Re-UNITA project

Research for UNITA

Deliverable D3.3 – Alliance Talent Initiatives Programme

University of Beira Interior

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University of Beira Interior

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Abstract

The Alliance UNITA – Universitas Montium relies on the cooperation of six European Universities, all romance language speaking, committed to foster the socio-economic development of their rural and cross border mountain areas.

In this context, the Re-UNITA Project was launched in September 2021 within the UNITA constellation, with the aim of becoming one of the main players in the construction of the new European Research Area, developing a common Research and Innovation strategy within the UNITA Alliance, and around three core research topics: Cultural Heritage, Renewable Energies and Circular Economy.

One of the main purposes of the Re-UNITA Project is to identify the state of research in the Alliance by mapping the research policies of each partner University, in order to identify and exchange common modalities and specificities, as well as good practices.

This is the first step in building a roadmap on a common strategy for UNITA's Research Policy.

Furthermore, it is intended to outline a common strategy and programmes for human resources, share research infrastructure across the Alliance, and develop innovation and entrepreneurship skills.

Beyond these goals, the Re-UNITA Project aims to involve the entire community from the territories where the UNITA Universities are located, as a way of boosting the sustainable development and empowerment of these regions.

In this sense, the Work Package 3 (WP3) of Re-UNITA was established with the purpose of strengthening human capital, enabling balanced brain circulation and gender balance. And one of its tasks - Task 3.3 - aims to design a talent development programme, an international competition focused on PhD students from Re-UNITA Universities, relying on the involvement of local stakeholders (private companies and entrepreneurs) from partners' territories.

The overall objective of this activity was, at an initial phase, for each University to organize local events (National Workshops) to involve stakeholders, who were invited to propose challenges in their area of expertise and that are related to UNITA's three main topics - Renewable Energies, Circular Economy and Cultural Heritage.

In a second moment, an international competition was launched among the six Re-UNITA Universities, where PhD students' teams are invited to participate, choosing one of the three main scientific areas and the respective challenge proposed by the stakeholders, and will start working

with innovative solutions for the challenge chosen, competing with other PhD teams from partner Universities.

At the final phase, three International Juries – one for each scientific area – will analyse the projects proposed by the PhD students' teams and will choose a winner for each area.

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1. General overview of Task 3.3: Design of a Talent Development Programme

The Task 3.3 of WP3 of Re-UNITA – Design of a Talent Development Programme, aims to promote an international contest between PhD students' teams from the six partner Universities, intending to acknowledge talent and promote innovation attitude among Re-UNITA early-stage researchers.

In this sense, and in order to foster the involvement between the local and the academic community, the Re-UNITA's Grant Agreement foresees the key role played by private companies and entrepreneurs active in the partners' territories, who were invited to identify challenges connected to the three main topics of UNITA – Circular Economy, Cultural Heritage, and Renewable Energy.

Given the specificities of the activity and the relevant role played by local stakeholders, the University of Beira Interior, as leader of Task 3.3, suggested to the partner Universities that this task could be developed in four phases, in order to make the most of the potential of all actors involved.

The four phases will be explained in detail below.

1.1 First Phase: Identification of local stakeholders and facilitators

This first stage, conceived as a national phase, was developed by each partner University in its own territory.

The six Universities, through their Re-UNITA Task 3.3 members, identified local stakeholders – private companies and entrepreneurs – involved with the three main topics of UNITA: Circular Economy, Cultural Heritage, and Renewable Energy.

The objective was to establish the first contact, explaining the activity and inviting the local stakeholders – from each partner territory – to take part in the task at the first moment, playing a fundamental role before the competition launch. This first stage was extremely important, as it also contributed to intensify the involvement between stakeholders and the academic community.

In addition, each partner University was invited to identify "facilitators" – one for each scientific area. In order to be also involved with the activities of Task 3.3, a specific profile of facilitators was suggested: Professors and/or Researchers from partner Universities, specialists in the respective scientific area (Circular Economy, Cultural Heritage, and Renewable Energy), and with some previous experience in the application of participative and collaborative methodologies in workshops.

Both – local stakeholders and facilitators – were contacted by members from each partner University and were invited to participate in local events, as will be described in the second phase below.

1.2 Second Phase: National workshops with local stakeholders & Proposition of challenges

The idea of this second stage, also conceived as a national phase, was that each partner University would organize national workshops involving local stakeholders and facilitators of the respective scientific area, in each region.

The partner Universities had the autonomy to organize their events in the way that best suited them. The main objective of these events was to involve local stakeholders, inviting them to identify challenges in their area of expertise that requires innovative solutions, and which are perceived as obstacles to the sustainable territorial development.

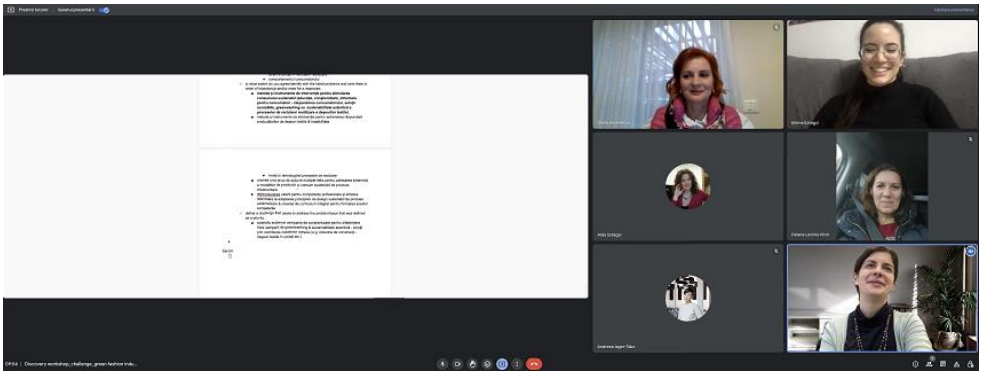
Some partners developed this activity through workshops, and other partners organized the activities through a more informal structure (i.e.: informal or online meetings with local stakeholders), but in all cases, the main objective was to involve both the academic community and local stakeholders.

As for the workshops, the activity was coordinated by facilitators (specialists in one of Re-UNITA's three main scientific areas, belonging to the respective partner University), who were responsible for organizing the debate between stakeholders, using collaborative methodologies, in order to encourage discussion and reach a consensus, so that at the end of the event they have identified a challenge per University, for each area.

Some photos of the events held demonstrate the participation of local stakeholders, representatives of companies and organizations, and highlight the importance of organizing activities that promote the involvement between community and university:


RE-UNITA
Design of a talent development program
Re-UNITA's International Talent Challenge Workshops Nacionais
20 de Janeiro de 2023
Faculdade de Artes e Letras
Sala 1.6 - Ponto de Encontro
(piso superior dos Serviços Académicos)
Universidade da Beira Interior
Programa:
09h15 | Sessão de boas vindas
Sílvia Socorro, Vice-Reitora para a Investigação, Inovação e Desenvolvimento
09h40 | Apresentação da atividade e desafios
Amélia Augusto, Vice-Reitora para a Qualidade, Responsabilidade Social e Ação Social
10h30 | Workshops
Com a participação de stakeholders e docentes da UBI, dinamizados no âmbito das seguintes áreas:
> Economia Circular | João Leitão | Fac. Ciências Sociais e Humanas
> Energias Renováveis | Luís Pires | Fac. de Engenharia
> Herança Cultural | Urbano Sidoncha | Fac. Artes e Letras
12h30 | Encerramento com almoço


RE-UNITA
Traçar uma estratégia comum de investigação no seio da aliança UNITA
Outlining a common strategy for research and innovation within the UNITA Alliance




UNITA
universitas montium
UNIVERSITÀ DI TORINO
Re-Unita
Talent Development Programme
UniTo e gli attori del territorio individuano insieme le sfide per la ricerca del futuro
Lunedì 23 Gennaio in Sala Blu del Rettorato, Via Po 17
mercato circolare
ADAMANTIO
LIBERITUTTI
Verdessenza
ERI


Progetto Re-UNITA - Research for UNITA


UNIVERSITÀ DI TORINO


Robert Bilaga
Marius Paulescu
Radu Babau
Tu

As an example of how the dynamics of the activities took place, the workshops started with a presentation session, to introduce the overall objective of the UNITA Alliance and Re-UNITA Project, and the purpose of Task 3.3 (highlighting the importance of companies' involvement with the academic community).

After the presentation session, the companies' representatives were divided by scientific areas into three different spaces, where the group dynamics took place, coordinated by the respective facilitators.

As stated, the purpose of this second phase of Task 3.3 was to integrate, in some way, the local stakeholders in the activity, considering their practical knowledge and the fundamental role in identifying global challenges in their area of expertise. Some of the local stakeholders from the five countries that participated in this activity are: Aragon Government, Diputación Provincial de Zaragoza, Ayuntamiento de Zaragoza, SAICA group, Fertinagro Biotech, Fundación Hidrógeno Aragón, Adamantio s.r.l., Cooperativa Sociale LiberiTutti, i-Tes s.r.l. (Thermal Energy Storage), Mercato Circolare s.r.l., European Research Institute Onlus, Verdessenza Società Cooperativa, Aldeias do Xisto, EMPDS - Empresa Municipal de Promoção e Desenvolvimento Social do Concelho de Belmonte, NEST – Tourism Innovation Center Portugal, Resiestrela, Minas da Panasqueira, Formas Efémeras, Cerfundão, Enforce, Enerarea – Agência Regional de Energia e Ambiente do Interior, Pole métropolitain Pays de Béarn, Communauté de Communes du Haut-Béarn, Musée Jeanne d'Albret, ENERGY OPV, SYANE Énergies & Numérique, 1989 Revolution Memorial Museum (Timisioara), TerraPia NGO, Institute for Advanced Environmental Studies (Timisoara).

As a result of the activities carried out by partner universities, the following challenges were identified in each of the three thematic areas:

CIRCULAR ECONOMY	Recovery of metals with potential for circular economic appreciation.
	Usually, small productive realities employ vacuum packaging for commercializing their products (meats, cheeses) in the territory. For this purpose, they use high and/or low-density polyethylene (HDPE and LDPE), but this packaging is often disposed of as municipal waste despite its recyclability. Within a cradle-to-cradle approach assisted by Life Cycle Assessment (LCA) analysis, the challenge is to synthesize a new compostable food packaging with high barrier properties.
	Develop a model for the prospective evolution of a market for secondary raw materials. Explanation: Since secondary raw materials are collected but are not produced,the offer is inelastic with respect to the price, which causes a behaviour of this market very different from the traditional markets for raw materials. The systems of circular economy will increase the participation of these secondary raw materials and therefore the prevision of the future behaviour of those markets as a function of variables such as the market activity, is an essential need.
	The Ethiquable cooperative society is located in Fleurance in the Gers (FRANCE), a town of 6800 inhabitants, with a strong industrial zone comprising some fifty companies. Within this industrial area located in a rural zone, it wishes to promote the creation of a socio-economic fabric based on the circular economy, making it possible to meet both the challenges of economic vitalization and the objectives of sustainable development. Taking the example of the pioneering project of the Danish city of Kalundborg and the concept of "Industrial Symbiosis", the PhD students will assess how circular economy relationships can enable socio-economic actors in an industrial basin located in a rural area to better manage and valorise their resources, waste and other secondary productions (heat, cold, energy, water, etc.) As employment is a key issue in these areas, the PhD students will also assess the needs of employees in order to propose solutions for pooling (carpooling, childcare, catering, etc.). The PhD students will propose an action plan and a methodology based on the research and experiments already carried out, in order to allow a local implementation of such an approach, considering the technical, legal and political aspects. The roles of the different actors in the territory, and in particular the local authorities, should also be highlighted.
	Evidence-based campaign for citizens, aimed at raising awareness on greenwashing vs. authentically circular production and consumption models in/related to the fashion industry?

CULTURAL HERITAGE	How to build an ecosystem for Cultural Heritage that combines the dimensions of experience, communication and sustainability?
	The starting point is the tangible heritage, such as architectural heritage, museum collections, places, etc., and the intangible heritage, such as knowledge, stories and memories guarded by the elderly, festivals, music, etc., which can be found in small mountain villages. The challenge is to make this cultural heritage cognitively, culturally and linguistically accessible to different audiences in terms of age, cultural background and origin, or to audiences with fragilities (psychological distress and cognitive fragility) through the use of technology and storytelling, capable of containing 'scientific' information together with information retrieved from the involvement of the local population. The technology would insist on digitisation, multimedia and data from conservation science applied to cultural heritage. Once a database has been created with new digital content (also obtained from scientific research) or with the aggregation of existing content, the final goal is to create an A.I. trained in recognising different levels of complexity, accessibility and involvement and thus able to think up new paths with storytelling accessible to all and for different needs.
	Develop a set of plans, programs and ideas to disseminate the cultural heritage of areas with low populations density or low economic income in the social media. Explanation: The answer to this challenge should propose one or several projects to be managed by professional persons in the fields of cultural heritage, with the target of a broad diffusion of several aspects of cultural heritage in social media. Those projects should include a part with an explanation, scientific or artistic and other part with technical comments. The answer should include marketing strategies and the use of information and communication technologies.
	How can the heritage of isolated rural areas be integrated into virtuous economic revitalisation and tourism projects? The regions where the Alliance UNITA universities are located include many isolated peripheries: mountain valleys, remote villages where there is no internet, etc. These areas are often in the process of desertification and economic decline. For many local elected representatives, cultural heritage seems to be one of the keys to revalorise their territory. Unfortunately, this is often done unilaterally, without consultation with the inhabitants, who are afraid of denaturing the region by opening it up to mass tourism or are often wary of tourism that is disconnected from their reality. This raises the question of whether there is a happy medium between an unbridled economic opening up (of the Puy du Fou type in France) or the sealing off of a frozen rurality. Can we envisage this revitalisation through a transdisciplinary approach (craft skills, new technologies, services, etc.) while considering the limits inherent in such places (accessibility, mobility, ecological preservation)? The question is also how to involve the local population and propose a participative enhancement of the heritage, so that they can make it their own and contribute to its preservation and transmission (especially in the case of intangible heritage).
	Cibus pauperism – Food-related narratives of survival, food in periods of crisis

RENEWABLE ENERGY	Develop a micro-hydroelectricity in-line module for energy recovery in new or existing water supply networks, specifically adapted to the UNITA territories
	Sustainable energy and energy efficiency solutions for mountain communities are a priority. The challenge in the renewable energy for mountain communities and ecosystems lies in developing economically sustainable energy development, while preventing and minimizing negative environmental and social impacts. The proposed solution aims to apply phase change accumulation systems (PCM), which have the advantage, compared to current storage systems, to exploit a physical phenomenon, such as the change of state of materials, for storing large quantities of energy, in the form of latent heat of fusion, in small volumes. This solution has been so far successfully exploited in industry and we envisage a great potential for mountain communities by one side improving the chemical-physical performance of the materials and their eco-compatibility, on the other side adapting these accumulations to the mountain communities needs and develop local energy production in synergy to diverse sources such as, for example, solar and geothermal energy.
	The company EnergyOPV, based in SEDZE-MAUBECQ, France, develops organic photovoltaic panels, whose main characteristics and advantages are: - 30 times less carbon footprint than silicon panels for the same energy output - Totally and easily recyclable. - Transparency of 40% allows the use in shade with the possibility of culture. - 4 colours (blue, grey, red, green) for a better integration with the building. - Very light, so can be installed without structural reinforcement. These photovoltaic panels have already been installed on buildings located in the plain. Today, the EnergyOPV company wishes to experiment with the installation of such panels at a high altitude, on exceptional mountain buildings, in order to be able to offer a response to the energy needs in these mountain areas, while limiting the production of waste and respecting the regulations linked to such buildings. In the French Pyrenees, the installation on the Pic de Midi observatory is, for example, envisaged, and represents constraints that can be shared with other places in the mountain ranges covered by the UNITA Alliance (refuges, fortresses, etc.), and which are fully in line with the work areas of the UNITA Alliance (renewable energies and cultural heritage in mountain areas). The PhD students will propose a methodology and an action plan to facilitate the installation of photovoltaic panels in high altitude areas on exceptional buildings, highlighting the various constraints. that such an approach represents (technical, regulatory, heritage, etc.) and promoting the advantages that organic photovoltaic panels represent.
	Improving geophysical methods for estimating the geothermal potential and the associated hazards in the region of Annecy.
	Design a residential system for obtaining energy independence (thermal and electrical) based on renewable energy sources, located in the family garden. (solutions that maximize the use of soil and multifunctionality will be additionally appreciated).

1.3 Third Phase: Composition of International Juries & Selection of challenges for each scientific area

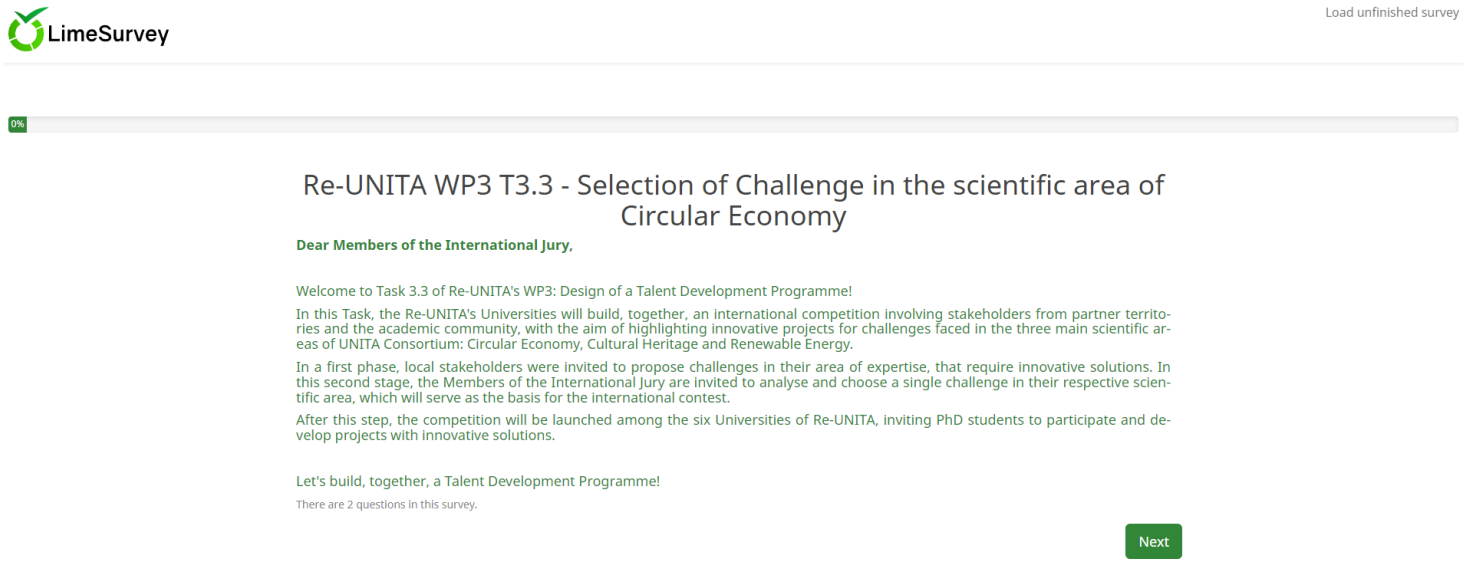
The third phase of Task 3.3 was intended for the constitution of the International Juries, and, also, for the selection of the challenges that will integrate the international contest.

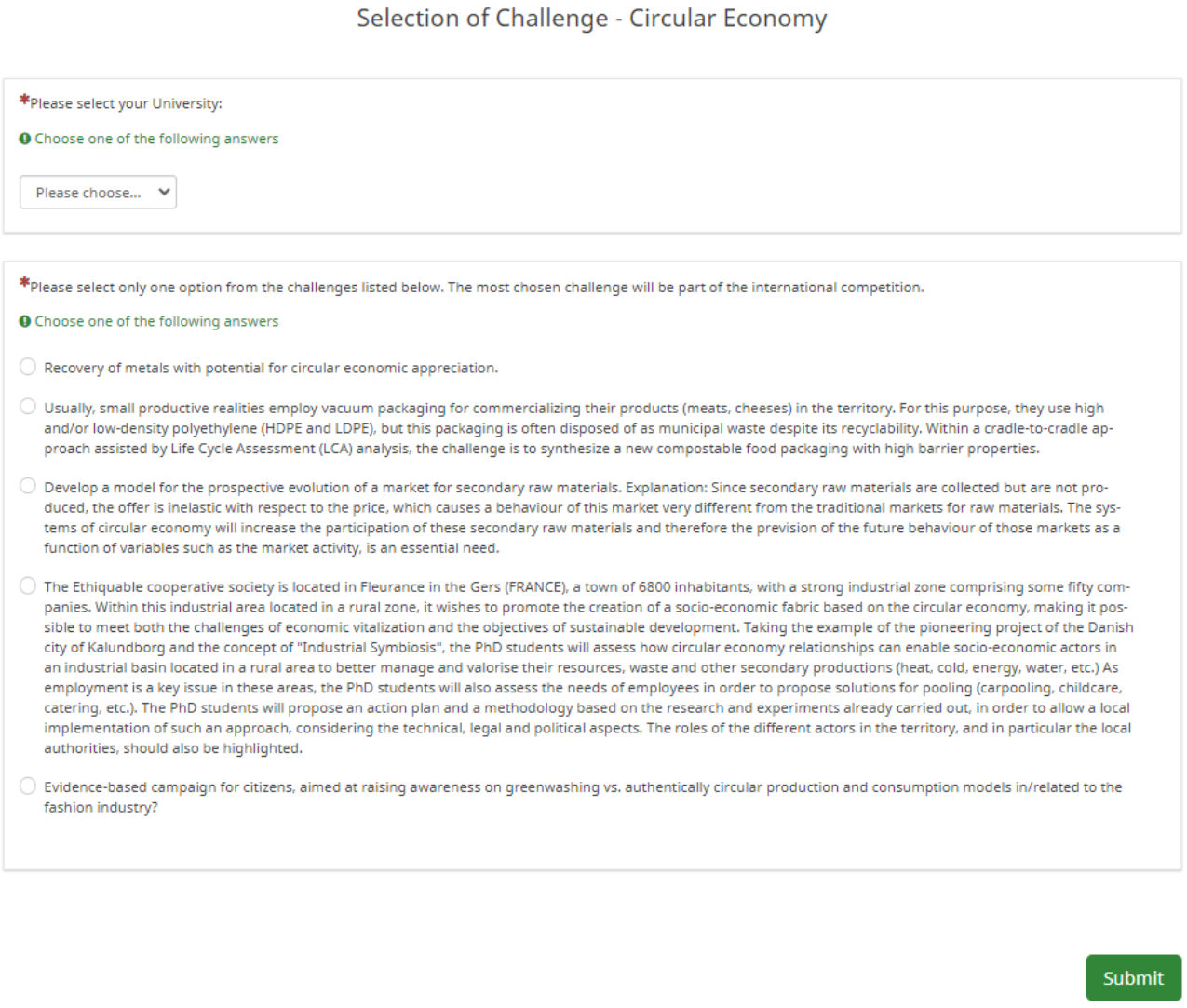
The objective was to constitute three International Juries – one for each scientific area – with experts from each partner university.

First, each university indicated, among its Professors and Researchers, an expert in each of the three scientific areas. In this way, three International Juries were constituted, each of them with six members (one from each partner university).

After the International Juries' constitution, each International Jury's members received the link to access the Lime Survey Platform, in which they would find the respective list of challenges (resulted from the second phase), for each area.

As a demonstration, below is an example of the survey's structure for the scientific area of Circular Economy:





Selection of Challenge - Circular Economy

*Please select your University:

Choose one of the following answers

Please choose...

*Please select only one option from the challenges listed below. The most chosen challenge will be part of the international competition.

Choose one of the following answers

- Recovery of metals with potential for circular economic appreciation.
- Usually, small productive realities employ vacuum packaging for commercializing their products (meats, cheeses) in the territory. For this purpose, they use high and/or low-density polyethylene (HDPE and LDPE), but this packaging is often disposed of as municipal waste despite its recyclability. Within a cradle-to-cradle approach assisted by Life Cycle Assessment (LCA) analysis, the challenge is to synthesize a new compostable food packaging with high barrier properties.
- Develop a model for the prospective evolution of a market for secondary raw materials. Explanation: Since secondary raw materials are collected but are not produced, the offer is inelastic with respect to the price, which causes a behaviour of this market very different from the traditional markets for raw materials. The systems of circular economy will increase the participation of these secondary raw materials and therefore the prevision of the future behaviour of those markets as a function of variables such as the market activity, is an essential need.
- The Ethiquable cooperative society is located in Fleurance in the Gers (FRANCE), a town of 6800 inhabitants, with a strong industrial zone comprising some fifty companies. Within this industrial area located in a rural zone, it wishes to promote the creation of a socio-economic fabric based on the circular economy, making it possible to meet both the challenges of economic vitalization and the objectives of sustainable development. Taking the example of the pioneering project of the Danish city of Kalundborg and the concept of "Industrial Symbiosis", the PhD students will assess how circular economy relationships can enable socio-economic actors in an industrial basin located in a rural area to better manage and valorise their resources, waste and other secondary productions (heat, cold, energy, water, etc.) As employment is a key issue in these areas, the PhD students will also assess the needs of employees in order to propose solutions for pooling (carpooling, childcare, catering, etc.). The PhD students will propose an action plan and a methodology based on the research and experiments already carried out, in order to allow a local implementation of such an approach, considering the technical, legal and political aspects. The roles of the different actors in the territory, and in particular the local authorities, should also be highlighted.
- Evidence-based campaign for citizens, aimed at raising awareness on greenwashing vs. authentically circular production and consumption models in/related to the fashion industry?

Submit

The same structure was made for Cultural Heritage and for Renewable Energy, with the respective list of challenges for each of them.

Each member of the International Juries received the respective link to access the LimeSurvey Platform, concerning their scientific area, with instructions on how to vote.

After the inquiry, the results were extracted from the platform and the three most voted challenges – one in each scientific area – were communicated to the International Juries' members, after which they were integrated into the contest rules.

The selected challenges were:

- **Circular Economy:** The Ethiquable cooperative society is located in Fleurance in the Gers (FRANCE), a town of 6800 inhabitants, with a strong industrial zone comprising some fifty

companies. Within this industrial area located in a rural zone, it wishes to promote the creation of a socio-economic fabric based on the circular economy, making it possible to meet both the challenges of economic vitalization and the objectives of sustainable development. Taking the example of the pioneering project of the Danish city of Kalundborg and the concept of "Industrial Symbiosis", the PhD students will assess how circular economy relationships can enable socio-economic actors in an industrial basin located in a rural area to better manage and valorise their resources, waste and other secondary productions (heat, cold, energy, water, etc.) As employment is a key issue in these areas, the PhD students will also assess the needs of employees in order to propose solutions for pooling (carpooling, childcare, catering, etc.). The PhD students will propose an action plan and a methodology based on the research and experiments already carried out, in order to allow a local implementation of such an approach, considering the technical, legal and political aspects. The roles of the different actors in the territory, and in particular the local authorities, should also be highlighted.

- **Cultural Heritage:** How can the heritage of isolated rural areas be integrated into virtuous economic revitalisation and tourism projects? The regions where the Alliance UNITA universities are located include many isolated peripheries: mountain valleys, remote villages where there is no internet, etc. These areas are often in the process of desertification and economic decline. For many local elected representatives, cultural heritage seems to be one of the keys to revalorise their territory. Unfortunately, this is often done unilaterally, without consultation with the inhabitants, who are afraid of denaturing the region by opening it up to mass tourism or are often wary of tourism that is disconnected from their reality. This raises the question of whether there is a happy medium between an unbridled economic opening up (of the Puy du Fou type in France) or the sealing off of a frozen rurality. Can we envisage this revitalisation through a transdisciplinary approach (craft skills, new technologies, services, etc.) while considering the limits inherent in such places (accessibility, mobility, ecological preservation)? The question is also how to involve the local population and propose a participative enhancement of the heritage, so that they can make it their own and contribute to its preservation and transmission (especially in the case of intangible heritage).

- **Renewable Energy:** Design a residential system for obtaining energy independence (thermal and electrical) based on renewable energy sources, located in the family garden. (solutions that maximize the use of soil and multifunctionality will be additionally appreciated).

In addition to the composition of the International Juries, the contest rules also foresee the existence of an Honor Committee, composed of six members who integrate the External Scientific Board of Re-UNITA (external and independent evaluation body of the Re-UNITA - Research for

UNITA), with two members in each scientific area. The members of the Honor Committee will act as observers and will accompany the meetings of the respective International Juries during the course of the contest, depending on the scientific area to which they belong, with the aim of assessing the quality of the work done.

1.4 Fourth Phase: Competition Launch - UNITA PhD International Talent Challenge

The objective of developing the Task 3.3 in four phases was to involve the civil society and the academic community in the activity's organization, integrating local stakeholders from distinct territories with academic staff, professors, and researchers. This point meets one of the purposes of the Re-UNITA project and the UNITA constellation, which aims to foster the sustainable territories development through the involvement of all actors – academic and non-academic. The identification of challenges by local stakeholders provided a realistic perception of global problems, which demand practical and innovative solutions (and which could be developed by PhD students during the competition).

Following the several steps planned for this activity, the fourth and last phase of Task 3.3 corresponds to the launch of the international competition between the six partner universities.

After the proposition of challenges by local stakeholders, and the subsequent selection of the three challenges – one in each scientific area – by the International Juries' members, the contest regulation was prepared by UBI team members and was validated by all members of Task 3.3.

Following this stage, the international competition was launched among the six universities, inviting PhD students' teams to participate and embark on the adventure. More specific information regarding the contest will be described in Part 2 and in the Annex of this Report.

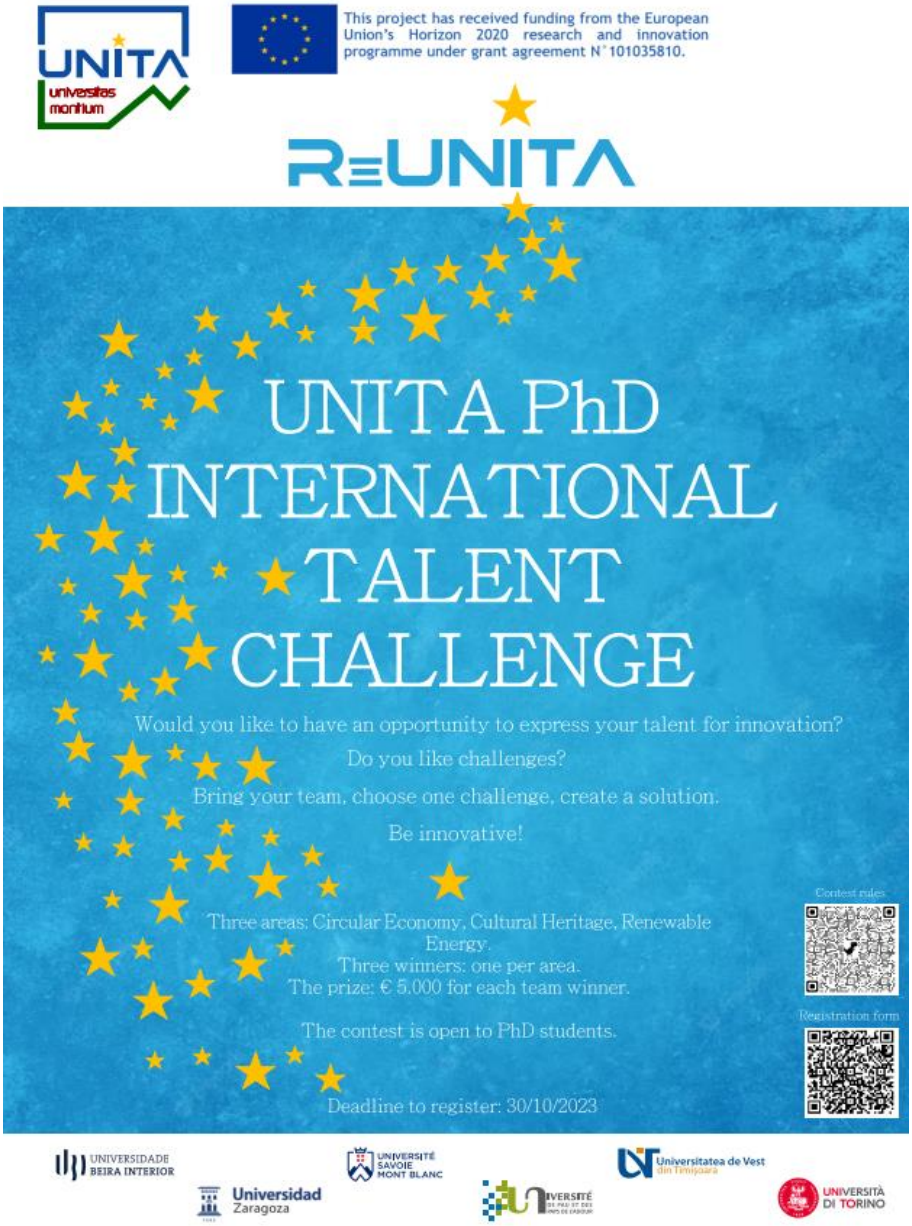
2. UNITA PhD International Talent Challenge: an international contest between the six Re-UNITA's Universities

Considering the overall purpose of the Project Re-UNITA – Research for UNITA, the Task 3.3 – Design of a Talent Development Programme was structured in a way that could deepen the involvement

between local actors and the academic community, aiming, therefore, to motivate PhD students to develop proposals with innovative solutions to the challenges presented.

Following all phases that were carried out since the beginning of the activity, and after the approval of the contest rules by all Task 3.3 team members, the international competition could be launched on the 10th of July 2023.

Registrations will be open until October 30th, for all PhD students' teams from the six partner universities.



The following sections will provide specific information about the international contest, which is now in progress, based on the rules approved by all Task 3.3 members.

2.1. Object and scope

The UNITA PhD International Talent Challenge is an international competition launched under the Re-UNITA - Research for UNITA Project, for PhD students from the six partner Universities of the European Universities Alliance UNITA – Universitas Montium and the Re-UNITA project, namely, University of Beira Interior - UBI, Università di Torino - UNITO, Universidad de Zaragoza - UNIZAR, Université de Pau et des Pays de l'Adour - UPPA, Université Savoie Mont Blanc - USMB, and Universitatea de Vest din Timisoara - UVT.

The contest will distinguish the best innovative proposal presented by teams of PhD students from each of the universities (UBI, UNITO, UNIZAR, UPPA, USMB, UVT), in each of the three main scientific areas of the UNITA Alliance - Renewable Energy, Circular Economy and Cultural Heritage. The teams of PhD students should propose an innovative solution to the challenges presented in the competition.

The contest will award a prize in each of the three scientific areas based on the following challenges:

a) Renewable Energy: Design a residential system for obtaining energy independence (thermal and electrical) based on renewable energy sources, located in the family garden (solutions that maximize the use of soil and multifunctionality will be additionally appreciated).

b) Circular Economy: The Ethiquable cooperative society is located in Fleurance in the Gers (FRANCE), a town of 6800 inhabitants, with a strong industrial zone comprising some fifty companies. Within this industrial area located in a rural zone, it wishes to promote the creation of a socio-economic fabric based on the circular economy, making it possible to meet both the challenges of economic vitalization and the objectives of sustainable development. Taking the example of the pioneering project of the Danish city of Kalundborg and the concept of "Industrial Symbiosis", the PhD students will assess how circular economy relationships can enable socio-economic actors in an industrial basin located in a rural area to better manage and valorise their resources, waste and other secondary productions (heat, cold, energy, water, etc.). As employment is a key issue in these areas, the PhD students will also assess the needs of employees in order to propose solutions for pooling (carpooling, childcare, catering, etc.). The PhD students will propose an action plan and a methodology based on the research and experiments already carried out, in order to allow a local implementation of such an approach, considering the technical, legal and political aspects. The roles of the different actors in the territory, and in particular the local authorities, should also be highlighted.

c) Cultural Heritage: How can the heritage of isolated rural areas be integrated into virtuous economic revitalisation and tourism projects? The regions where the Alliance UNITA universities are located include many isolated peripheries: mountain valleys, remote villages where there is no internet, etc. These areas are often in the process of desertification and economic decline. For many local elected representatives, cultural heritage seems to be one of the keys to revalorise their territory. Unfortunately, this is often done unilaterally, without consultation with the inhabitants, who are afraid of denaturing the region by opening it up to mass tourism or are often wary of tourism that is disconnected from their reality. This raises the question of whether there is a happy medium between an unbridled economic opening up (of the Puy du Fou type in France) or the sealing off of a frozen rurality. Can we envisage this revitalisation through a transdisciplinary approach (craft skills, new technologies, services, etc.) while considering the limits inherent in such places (accessibility, mobility, ecological preservation)? The question is also how to involve the local population and propose a participative enhancement of the heritage, so that they can make it their own and contribute to its preservation and transmission (especially in the case of intangible heritage).

2.2. Contest operation and schedule

The UNITA PhD International Talent Challenge started on July 2023 and will run until July 2024. The opening announcement and the regulation for the contest were published simultaneously in the six partner Universities of Re-UNITA, on the 10th of July, through the appropriate means (on the universities web pages, on the website of the Alliance UNITA – Universitas Montium, Newsletters of UNITA and Re-UNITA, and by e-mail to the internal contact lists).

The stages of the competition must respect the following schedule:

a) Submission of the Registration Form: until 30/10/2023.

b) Analysis of applications, verification of admission requirements and preparation of the list of candidates admitted and excluded from the competition: until 10/11/2023.

   Concerning this topic, it was agreed that UBI will centralize the process of receiving the applications from PhD teams in LimeSurvey, and then will send the information and documents to each partner University, so that each partner can verify the documentation and validate the respective application.

c) Development of proposals by PhD students' teams, with the support of mentors chosen by each team: until 31/05/2024.

d) Delivery of Final Proposals: 31/05/2024.

e) Presentation of the Final Proposals by each of the PhD students' teams, to the International Jury in online format (Pitch Session): mid-June 2024.

f) Announcement of the winning proposals and respective teams in each area and for each challenge: beginning of July 2024.

2.3. The Mentor's role within the Talent Development Programme

Considering that the international contest is structured as a talent development programme involving PhD students, the activity foresees the participation of Mentors during the competition, who will play a fundamental role in supporting the teams during the works' development.

The Mentor must be a Professor and/or Researcher from the University of the respective participating team, and will accompany the team members during the period of works' development, considering the support from the point of view of the scientific development of the proposed solution and its potential for innovation.

Each team selected to participate in the contest must indicate a Mentor, identifying him/her and attaching the respective Letter of Acceptance when delivering the final proposal of the project.

2.4. Evaluation and ranking criteria

The proposals submitted by the PhD students' teams will be evaluated based on the following criteria:

a) Originality of the proposal and quality of the work plan (40%).

b) Feasibility of the work plan and adequacy of the research team (30%).

c) Potential for application (15%).

d) Performance in the Pitch Session (15%).

The proposals will be classified from 0 to 20 points in each of the evaluation criteria and ranked according to the final classification obtained, rounded to one decimal place.

The contest will distinguish three winning teams, one for each of the three scientific areas and respective challenges. The prize to be awarded to each winning team will be €5,000 (five thousand euros), with a final amount of €15,000 (fifteen thousand euros) to be allocated to the competition.

Conclusions

The Re-UNITA - Research for UNITA Project was born within the framework of the Alliance UNITA – Universitas Montium, and one of its main objectives lies in building a European Research Alliance in which the academic community, private and public stakeholders and citizens from different territories can foster their involvement and, together, unite efforts to face the several challenges that affect these peripheral regions, focusing on sustainable territorial development.

With this concept in mind, the Talent Development Programme was designed from the beginning in order to promote the involvement of local actors in the construction of one of the main components of the competition: the challenges!

The purpose of this dynamic was to involve local stakeholders, taking advantage of all their expertise, so that they could identify current challenges in their areas of activity.

It was not an easy assignment, and this task allowed us to perceive that there is still a barrier, which hinders the approximation between the academia and the society.

In a next phase, the proposed challenges were submitted to the International Juries evaluation, in order to have the most voted challenge in each scientific area.

It is important to underline that the analysis and voting by the International Juries was made in a "blind-eyes" format, that is, the members of the Juries did not know which of the members was voting for which challenge.

A characteristic that is important to mention regarding the structure of the International Juries, is that each of the three Juries has a President, who was chosen among and by the respective members.

Finally, after having the most voted challenge in each area, the three challenges were incorporated into the contest rules, which was submitted for approval by all the members of Task 3.3, and the contest could finally be launched among the six Re-UNITA's universities, dedicated to PhD students' teams.

The UNITA PhD International Talent Challenge will run until July 2024, following the proposed and approved calendar, and PhD students' teams will have approximately six months to develop their works, with the Mentor's support.

In the end, it is intended to highlight the best proposal with innovative solutions for each scientific area and the respective challenge, and it is expected that these proposals can contribute to tackling the underlined problems.

Finally, it is possible to assert that the Talent Development Programme was successfully designed and accomplished by all members from Task 3.3, Work-Package 3 of Re-UNITA.

Although some barriers were identified during the process of building the international contest, namely the difficulties faced in involving local stakeholders in the activity, these obstacles could be managed by team members, in order to complete the process of launching the competition.

Nevertheless, it is important to emphasize that this limitation concerning the involvement between local stakeholders, civil society and the academic community, must be faced and overcome, in order to allow the full achievement of the objectives proposed by the European Universities Alliances, providing real and sustainable benefits for society and its territories.

Annex – Contest Rules

UNITA PhD INTERNATIONAL TALENT CHALLENGE 2023/2024

CONTEST RULES

Article 1

Object and scope

1 – The UNITA PhD International Talent Challenge is an international competition launched under the Re-UNITA - Research for UNITA Project, for PhD students from the six partner Universities of the European Universities Alliance UNITA – Universitas Montium and the Re-UNITA project, namely, University of Beira Interior - UBI, Università di Torino - UNITO, Universidad de Zaragoza - UNIZAR, Université de Pau et des Pays de l'Adour - UPPA, Université Savoie Mont Blanc - USMB, and Universitatea de Vest din Timisoara - UVT.

2 – The contest will distinguish the best innovative proposal presented by teams of PhD students from each of the universities (UBI, UNITO, UNIZAR, UPPA, USMB, UVT), in each of the three main scientific areas of the UNITA Alliance - Renewable Energy, Circular Economy and Cultural Heritage. The teams of PhD students should propose an innovative solution to the Challenges presented in the competition.

3 – The contest will award a prize in each of the three scientific areas based on the following Challenges:

a) Renewable Energy: *Design a residential system for obtaining energy independence (thermal and electrical) based on renewable energy sources, located in the family garden (solutions that maximize the use of soil and multifunctionality will be additionally appreciated).*

b) Circular Economy: *The Ethiquable cooperative society is located in Fleurance in the Gers (FRANCE), a town of 6800 inhabitants, with a strong industrial zone comprising some fifty companies. Within this industrial area located in a rural zone, it wishes to promote the creation of a socio-economic fabric based on the circular economy, making it possible to meet both the challenges of economic vitalization and the objectives of sustainable development. Taking the example*

of the pioneering project of the Danish city of Kalundborg and the concept of "Industrial Symbiosis", the PhD students will assess how circular economy relationships can enable socio-economic actors in an industrial basin located in a rural area to better manage and valorise their resources, waste and other secondary productions (heat, cold, energy, water, etc.). As employment is a key issue in these areas, the PhD students will also assess the needs of employees in order to propose solutions for pooling (carpooling, childcare, catering, etc.). The PhD students will propose an action plan and a methodology based on the research and experiments already carried out, in order to allow a local implementation of such an approach, considering the technical, legal and political aspects. The roles of the different actors in the territory, and in particular the local authorities, should also be highlighted.

c) Cultural Heritage: *How can the heritage of isolated rural areas be integrated into virtuous economic revitalisation and tourism projects? The regions where the Alliance UNITA universities are located include many isolated peripheries: mountain valleys, remote villages where there is no internet, etc. These areas are often in the process of desertification and economic decline. For many local elected representatives, cultural heritage seems to be one of the keys to revalorise their territory. Unfortunately, this is often done unilaterally, without consultation with the inhabitants, who are afraid of denaturing the region by opening it up to mass tourism or are often wary of tourism that is disconnected from their reality. This raises the question of whether there is a happy medium between an unbridled economic opening up (of the Puy du Fou type in France) or the sealing off of a frozen rurality. Can we envisage this revitalisation through a transdisciplinary approach (craft skills, new technologies, services, etc.) while considering the limits inherent in such places (accessibility, mobility, ecological preservation)? The question is also how to involve the local population and propose a participative enhancement of the heritage, so that they can make it their own and contribute to its preservation and transmission (especially in the case of intangible heritage).*

Article 2

Contest operation and schedule

1 – This contest starts on July 2023 and will run until July 2024.

2 – The stages of the competition must respect the following schedule:

g) Submission of the Registration Form: until 30/10/2023.

h) Analysis of applications, verification of admission requirements and preparation of the list of candidates admitted and excluded from the competition: until 10/11/2023.

i) Development of proposals by PhD students teams, with the support of mentors chosen by each team: until 31/05/2024.

j) Delivery of Final Proposals: 31/05/2024.

k) Presentation of the Final Proposals by each of the PhD students teams, to the International Jury in online format (Pitch Session): mid June 2024.

l) Announcement of the winning proposals and respective teams in each area and for each Challenge referred to in number 3 of Article 1: beginning of July 2024.

3 – The contest will distinguish three winning teams, one for each of the three scientific areas and Challenges identified in number 3 of Article 1. The prize to be awarded to each winning team will be €5,000 (five thousand euros), with a final amount of €15,000 (fifteen thousand euros) to be allocated to the competition.

Article 3

Disclosure

1 – The opening announcement and the regulation for UNITA PhD International Talent Challenge will be published simultaneously in the six partner Universities of Re-UNITA.

2 – The opening announcement and the regulation of the competition, which must mention the application scope, the admission requirements, the documentation to be submitted and the method, the composition of the jury, the evaluation criteria and the calendar of the applications reception and evaluation phases, will be publicized by each partner University through the appropriate means, namely on the respective web pages and by e-mail to the internal contact list.

3 – The opening announcement of the competition will also be published on the website of the Alliance UNITA – Universitas Montium and in the Newsletters of UNITA and Re-UNITA.

Article 4

Admission requirements

1 – The teams from each of the six partner Universities of the Re-UNITA project (UBI, UNITO, UNIZAR, UPPA, USMB, UVT) must be composed of two to five PhD students.

2 – Teams can be interdisciplinary, including students from different PhD Programs and from different academic years, as long as all team members are from the same University.

3 – It is recommended, whenever possible, the observance of gender parity in the composition of the teams.

Article 5

Application submission

1 – Applications are formalized by filling in the Registration Form (access here), indicating the choice of scientific area and the respective challenge for which you are applying, and with the data of all members who are part of the team.

2 – Applications received in any other way than through the Registration Form referred to in number 1 are not accepted.

3 – To be admitted to the competition, PhD students teams must send, through the respective Registration Form and in a single pdf file, the document proving enrollment in a PhD Program in the current academic year at the University where they are applying, for each one of the team members.

4 – Failure to present a valid supporting document under the terms of number 3, by any of the team members, implies the ineligibility of the entire team, and its exclusion from the competition.

5 – Each PhD students team can only submit a single application and compete for a single challenge.

6 – Each PhD student can only belong to one team.

7 – Only applications that meet the conditions and requirements established in this Regulation will be accepted.

8 – Eligible applications admitted to the contest must submit, within the deadlines indicated in Article 2, number 2, c) and d), the innovative proposals in accordance with the Rules for the Development of Proposals, disclosed in Annex 1 of this Regulation.

9 - Innovative proposals, with presentation of original ideas for each of the challenges, must be sent by email to unita@ubi.ptunita@ubi.pt, indicating, in the subject field, the UNITA PHD INTERNATIONAL TALENT CHALLENGE.

Article 6

Mentors

1 – The Mentor will accompany the team members during the period of works development, considering the support from the point of view of the scientific development of the proposed solution and its potential for innovation.

2 – The Mentor must be a Professor and/or Researcher from the University of the respective participating team.

3 – Each team selected to participate in the contest must indicate a Mentor, identifying him/her and attaching the respective Letter of Acceptance when delivering the Final Proposal, in accordance with Article 2 (Contest operation and schedule) and in accordance with the Rules for the Development of Proposals, disclosed in Annex 1 of this Regulation.

Article 7

International Juries - composition and functioning

1 – Three (3) independent International Juries will be constituted for each of the scientific areas and respective challenges within the scope of the UNITA PhD International Talent Challenge.

2 – Each International Jury of each of the scientific areas - Renewable Energy, Cultural Heritage and Circular Economy - will be composed of a total of six (6) professors or researchers specialists in the respective scientific area, with one member representing each one of the partner Universities.

3 – The International Jury will be represented by one of the professors or researchers, chosen from among the six (6) members that compose the respective Jury.

4 – Members of the International Juries cannot perform other functions within the scope of Task 3.3 of WP3 of Re-UNITA Project, nor have any activity or relationship that could constitute the existence of a conflict of interest with any of the teams in the competition. Members of the International Juries cannot have the role of mentor.

5 – During the competition, the International Jury, in each of the scientific areas, will analyze the proposals presented by the PhD students teams and select a work to be distinguished, according to the evaluation and ranking criteria defined in Article 9 of this Regulation.

6 – The International Juries will evaluate the submitted proposals and proceed with their classification and ordering, in accordance with the evaluation and ranking criteria defined in this Regulation (Article 9), with the final classifications being the result of the average of the grades attributed by each member of the International Jury.

7 – The International Juries may request additional information from the PhD students teams, to clarify aspects that are considered necessary in the evaluation.

8 – The meetings of the International Juries will take place in an online format, by videoconference.

9 – After each meeting of the International Juries, minutes will be drawn up, which will be digitally signed by all members of the respective Jury. The signed minutes must contain a summary of the meeting and the main decisions taken, namely:

a) Date and place of the meeting;

b) Agenda;

c) Members of the jury who were present with an indication of the University to which he/she belongs and respective category.

10 – The decisions of the International Juries are not subject to complaint or appeal.

Article 8

Honor Committee

1 – The Honor Committee will be composed of the six (6) members who are part of the External Scientific Board of Re-UNITA (external and independent evaluation body of the Re-UNITA - Research for UNITA, composed of internationally recognized specialists), with two members in each scientific area.

2 – The members of the Honor Committee – two in each scientific area – will act as observers and will accompany the meetings of the respective International Juries during the course of the contest, depending on the scientific area to which they belong, with the aim of assessing the quality of the work done.

3 – Members of the Honor Committee do not have right to vote, but they will be able to evaluate the work developed by the members of the International Juries.

Article 9

Evaluation and ranking criteria

1 – The proposals presented in each of the challenges and the related documents must be written in the English language. In addition to the English version, PhD students teams may also submit a version of the proposal in their mother tongue.

2 – Proposals submitted by PhD students teams will be evaluated based on the following criteria:

e) Originality of the proposal and quality of the work plan (40%).

f) Feasibility of the work plan and adequacy of the research team (30%).

g) Potential for application (15%).

h) Performance in the Pitch Session (15%).

3 – Proposals presented by PhD students teams will be classified from 0 to 20 points in each of the evaluation criteria and ranked according to the final classification obtained, rounded to one decimal place.

4 – The International Juries may decide not to award the prize if they consider that the submitted proposals do not meet the merit requirements.

Article 10

Awards and publicity

1 – The final result of the contest and the winning proposals in each of the scientific areas and proposed challenges will be widely disseminated through the appropriate dissemination channels of the UNITA Alliance and the six partner Universities of the Re-UNITA Project.

2 – The Prize will be awarded in a public ceremony, which will be advertised on the website and by other appropriate means of dissemination.

Article 11

Processing of Personal Data

1 – The personal data of the participants, collected through the registration form and during the course of the UNITA PhD International Talent Challenge, are only intended to allow the necessary activities for the organization, realization, management and consequent prize attribution within the scope of the present contest. Additionally, the personal data of the winners may be processed for the purposes of disclosure and promotion in order to disseminate the UNITA PhD International Talent Challenge.

2 – Participants will be responsible for any third-party claims regarding image rights in accordance with applicable law in their respective country.

Article 12

Intellectual Property and Industrial Property Rights

1 – By registering for the contest, participants certify that the proposals submitted are their own authorship, that they do not belong to third parties and are not protected by any copyright.

2 – The activities developed and proposals submitted will be governed by the Intellectual Property regulations in force at the respective Universities of each PhD students teams.

3 – The knowledge and intellectual property rights, whether industrial property rights and copyright, held by each of the participants (students and mentors) before the development of the final proposal and that can be used in this competition, remain the property of their holders.

4 – Any intellectual property rights, industrial property rights and copyrights, resulting from the development of the final proposal are assigned to the Parties in a way that adequately reflects their contribution.

5 – In the event that a result is generated by more than one entity, the co-ownership regime will be applied, in proportion equivalent to the intellectual contribution of the respective authors, inventors or other industrial creators. The percentage of co-ownership is determined based on the effort and dedication of the affiliated inventors to the realization of the invention.

6 – The co-holders of the rights mentioned in the previous number will establish, through an agreement to be drawn up for this purpose, the final terms and conditions for the legal protection, commercialization/exploitation of the mentioned rights.

7 – Participants will be responsible for any third-party claims in relation to intellectual property rights, whether industrial property rights and copyrights, in accordance with the applicable law in their respective country.

Article 13

Omissions

Any situation not covered by this Regulation will be jointly considered and resolved by the members of Work Package 3, Task 3.3 of the Re-UNITA Project.

Article 14

Final dispositions

1 – The participation in the contest implies full acceptance of these rules.

2 – The University of Beira Interior, as promoter of this contest, does not assume any responsibility for applications that are not in perfect condition or that are lost for reasons beyond the control of this entity.

3 – The University of Beira Interior reserves the right to suppress any applications that do not respect the purposes and values of the competition, as well as to exclude, at any time, any application that violates the rule(s) and/or adopts behaviors that are detrimental to the purpose inherent in holding the competition and the institution.

4 – The University of Beira Interior, as promoter of this contest, reserves the right not to admit applications that do not meet the requirements specified in this regulation.

5 – The University of Beira Interior reserves the right to modify this regulation for reasons of force majeure.

ANNEX I – Rules for the Development of Proposals

1. Title.

2. Description of the research team (including personal identification of all team members, identification of the enrollment on PhD Programs and description of how each team member will collaborate to the proposal).

3. Mentor identification and respective letter of acceptance (full name; Professor or Researcher from the respective University of the PhD students' team; position in the University).

4. Scientific area and respective challenge chosen.

5. Problem contextualization.

6. Description of the solution proposed (identifying the need, objectives and the description of the solution proposed to solve the problem).

7. Rationale and Impact (how the solution proposed will solve the problem and its impact for sustainable development and human well-being).

8. Work plan (tasks description).

9. Viability and potential for commercialization.

10. References.

Informative notes: Times New Roman, Font size minimum 11, margins 2,5 cm, spacing 1,5, maximum 8 pages (excluding references, figures and attachments).