first pilot highlighted key opportunities to improve the learning content. Collaboration with the Slovenian Employment Service played a significant role in this process, as discussions with their representatives helped better understand the needs and preferences of young job seekers. This insight led to the inclusion of content addressing alternative forms of employment, aiming to align more closely with the aspirations of young people and enhance learning outcomes and motivation.

Two additional learning modules were introduced: *Selling Crafts and Digital Products on Etsy and Influencing*. These complemented the existing modules, such as the Canva course, which participants found relevant and engaging. The *Influencing* module, a popular topic among young people, was designed to provide a balanced perspective on the profession, highlighting both its benefits and challenges. To deliver this, a lecture was given by Tinca Lukan, a researcher from the Faculty of Social Sciences working on her doctoral thesis on the subject. Additionally, a successful content creator shared practical insights from daily work in the field. For the Etsy module, Anita Česnik Mažgon, one of Slovenia's leading experts on the platform with a successful store of her own, was invited to share her knowledge and experience, further enriching the program.

The training courses were conducted from March to June 2024. In March, remote lectures were delivered via Zoom, and participants were encouraged to engage with the learning modules on the Winnovators online platform. Weekly Zoom meetings were held to support participants, address questions, and provide opportunities for social interaction. These sessions facilitated connections among mentors, students, and participants, fostering a sense of community. In April, the program transitioned to the second phase, focusing on project work. Participants were provided with structured documents to guide their reflections on key aspects of the learning modules and their application to specific projects. For instance, in the *Influencing* module, participants created and filmed social media videos, incorporating essential elements such as identifying a niche, selecting video types, writing scripts, crafting a "hook," and including calls to action. Mentors were available for guidance throughout the process, and participants collaborated and supported one another. Regular feedback sessions were also organized to offer constructive input and improve their work.

During the project work phase, participants faced challenges in organizing their tasks and finding time during their busy weeks to complete them. To address this, they were encouraged to collaborate and coordinate outside the official Wednesday feedback sessions.

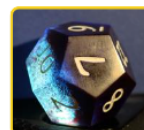
The second part of the project was originally planned to last four weeks, concluding with a joint presentation of the projects. However, the timeline proved too ambitious, as progress was slower than anticipated. Consequently, the training was extended by two months. To further support participants, two additional feedback sessions were scheduled, and mentors made themselves available on Zoom for one hour on Mondays, Wednesdays, and Fridays. These sessions proved valuable, as participants regularly attended to work on their projects, receive guidance, and stay motivated. Many also joined simply to socialize, contributing to a sense of community.



This approach fostered a positive, supportive environment where participants, mentors, and students developed strong connections and a sense of camaraderie. Bonds of friendship formed among everyone involved, including participants from vulnerable groups. The following section highlights five projects that stood out for their quality and the transformative impact the Winnovators training had on the participants.

### **Project - Making Dungeons & Dragons dice and potions**

Zala wanted to create dice and special potions for the Dungeons & Dragons board game. She joined learning modules on Canva, Etsy, and Influencing. Using Canva, she designed a logo and edited photos for Etsy, where she also began setting up her online shop. Through the Influencing module, she created an Instagram profile (@lintvern\_workshop) to promote her products. She faced challenges in 3D modeling the dice moulds, as her home printer didn't yield good results. We suggested she attend a free 3D printing course at the ROG Centre in Ljubljana, where she made significant progress. ROG Centre is a creative hub for the public, where interested people can learn different skills under the guidance of a supervisor, using the "open labs" principle. Additionally, she received individual guidance from a technical education professor. Overall, the participant gained both technical and soft skills, finding the project invaluable and beyond what she could have achieved alone.



### **Project - Vintage clothing store and handmade crafts**

The Vintage clothing store and handicraft project involved Evelin in three learning modules: Canva, Etsy and Influencing. Her ambition was to set up an online shop for vintage products ranging from clothing to various antiques and other handmade products she was making. These include printed bags, cutlery, earrings, painted flowerpots, images drawn on stone and jewelry. Evelin has been very actively involved in the project and has regularly attended all the scheduled sessions that we have organized for her to work. She learnt graphic design using Canva and used this knowledge to edit images, create posters, stickers and business cards and other graphical materials. She first started to make an online shop as part of an Etsy learning module, but later decided to make an online shop on the Shopify platform, which is a similar service from another provider. She was able to use the knowledge she had gained from the Winnovators learning module in a meaningful way when setting up this online shop. At 1 of October she officially launched it. You can check it at [linlin.eu](http://linlin.eu) In the Influencers learning module, she saw an opportunity to advertise her products and promote her brand by posting videos on how she makes them. She created an account on Instagram where she regularly posts short videos about her work and life. She has quite a lot of followers.



### Project - Digital Yearbooks

In the Digital Yearbooks project, participant Tjaša brought her business idea to life—creating a yearbook tailored to the academic year, as she couldn't find one on the market. She joined the Canva, Etsy, and Influencing modules. With the help of mentors and participants in the Canva module, she created a digital yearbook and improved it by adding digital stickers that users can use to mark tasks. For example, instead of writing down a sports activity, they can add a sticker of a runner icon. Through collaboration with other participants, she developed a wide range of stickers. She explored the possibilities of selling digital products on Etsy and decided to translate the yearbooks into other languages to reach a wider market. She also offered product customization and created promotional videos in the Influencing module.



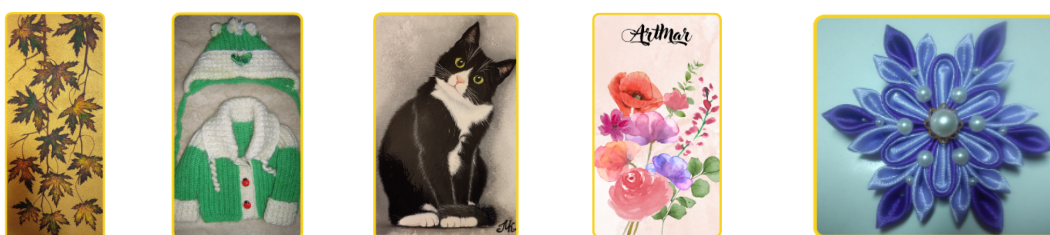
### Project - upscale fashion

In the "Upscale Fashion" project, Lona, an upscale fashion designer, focused on how to sell her unique products made from recycled materials, like worn jeans and leather scraps, by giving them new value and function. Though highly productive, she struggled with selling her items. She explored selling online and launching an advertising campaign for her brand. Through the Etsy module, she created a detailed plan to open her shop and learned about the details of how to formally sell the handmade items so it is the most tax beneficial for her. She used Canva to design product images and the knowledge gained at Influencing module to promote her brand on Instagram, where she now regularly posts.



### Project - selling paintings

Martha, a refugee from Ukraine, found a new home in Slovenia and teaches painting courses for Ukrainian women through the Slovenian Red Cross. She also makes clothes. She joined the Winnovators training and took the Etsy module to learn how to start an online shop. Through the Etsy module, she learned about her target audience, search engine optimization, and legal requirements for selling her products. She decided to offer personalized pet portraits, where clients send her photos, and she creates artistic paintings from them. Mentors from the Faculty of Education at the University of Ljubljana also helped her secure a free exhibition space to showcase her work, offering visibility and community engagement.



### Project - Selling bio clay products

Ana has been crafting products from bio clay, a natural material requiring special techniques, for some time. Her goal in joining the Winnovators training was to learn how to market and promote her creations. She actively participated in the Etsy, Canva, and Influencing modules. In the Etsy module, she developed a structured plan for setting up her shop, identifying her niche and target customers. Canva helped her design product photos and create promotional materials like posters, logos, and business cards. In the Influencing module, after discussions with mentors and peers, she decided to create ASMR videos showcasing her process, which evoke relaxation. She also honed her video editing skills and now shares her work through an Instagram account featuring both videos and product images.



In addition to the projects highlighted, we had many others in the second Winnovators pilot, such as bookbinding using leather covers; the TikTok account aimed at raising awareness of the importance of mental health, especially in terms of the difficulties young people have in making the transition to adulthood; setting up an online school for language learning and creating interactivities to facilitate the acquisition of this knowledge and many, many others.

## PILOTS WITH STAKEHOLDERS (MODULE 2)

WINnovators eTrainings were held in three partner countries (Estonia, Slovenia, and Serbia) to include community and educational policymakers in collaborative development projects. The WINnovators project conducted eTrainings focused on joint capacity building for sustainable futures, targeting educational policymakers and educators.

The WINnovators practices and e-modules were designed as a flexible and accessible resource, readily transferable to other higher education institutions and communities. They served as exemplary models of effective learning practices that engaged various stakeholders in capacity development, aiming to enhance the outreach to at-risk young rural women and higher education students. This initiative contributed to the sustainability objectives of communities in relation to STEM/STEAM, digital innovation, and collaborative entrepreneurial activities.

The project encouraged engagement and capacity development among various stakeholders from education, business, technology, and policymaking who pursued digital and sustainable initiatives stemming from the formulated project concepts. The informed consents were formulated, and ethical principles training was administered for the partners responsible for data collection. The criteria for impact measurement of key performance indicators were established within the survey framework: the effect on higher education institutions regarding the shift of learning outcomes towards a more action-oriented approach focused on capacity and collective skills development.

A total of 60 educators, educational policymakers, and other interested members from associated partners who benefit from learning were recruited to the course by all partners.

### PILOTING IN ESTONIA

The WINnovators e-training program underwent an impact evaluation to assess its relevance, sustainability, policy alignment, and opportunities for improvement. Data were collected through an online survey targeting 16 policymakers in the youth field, with two responses received from women working in youth management roles in rural areas.

The WINnovators project was deemed highly relevant to the educational and economic needs of young women in rural areas. Respondents highlighted the program's ability to address issues such as underrepresentation in STEM and entrepreneurship while providing a supportive, flexible learning environment tailored to the challenges faced by this demographic.

Participants viewed the program as sustainable if results are effectively applied. Involving youth work students and young women in community projects ensures that skills gained are utilized beyond the project timeline. Suggestions to enhance scalability included increasing visibility through better communication, engaging participants in community outreach, and maintaining WINnovators Space as a free resource for youth workers.

The project aligns well with regional policies on education, gender equality, and economic development, addressing gender disparities in STEM and promoting skills development. To strengthen advocacy, respondents recommended showcasing successful project outcomes and encouraging policymakers to adopt proven strategies.

Expanding partnerships with national institutions, local authorities, and community organizations was identified as crucial for increasing the project's impact. Collaborations with professionals from diverse fields—such as social work and cultural centers—can bring additional resources and expertise, enabling broader community engagement.

While funding challenges include limited support due to shifting priorities, opportunities exist in engaging community members who can provide essential resources. Simplifying access to local project funds and increasing financial thresholds were suggested as ways to enhance funding models, alongside providing tailored mentoring for underrepresented groups.

The WINnovators project addresses critical gaps in education and economic opportunities for young women in rural areas, particularly in STEM and entrepreneurship. By promoting gender equality, aligning with regional policies, and fostering community engagement, the project has laid a foundation for long-term impact. Enhancing partnerships, visibility, and funding mechanisms will ensure the program's sustainability and expanded reach, making it a valuable model for empowering underrepresented groups.

## PILOTING IN SERBIA

The Winnovators platform introduced Module 2, a comprehensive learning module comprising 10 lessons across 29 topics. The lessons focused on fostering entrepreneurial and innovative thinking among underrepresented groups, particularly young women in rural areas. Key lessons included engaging youth in entrepreneurial activities, an e-mentoring program for female entrepreneurs, and building capacity through collaboration among universities and local communities. To enrich the learning experience, the module also incorporated six case studies, such as "Flea Market for Baby Clothes," and "Team Pet: BIRD 2023," which provided real-world applications of the theoretical lessons.

The evaluation aimed to assess the usefulness, sustainability, and alignment of the materials with the project's target audience and broader societal needs. A structured online questionnaire, comprising nine questions, was utilized for data collection. Participants, all from Serbia, provided demographic data, rated the content's relevance and usefulness, and shared open-ended suggestions for improvement. Key questions explored how the initiative met educational and economic needs, addressed gender equality, and aligned with existing policies.

Participants were primarily aged 31-40 and largely held roles in research, teaching, or institutional management. These demographics indicate a strong representation from professionals capable of evaluating the platform's impact on education and innovation.

Survey results demonstrated widespread approval of the module's content, with most participants finding it either "useful" or "very useful" for their professional development. Similarly, the project's goals were rated as highly relevant to addressing educational and economic challenges faced by young women in rural areas.

Most respondents felt the initiative effectively addressed the specific needs and challenges of its target audience. Furthermore, the majority deemed the initiative sustainable or fully sustainable, though a minority expressed concerns about its long-term viability after funding ends.

The module was widely perceived as aligned with existing priorities in education, gender equality, and economic development. This reinforces its potential as a model for similar future initiatives.

- Participants suggested several strategies to enhance the platform's impact:
- Government involvement: Establish dedicated agencies with appropriate budgets.
- User feedback integration: Incorporate insights from young entrepreneurs to refine content.
- Continuous updates: Regularly refresh the platform with new lessons and promote it widely.
- Local government support: Foster collaborations to expand reach and impact.
- Expanded accessibility: Make informal education initiatives more common and integrate them into mainstream educational policies.
- Sector-specific focus: Address legal and market-specific challenges, such as organic food production.
- Success stories: Feature guest lectures from successful entrepreneurs to inspire participants.

The evaluation highlighted the platform's strengths, particularly its relevance and ability to meet the specific needs of young women in rural Serbia. However, ensuring sustainability and implementing suggested improvements will be critical for its long-term success. Aligning with user feedback and expanding government and community involvement will enhance the platform's significance and impact, transforming it into a cornerstone of informal education in the region.

## PILOTING IN SLOVENIA

The WINnovators Module 2 survey in Slovenia assessed the relevance, sustainability, and resources of the program while gathering feedback for future improvements. The study included 24 participants, predominantly female, aged 20–40, with roles ranging from researchers and educators to entrepreneurs and NGO representatives.

Most participants (23 out of 24) agreed that WINnovators' objectives were highly relevant to the educational and economic needs of young women in rural and vulnerable groups. The project was praised for providing critical entrepreneurial and digital skills, boosting confidence, and improving access to resources. However, some participants suggested broader topics and a focus on general skills for everyday life to benefit a wider audience.

The program's initiatives were perceived as sustainable, with 22 participants agreeing on the long-term relevance of results. Suggestions for scalability included forming partnerships between academia, businesses, and vulnerable groups and creating mentoring networks and alumni communities. Establishing local collaborations and funding mechanisms was also recommended to extend the program's reach and ensure continuity beyond the funding period.

Participants found the learning materials, online platform, and expert guidance generally relevant and appropriate. However, improvements were suggested, such as optimizing the platform for faster performance, adding interactive elements like forums, and regularly updating practical examples. Long-term follow-up for participants, collaboration with local organizations, and increased funding were highlighted as ways to enhance the resources and support system.

The program was commended for its high-quality learning modules, professional mentorship, and networking opportunities. The flexibility of the online platform enabled participants to learn at their own pace, while practical tasks helped them apply theoretical knowledge effectively. Future recommendations included extending mentoring, organizing community and business involvement, and improving access to technology. Participants also suggested simplifying registration processes and developing sustainable financing models to increase accessibility.

The WINnovators project effectively addresses the educational and economic challenges of young women in vulnerable groups, particularly in rural areas. While the program is sustainable and impactful, additional measures—such as enhanced partnerships, better resources, and long-term mentorship—are needed to maximize its scalability and long-term benefits. By integrating these improvements, the program can serve as a model for empowering underrepresented communities.

## MULTIPLIER EVENTS

The BADEN team and ABW team developed a series of dissemination activities called Multiplier events to attract the WINnovators platform and showcase the results of the WINnovators project. The sequence of Multiplier events took place in Serbia from April 19th to April 25th, 2024. In order to maximize the dissemination of information and facilitate the engagement of a wide range of interested women, it is chosen to organize the Multiplier in a series of three events across two locations. Aside from the primary occasion, two other events were organized, leading to a cumulative participation of approximately 100 women.

The main event took place in Belgrade on April 19 and featured participants from ABW and BADEN, along with representatives from CSOs, rural and marginalized communities, young women enrolled in courses, including both current and aspiring entrepreneurs, students, established entrepreneurs, teachers, and other stakeholders.

Marija Blagojević (BADEN) presented the project activities and findings to the students at the Faculty of Technical Sciences in Cacak during the second part of the Multiplier event on April 24.

The WINnovators project was presented by Sonja Radenkovic (BADEN) during the third part of a digital marketing course at the Belgrade Banking Academy - Faculty of Banking, Insurance and Finance, which was created for female students and women entrepreneurs.

The results of the WINnovators project were presented at the Multiplier event on April 19. Dragana Panajotovic, representing ABW, served as the moderator for the event and delivered a concise introduction and presentation of the project. Vladan Devedzic, Marija Blagojevic, and Sonja Radenkovic from BADEN presented the project activities and results. Tatjana Mamula Nikolic, an ABW member and associate professor at the Faculty of Management of Metropolitan University, and Olivera Popovic, the vice president of ABW, discussed mentoring and e-mentoring. Malina Stanojevic, the president of Sacuvajmo selo (Save the Village), a women's association based in Priboj, emphasized the need to provide online training and support to women residing in rural areas. Adrijana Mancic, a prospective entrepreneur hailing from Pirot, collaborated with Nadja Cirovic, a student and PhD candidate, to showcase their collaborative efforts and the outcomes they achieved within the Healer's Hands team. Adrijana also discussed the subsidies she obtained as a result of WINnovators. Zdravka Simic, a prosperous young female entrepreneur from Smederevska Palanka, delivered her message through a video presentation. Following the event, a cocktail reception and networking session took place.

The dissemination of the WINnovators project through the Multiplier events was highly successful in promoting WINnovators activities among young women and female students. As of mid-June 2024, there are currently 29 teams on the WINnovators platform, consisting of 29 young women and 16 female students participating in the Pilot Two in Serbia. The teams are at varying stages of progress

on the WINnovators platform, depending on their registration date. The intention was to continue monitoring the two WINnovators activities until the end of August 2024.

On 7 February 2024, VITECO organized in Catania, a multiplier event gathering different stakeholders; university and high school professors, NGOs in the field of education, policy makers, entrepreneurs, project managers and STEM students. A total of 32 people participated in the event, getting to know the objectives of the project and the importance of continuous learning in STEM subjects for female entrepreneurship.

## COORDINATION ACTIVITIES IN WINNOVATORS

The coordination plan was to involve susceptible young women in activities that enhance their abilities to overcome deficiencies in experience, skills, mentors, and partners. The goal was to foster the development of creative business techniques and entrepreneurial concepts. The guidelines promote engagement between young women in rural areas and students in higher education institutions (HEIs) to enhance their collective ability and influence through digital, entrepreneurial endeavors.

The coordinated efforts between the mentors and the students participating in the piloting teams have been focused on sharing experiences and discussing how the students should proceed with their activities in the teams. All teams have been different, each young woman had specific interests and ideas about how to use the knowledge she got from covering specific online courses on the WINnovators platform, and most of all each student and each young woman had their own commitments outside of the WINnovators piloting. Thus the mentors' roles included also harmonization of each team's activities and advising the students on running activities in their teams.

In addition, tight coordination between project partners was necessary throughout the project. The previous sections describe three largely different piloting scenarios, with cultural differences strongly shaping up the three different contexts. This is a situation where all partners have been learning from each other over the project lifetime, in terms of difficulties and challenges that they have all experienced along the way. Regular online project meetings have not been enough to share all of the experiences. Numerous partner-to-partner contacts have featured all the pilots.

One of the challenges was frequent personnel changes in the institution responsible for the WINnovators platform maintenance. Technical issues have arisen a number of times as well. Luckily, the efforts put in the platform maintenance have led to improvements over time. All partners helped with their comments, suggestions, and experiences to this end.

In addition, the initial version of the WINnovators badging system has undergone changes in order to more closely reflect the learner teams' needs. Coordinated activities of the partner in charge of the badging system and all other WINnovators partners have resulted in a series of upgrades and solving technical problems before the badging system, described in the next section, has become stable.

A great deal of support for carrying out the project activities has come from the management of the partner institutions, especially the university partners. They have shown understanding for their teachers' and students' activities in the project, and have also provided the necessary infrastructure and facilities for running the project activities.



## GAMIFICATION ELEMENTS IN WINNOVATORS PLATFORM

The effectiveness of gamification in e-learning systems is widely recognized in academic literature. Bouchrika et al. (2021) assert that the utilization of this technology amplifies student engagement and participation. Alsubhi et al. (2020) have observed that it also facilitates e-learning activities. Moreover, it promotes self-regulated learning, as emphasized by Li et al. (2022). Furthermore, it enhances user motivation and engagement, and yields favorable social outcomes, as evidenced by Saleem et al. (2022). Ultimately, it leads to increased satisfaction.

Under the WINnovators project, it is created a gamification system with the goal of enhancing the situational interest and involvement of participants in different educational activities. The gamification system relies on digital badges that align with the competencies outlined in the WINnovators competency framework, which was created as part of the project.

The competencies are categorized into five distinct categories: 1) Learning to be, 2) Learning to value, 3) Learning to live and work together, 4) Learning to understand and apply, and 5) Learning to empower. A participant can acquire the badge automatically by engaging with the general learning resources or by actively participating in the challenges. Every learning activity is associated with a specific set of badges that participants acquire when they successfully complete the activity. These competences represent the skills obtained during the activity. The badges can also be conferred manually by the participant to others or to themselves using a designated form. This enhances the capacity to acknowledge and evaluate the caliber of the labor and endeavors of both other participants and oneself.

As part of the WINnovators project, we carried out a survey to assess the efficacy of the gamification system employed on the web platform. The objective of our study was to determine the extent to which the utilized system enhances the educational experience in a collaborative learning setting between the institution and the community. The research findings offer valuable feedback that will enable the adjustment and enhancement of the implemented gamification tactics.

These findings are crucial for comprehending the attributes of this form of learning in order to develop guidance and policies for similar learning environments, enhance learning results, and foster innovation in pedagogical practices within university-community collaboration and education.

The data was gathered utilizing an online questionnaire created within the 1ka application. The survey consisted of 33 questions and was filled out by participants of the WINnovators training program. Demographic information was gathered through the use of five closed-ended questions. This data included gender (male, female, other), country of residence (Slovenia, Estonia, Serbia), role (WINnovator, Change agent), and place of residence (large city, suburb/outskirts of large city, smaller city, village, farm or house in the country). The following questions were categorized into multiple parts, each addressing distinct facets of gamification. The first study examined the overall perception of badge usage and the attitudes of participants towards badges. The second study focused on how badges motivate individuals to participate and their willingness to learn. The third study explored the process of awarding badges to other participants and peer assessment. Lastly, the fourth study investigated the process of badges themselves.

The fifth section of the discussion focused on the act of awarding badges to oneself and self-assessment. It also examined the visibility of participants' scores on the leaderboard and how it affects learning and collaboration with others. The final section discussed the badge overview as a

tool to track participants' progress. The majority of the questions (20) in these sections were responded to using a five-point Likert scale to express the degree of agreement with each statement. They choose from the available choices: The numerical scale for indicating agreement or disagreement is as follows: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = highly agree. The remaining questions (8) were open-ended, enabling participants to provide comprehensive ideas, suggestions, and comments pertaining to the specific issue.

The poll was conducted in accordance with ethical norms. The questionnaire guaranteed the participants' anonymity, which is crucial given that some participants belonged to vulnerable population groups. Prior to commencing data collection, we provided a comprehensive explanation to the participants regarding the survey's objective. We emphasized that their involvement in the survey was entirely optional and that they had the freedom to withdraw from participation at any point, without the need to provide a justification and without facing any repercussions. The data obtained from the questionnaire were further analyzed using quantitative methods.

A total of 93 people were enrolled in both pilot studies, with 53 participants from Slovenia (57%), 8 participants from Estonia (9%), and 32 participants from Serbia (34%). A total of 35 individuals participated in Pilot I, with 18 (52%) being from Slovenia, 6 (17%) from Estonia, and 11 (31%) from Serbia. A total of 58 individuals participated in Pilot II, with 35 participants (60%) from Slovenia, 2 participants (4%) from Estonia, and 21 participants (36%) from Serbia. In Pilot I, we neglected to invite participants to complete the questionnaire immediately following the training sessions. This was accomplished when our interaction with the subjects became less intimate. In Pilot II, we modified our strategy by directly inviting participants to participate in the survey at the conclusion of the session. This is evident in the increased number of respondents who completed the questionnaire in Pilot II.

The participants in both pilots were predominantly female, with 87 individuals (93.5%) identifying as female and 6 individuals (6.5%) identifying as male.

A total of 13 females, accounting for 86% of the participants, and 5 males, representing 14% of the participants, took part in Pilot I. A total of 35 participants took part in Pilot II, with 34 being female (98%) and 1 being male (2%).

Out of the 93 participants in both pilots, 56 (60%) identified themselves as WINnovators, while the remaining 37 (40%) identified themselves as Change Agents. 21 individuals, representing 60% of the participants, were change agents, whereas 14 individuals, representing 40% of the participants, were winnovators in Pilot I. A total of 16 individuals, accounting for 28% of the participants, were change agents, whereas 42 individuals, making up 72% of the participants, were winnovators in Pilot II. It was observed that Pilot II had a higher participation of young women from vulnerable groups compared to students, but the opposite was true for Pilot I. Out of all the participants in both pilots, 33 (35%) identified their place of residence as a large city, 12 (13%) as a suburb or outskirts of a large city, 31 (33%) as a smaller city, 12 (13%) as a hamlet, and 5 (5%) as a farm or a property in the country.

In the first pilot study, 10 participants (29%) decided to live in a large city, 6 participants (17%) selected a suburb or suburb of a large city, 11 participants (31%) chose a small town, 6 participants (17%) indicated a village, and 2 participants (6%) selected a farm or cottage in the countryside. The reactions of the

The participants in Pilot II are as listed: Out of the total respondents, 23 individuals, accounting for 40% of the sample, preferred a large city. Additionally, 6 individuals, representing 10% of the sample, chose a suburb or a suburb of a large city. Furthermore, 20 individuals, making up 35% of the sample, opted for a small town. Moreover, 6 individuals, constituting 10% of the sample, selected a village. Lastly, 3 individuals, accounting for 5% of the sample, preferred a farm or a property in the country. Out of the participants in both pilots, 42 (45%) belong to the age group 23-24, 19 (20%) belong to the age group 25-26, 12 (13%) belong to the age group 18-22, 6 (6%) belong to the age group 29-30, 5 (5%) belong to the age group 27-28, 5 (5%) belong to the age group 31-35, and 4 (4%) belong to the age group over 35. Out of the participants in the pilot, 12 (34%) belong to the age group 23-24, 8 (23%) belong to the age group 25-26, 5 (14%) belong to the age group 18-22, 3 (9%) belong to the age group 27-28, 3 (9%) belong to the age group 31-35, 3 (9%) belong to the age group over 35, and 1 (3%) belong to the age group 29-30. Out of the participants in pilot II, 30 (52%) are in the age group 23-24, 11 (19%) are in the age group 25-26, 7 (12%) are in the age group 18-22, 5 (9%) are in the age group 29-30, 2 (3%) are in the age group 27-28, 2 (3%) are in the age group 31-35, and 1 (2%) is in the age group over 35. It is evident that the majority of volunteers in each pilot study belong to the same age bracket, specifically 23 and 24 years old.

Upon analyzing the implementation of gamification elements in the initial WINnovator pilot, we discovered that achieving the Bronze, Silver, or Gold WINnovator level was exceedingly challenging. Despite accumulating a considerable number of badges, none of the participants managed to reach even the Bronze level. In the subsequent trial, we modified the parameters to facilitate the attainment of the levels, leading to a higher number of individuals successfully attaining the Bronze level.

Nevertheless, there remain other obstacles that require attention. We suggest prominently displaying the requirements for each level on the web platform. Once a level is achieved, it would be beneficial to display this accomplishment on the leaderboard. It would be beneficial to have a centralized location where we can easily identify those who have achieved a specific level.

After analyzing the input from participants regarding the badge system and the process of awarding badges, we have formulated recommendations for enhancing the gamification system of the online platform.

The number of badges available for participants to earn or award exceeded 100, enabling a highly thorough recognition of competencies. However, this large number also complicates the process of selecting the proper badge for awarding and makes it challenging to have a clear overview. We suggest consolidating individual badges into a more complete set of competences represented by a single badge in order to decrease the number of badges. Additionally, we recommend evaluating the badges that have never been utilized and eliminating them from the available badges at the discretion of the awarding organization. To facilitate the exploration of available badges, it would be beneficial to implement a more structured overview that enables searching by nation. Currently, all badges are displayed together, regardless of language. We recommend condensing the badge explanations, when feasible, to enhance their conciseness. Participants consistently emphasized that the badges might be enhanced in terms of visual attractiveness. We recommend collaborating with a graphic designer to modify the visual design of the badges.

The badge granting process posed significant challenges for the participants, since they were required to accurately complete a form containing the precise names of the badge recipients and the

corresponding badge names. Upon submitting the form, the mentor needed to validate the badge award in the system, resulting in significant delays between the awarding and receipt of the badge. Since participants have the ability to independently award badges to others or themselves, there is no requirement for a mentor to be involved in this process. Instead, the system should automatically handle the badge distribution. We propose a substantial simplification of the process for awarding badges.

When sharing the group members' efforts on the online platform, it would be beneficial to include the option for other participants to give badges as a kind of recognition, in addition to liking and commenting. To grant a badge, simply click on the badge award icon. This action will prompt a selection window to appear, allowing you to browse between the available badges. If you wish to grant a badge for work that is not publicly available on the site, we recommend bestowing it directly on the participant's profile. This could be executed in a comparable manner as for posts, with the exception that this time it would respond to the profile.

Participants not only provided several suggestions for enhancing the badge system and the process of awarding badges, but they also shared extensive feedback on the project's web platform, which serves as a learning environment for educational activities. A significant number of participants regarded the site as beneficial, easy to use, and aesthetically pleasing, with a visual layout reminiscent of Facebook. The project platform's content is instructive, engaging, and has facilitated participants in acquiring a plethora of new information and competencies. The participants also emphasized the good aspect of being able to effortlessly organize and interact in groups. Although the platform was praised for its positive attributes, nearly all participants expressed dissatisfaction with its lack of responsiveness, poor performance, and prolonged page loading times. On certain occasions, it completely failed, which can have significant consequences.

Several individuals even expressed that they refrained from using the site entirely due to its sluggish performance, which poses a significant issue since the platform's material is crucial for the effective learning of the WINnovators pilot. Furthermore, some participants encountered difficulties throughout the registration process on the platform, as the webpage containing the registration form became unresponsive or the successful registration could not be completed due to recurring system errors. The issues became particularly evident when multiple participants attempted to register on the site simultaneously during a collaborative meeting that was especially organized for participants to create a WINnovators account with the assistance of mentors. In order to ensure the long-term viability of the project's outcomes, taking into account input from participants, we recommend a comprehensive revision or upgrade of the project's platform to enhance its pace. Alternatively, the platform's sluggish performance may deter prospective users from engaging with the platform's content and participating in its activities.

After analyzing the survey results on the implementation of gamification in the WINnovators online platform, we discovered that the badge system was generally well received. Participants expressed a positive attitude towards the ability to earn badges and recognized their potential in identifying competences, both in themselves and others. Nevertheless, there are significant areas that could be enhanced in the future utilization of the platform. Commonly cited issues include the overly intricate nature of the badge system, the overwhelming quantity of badges, and the sluggish performance of the platform. The survey also indicated that badges were not the primary driving force behind participation in educational events, although they did provide an extra incentive. There were

discrepancies between the WINnovators and Change Agents groups on the allocation of badges to themselves. Young women from disadvantaged groups acknowledged the higher significance of this feature in terms of enhancing self-awareness and improving future efforts. The disparities between the two groups can be attributed to the circumstance that young women from marginalized demographics frequently experience diminished self-worth and limited opportunities to connect with assistance networks and resources. Consequently, methods of recognizing their own capabilities empower them to confront these obstacles. The data about the leaderboard indicated statistically significant disparities between young women from disadvantaged demographics and students. Young women exhibited greater reluctance in openly disclosing their findings to other participants, whereas students did not encounter any difficulties in doing so. The badge summary received positive feedback overall, however, participants expressed a preference for a more aesthetically pleasing display. Upon comparing the outcomes of Pilot I (2023) and Pilot II (2024), we noticed marginal enhancements in the participants' acceptance and drive towards badges in Pilot II. Participants in Pilot II reported that badges were a more effective tool for

Encouraging involvement, acknowledging skills, and promoting collaboration among peers.

Furthermore, self-awarded badges were more positively welcomed in Pilot II, thereby enhancing self-reflection and learning. However, participants in Pilot II showed a decreased level of comfort with the sight of the leaderboard, but it still continued to inspire them. In Pilot II, the badge overview had enhanced clarity and increased usefulness. The findings indicate that the implementation of the gamification system was more successful in Pilot II (2024), as it benefited from the knowledge and insights gained from the previous year.

## WINNOVATORS INTERACTIVE WORKING SPACE SUSTAINABILITY

The sustainability of the WINnovators Working Space beyond the project's conclusion is largely attributed to its foundational strategies and focus on community engagement. The platform is designed to cultivate a self-sustaining ecosystem by integrating local businesses and individuals in a collaborative environment, thereby fostering continuous innovation and knowledge exchange. VITECO will continually update the platform with support from all partners throughout the project's duration and beyond, ensuring at least two additional years of operation after the project concludes. Partners will continue to utilize the developed materials in their daily work activities and promote them among the project's identified target groups. The interactive space will be maintained by VITECO for at least two years following the project's completion. Maintenance will include essential actions for its usability, such as approving new users, providing technical resolutions and assistance for any issues that may arise, and performing data backups.

The WINnovators platform domain will be renewed by VITECO until November 2026. To enhance the platform's exploitability, VITECO plans to submit a follow-up proposal for the WINnovators project during the upcoming Erasmus+ funding period in March 2025, aimed at scaling up its methodology within the Higher Education Institution (HEI) ecosystem across various European contexts. Should this action not yield the desired outcomes, VITECO will create a backup of the platform, archive it, and discontinue its domain. This will allow the organization to preserve the platform for potential future successful follow-ups.

## CONCLUSION

The document examines the WINnovators e-training and coordination protocols implemented in Estonia, Serbia, and Slovenia during the pilot phases in 2023 and 2024. WINnovators use capacity building strategies to train and coordinate Higher Education Institutions (HEIs), Open Innovation Ecosystems (OIEs), and local communities. The program specifically focuses on empowering young women in rural regions by fostering collaboration, learning, and the development of creative job ideas. This is achieved through teamwork between HEI students and OIE specialists.

The report explores strategies for involving HEi students and young rural women in acquiring WINnovators competencies and enhancing their skills through the use of e-learning tools. Module 1 focuses on the issues faced by community entrepreneurs in the fields of STEM and STEAM.

The challenges consist of collaborative learning modules designed to assist young women in rural areas in developing ideas related to STEM/STEAM, sustainability innovation, and entrepreneurship. Estonia, Serbia, and Slovenia provide diverse challenges thanks to the competence of young women, students, and local mentors.

The research serves as the foundation for the interaction guidelines of WINnovators' e-learning Module 2, which focuses on capacity building training in both the WINnovator space and local settings. The contents of these modules have been developed based on the second year of the project's pilot phase and have been tested throughout the third year of the project.

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