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iWATERMAP
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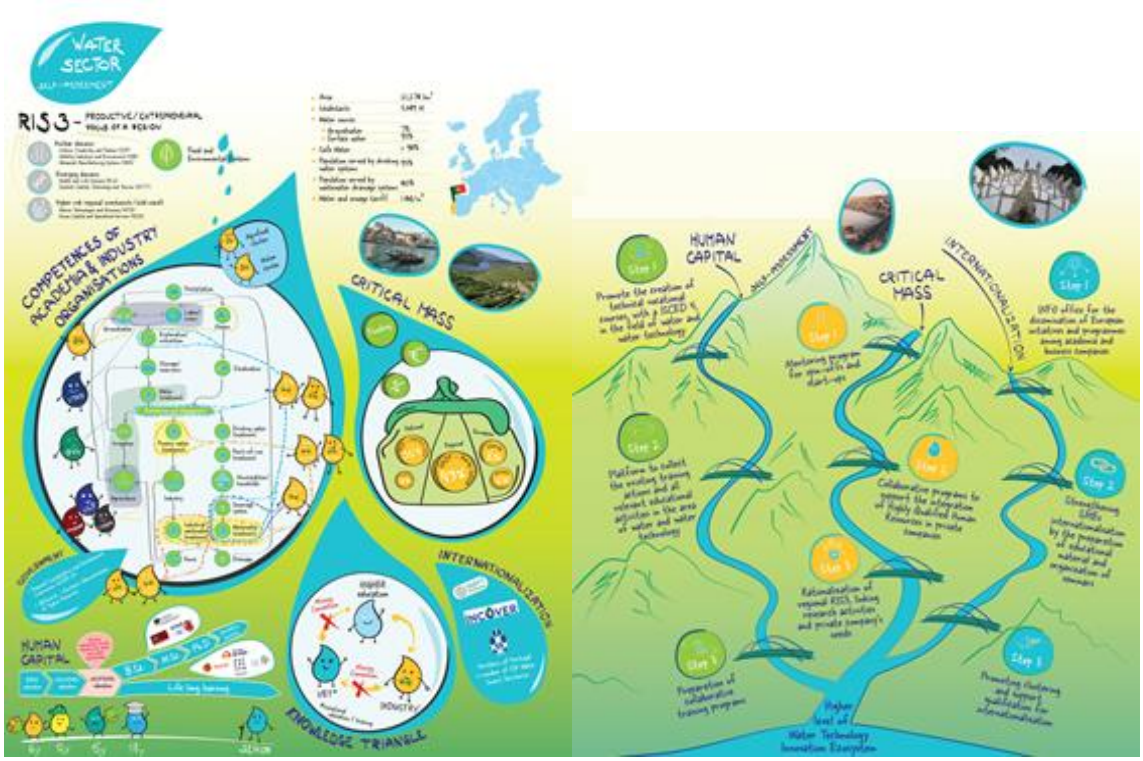
# Water Technology Innovation Roadmaps




## Action Plan for Norte region, Portugal

University of Minho
School of Engineering

**Part I – General information**

Project: iWATERMAP Water Technology Innovation Roadmaps

Partner organisation: University of Minho

Country: Portugal

NUTS2 region: Norte

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**Part II – Policy context**

| | | |
|---|---|---|
| The Action Plan aims to impact: | X | Investment for Growth and Jobs programme |
| | ☐ | European Territorial Cooperation programme |
| | ☐ | Other regional development policy instrument |

Name of the policy instrument addressed: **NORTE 2020 (2014–2020 North Portugal Regional Operational Programme)**

The Norte Regional Operational Programme 2014-2020 (NORTE 2020) is a financial instrument intended to support regional development in the NUTS II Norte of Portugal, which is part of the PORTUGAL 2020 Partnership Agreement and of the current cycle of structural funds provided by the European Union. The NORTE 2020 programme was approved by the Commission Implementing Decision C (2014) 10188 final, from 18/12/2014, approving certain elements of the Operational Programme Norte 2014-2020 for support from the European Regional Development Fund and the European Social Fund under the Investment for growth and jobs goal for the region Norte in Portugal. All the policy instruments included in the NORTE 2020 programme aims to impact an Investment for Growth and Jobs programme.

The Norte Region Smart Specialization Strategy (NORTE RIS3) constitutes an ex ante conditionality of the NORTE 2020, as a basis for prioritising research and innovation investments under cohesion policy in 2014-2020. The NORTE RIS3 identified eight priority domains of smart specialization, namely: (i) culture, creativity and fashion; (ii) advanced manufacturing systems; (iii) mobility industries and environment; (iv) food and environmental systems; (v) health and life sciences; (vi) symbolic capital, technology and tourism; (vii) marine technologies and economy; (viii) human capital and specialised services. As a regional innovation policy, the NORTE RIS3 does not have autonomous public policy instruments. The financing of NORTE RIS3 depends on the policy instruments included in the NORTE 2020 where the alignment with RIS3 was defined as an admissibility condition and/or a selection criterion for the projects submitted to this programme.

The main goal of iWATERMAP project is to increase the critical mass of innovation ecosystems in partner regions in the water technology sector. Enhancing the innovation policies from the perspective of critical mass means developing a roadmap of certain necessary elements, such as: academia and business cooperation, cross-cluster fertilization, interregional networks and cooperation, science and education, which allows a region to rise above its own weight in innovation development, creating the conditions for raising competitiveness, growth and jobs.

The present Action Plan will focus on food and environmental systems, as one of the smart specialisation areas in the Norte region. Water and water related technologies are an interdisciplinary area that enables

technology for many other sectors. Norte region is committed in the protection and valorisation of water resources towards supporting business innovation. So far, the funds are mainly used for product innovation and less for process innovation that contribute to the circular economy. However, the water is heavily impacted by the agri-food sector (lack of treatment of wastewater, nutrients from the agricultural activities that enter the groundwater). A one-sided focus on innovation in new products (e.g. based on wine and dairy products, which are important in the Norte region, Portugal) and the sale process rather than a circular economy oriented and sustainable production process hampers the long-term sustainable development of the region. It is therefore necessary that the regional operational programme more actively fosters initiatives that are focussing on water cycle innovation within the agri-food sector.

The implementation of this Action Plan will bring private companies and Universities closer, promoting networks and partnerships, and thus increase cooperation, in terms of research, innovation, training and technology surveillance activities inside Water Science and Technology (WST) related companies and Universities. The activities included in the Action Plan will improve the knowledge-intensive economic activities, as well as the creation of value based on innovation, thus in line with the Priority Investment 1.2 “Promotion of business investment in R&D, development of links and synergies between companies, research and development centres and the higher education sector” of NORTE2020. With more qualified companies, they will be able to improve their services and products, incorporating innovation and increase business investment (Specific objective 1.2.4). Besides, the present action plan will be also contributing to other priority investments of NORTE2020, namely PI 3.1 “Promotion of entrepreneurship, by facilitating support for the economic exploitation of new ideas and encouraging the creation of new companies, including through business incubators”, PI 8.5 “Adaptation to change of workers, companies and entrepreneurs”, PI 10.2 “Improving quality, efficiency and access to higher education and equivalent, with a view to increasing levels of participation and skills, particularly for disadvantaged people” and PI 10.4 “Improving the relevance of education and training systems to the labor market, facilitating the transition from education to work and strengthening systems vocational education and training and their quality, including through mechanisms for anticipating skills, adapting curricula and creating and developing work-based learning systems, including dual education and apprenticeship systems”.

Moreover, the action plan is also aligned with the new NORTE 2030 strategy. This strategy mentions the need of a more proactive public policy in supporting entrepreneurship and investments in priority areas, where there is a critical mass of resources and assets, as well as the difficulty of present policy instruments in the contribution of professional retraining and reorientation. In the momentum of the Portuguese Recovery and Resilience Plan, it is expected high levels of technical and specialised training to face the industrial reconversion and industrialization processes. This will lead to a re-reading of regional strategies for smart specialization and redefinition of investment priorities in the coming years (NORTE 2030 strategy).

Although the new ROP NORTE 2030 is not yet defined, five main topics are already known. The PO NORTE 2021-2027 intends to be more sustainable, more inclusive, more connected, closer and more competitive.

Thus, the present action plan will also contribute to this by approaching the stakeholders in the field of WST, and increase the awareness of business and new entrepreneurs to private investments in R&D&I activities in the field of WST. In summary, this Action Plan focus on different dimensions of policy improvement, namely:

- Improving the Critical Mass of the regional innovation ecosystem;
- Development of the Human Capital;
- Internationalisation and Interregional Collaboration.

Two actions are proposed:

Action 1 – “iWaterStart” Mentoring programme for Startups creation. The goal of iWaterStart is to support the development of new projects and startups, through mentoring, technical support and training actions, thus increasing the R&D&I investments in private companies.

Action 2 – “iWaterLink” Online platform for linking research and business institutions in the area of water science and technology. The goal of iWaterLink is to gather the knowledge and capabilities of the Norte-PT region in Water Science and Technology (WST), by joining, in a single online platform, offers and demands in the field of WST, including at research, innovation, training and technological surveillance levels. iWaterLink will enable matching partners for specific needs approaching identified and future players in WST in the Norte PT Region.

**Part III – Details of the actions envisaged**

**ACTION 1 - Mentoring programme for Startups creation "iWaterStart"**

## 1. The background

The Norte region, in parallel with the Lisbon region, assumes a national leadership in terms of the number of graduates, with approximately 120 thousand students in Higher Education. In the STEMA – Science, Technology, Engineering, Mathematics and Agriculture fields, there are about 8,150 students graduated annually, and in the period between 2000 and 2010, 949 PhD were completed in the Northern region. The region has the third highest figure of STEMA PhDs per 1,000 inhabitants (0.67 in 2014; national average was 0.82) and ranks second regarding R&D researchers (FTE) in active population (0.64% in 2013, below the national average: 0.72%).

During the iWATERMAP phase 1, the self-assessment of the critical mass revealed a low number of PhDs integrated in private companies (6%), when compared to other EU Member States (e.g.: Belgium 32%, Netherlands 29.6%). Also, the number of new Startups and Spin-offs are low in the area of Water Science and Technology. Nevertheless, there is clearly a relevant critical mass in the area of Biology and Biochemistry, and Technology of the Chemical Processes, as indicated by the number of completed PhDs and published papers. The low number of PhDs in private companies could also be an indicator of the lower private investment in R&D&I.

NORTE2020 intends the promotion of business investment in R&D, by developing links and synergies between companies, research centers and higher education institutions, in particular promoting investment in products and services development, technology transfer, eco-innovation, networks, clusters and open innovation through smart specialization (PI 1.2), as well as support the development of innovative solutions based on R&D results and integration and convergence of new technologies (Specific objective 1.2.4).

A high number of PhDs in private companies and the increase of private investments in R&D could be achieved through the support of a strategy to potentiate the creation of Startups/spin-offs in the WST area. During the regional stakeholders' meetings, several stakeholders highlighted the need to promote the creation of new Spin-offs and/or Startups in the region. These new spin-offs could count with the support of Universities and/or big WST companies. Moreover, Startup Braga, an innovation hub, designed to assist high potential entrepreneurial projects in reaching international markets and building business models, reinforced its new reorientation towards the Biotechnology area, which will enhance the development of actions to support the creation of start-ups/projects with high technological potential in the area of water science and technology.

From the interregional exchange of experiences between iWATERMAP partners, it has been made clear that the promotion of entrepreneurship programmes is of high importance for all regions. For example, Crete,

South Moravian region, North-East region, Latvia, and Norte region, identified the need to promote new projects, workshops and internships, focused on practical aspects of initiation of entrepreneurship in water and water technology in their innovation Roadmaps. In addition, some partner regions are already taking some measures to guarantee the creation of new startups/spin-offs in the area of water and water technology. For example, in Friesland, the Wetsus within WaterCampus Leeuwarden has its own entrepreneurship programme (NEW-ttt – Netherlands Enabling Water technology). The NEW-ttt consists on the valorization of research through the creation of (spin-off) companies and funding of recently founded startups. Also, Riga Technical University has attracted 2.4 million EUR in funding from the Latvia operation programme intending to 1) develop leadership, innovation, and entrepreneurship within students, 2) develop innovative ideas, 3) attract private investment and 4) enhance collaboration between higher education institutions and companies.

Thus, the present action is a joint action between UMinho and Startup Braga intending to develop a mentoring programme for startups creation. This action, besides the support of the development of innovative solutions based on R&D results, will directly contribute to the promotion of entrepreneurship, by encouraging the creation of new companies (NORTE2020 PI 3.1).

## 2. Action

**iWaterStart Mentoring Program** aims to support the development of new projects and startups, through mentoring, technical support and training actions.

The Program will promote the connection between professionals with proven experience in business management, and entrepreneurs who seek to develop their business ideas. It will also enable the training of participants in multiple areas of business development. Furthermore, it intends to be a networking opportunity, providing contact with potential partners, customers and investors, facilitating access to important resources for success in the market.

The aim of this program is to create an interface between Higher Education Institutions and the business / industry environment, which will be ensured by participating in activities, where the involvement of entrepreneurs and companies in the area will be assured.

### 2.1. Goals

- Share experiences between peers;
- Provide tools to entrepreneurs so that they are able to explore opportunities, plan and develop a business model, privileging creativity, research and innovation capacity in value-added projects, with the support of renowned technical experts and mentors with proven recognition;
- Create mentorships that are capable of providing technical support to transform an idea into a business;
- Create a pool of Mentors, made up of academics, entrepreneurs and top-level managers;

- Stimulate networking opportunities between different stakeholders;
- Give entrepreneurs the opportunity of presenting innovative ideas/projects to potential investors (BA, VC, etc.);
- Bring academia closer to the Water Industry.

### 2.2. Operation

The program will have a length of 4 months, through a joint action between UMinho and Startup Braga. Fostering the creation of new startups, iWaterStart will be structured through the following activities:

#### 2.2.1 Pool of Mentors

a. Creation of a trained and experienced pool of mentors, from different fields of activity and with strong business experience in the sector of water and water technologies;

#### 2.2.2 Mentoring Sessions

a. Each project will be assigned a mentor who will support the project throughout the program;
b. The mentoring sessions will take place every two weeks;
c. Mentors will maintain regular contacts with the mentees in person or online, according to the mentoring calendar defined by both parties;
d. Mentors will share their professional experience and provide guidance on developing the business model.

### 2.3 Bootcamps

a. In addition to the mentoring sessions, the mentees will also have the opportunity to participate in training actions designed to help understand the problem they are trying to validate and also to define the business model. This action will be structured in 4 bootcamps, in which they will attend presentations on relevant topics, receive feedback from mentors and will have the opportunity to network and exchange experiences between teams. They will also develop a pitch to present to investors.
b. Key Topics
    1. Business Model
        a. Business Model Canvas
        e. Value Proposition Canvas
        f. Customer Value Proposition

2. Market
    a. From launch to growth
    b. From technology to the creation of a global product;
3. Sales & Marketing
4. Finance & Investors
5. Pitch

c. During the training actions, the entrepreneurs will have slots for speed meetings with different stakeholders and individual work sessions.

### 2.4 Demo Day

a. At the end of the program, the entrepreneurs will have the opportunity to showcase what they have achieved during the last months to a pannel of investors and other ecosystem stakeholders.

Throughout this action, it is intended to stimulate the creation of an innovation ecosystem in the water science and technology sector, supported by a network of specialized mentors, partners and stakeholders in the area of innovation and entrepreneurship, and by an approximation between academia and the industry.

## 3. Players involved

| Player | Role |
|---|---|
| University of Minho | Coordination and implementation of the action |
| Startup Braga | Overall implementation of the mentoring programme |
| Public Universities and Polytechnic Institutes | Action dissemination, contribution to the pool of mentors and mentoring sessions |
| Private companies | |
| Cluster organisations | |
| The Norte Region Development and Coordination Commission (CCDR-N) | Action observer |

## 4. Timeframe

This action is expected to be launched during November 2022, according to the following timeframe:

| Activity | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 | Week 13 | Week 14 | Week 15 | Week 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Project Presentation | | | | | | | | | | | | | | | | |
| Mentor Assignment | | | | | | | | | | | | | | | | |
| Kick -Off & Startup Mindset | | | | | | | | | | | | | | | | |
| Mentoring Meetings | | | | | | | | | | | | | | | | |
| Team Work & Online Work | | | | | | | | | | | | | | | | |
| Bootcamps | | | | | | | | | | | | | | | | |
| Demo Day | | | | | | | | | | | | | | | | |
| Startup Braga Technical Support | | | | | | | | | | | | | | | | |

## 5. Costs and Funding sources

This action will represent a total investment of 21 150 €, divided for the following activities: Technical Support – 5 600 €; Communication and Dissemination – 5 000 €; Bootcamps – 8 050 €; and Demo Day – 2 500 €. Due to the nature of the action, the costs to be incurred with the implementation of the action will be internalised in the current activities of the different players involved.

**ACTION 2 – iWaterLink – Online platform for linking research and business institutions in the area of water science and technology**

- **The background**

From iWATERMAP first phase activities, namely the self-assessment of the critical mass and the roadmaps, it was clear that the Norte region has acquired critical mass in Water Science and Technology (WST) area. Nevertheless, the main problems hindering the development of a healthy innovation ecosystem are the low communication level between regional administration and both academia and private companies, the low number of start-ups and spin offs in the area of WST and the lack of vocational education and training (VET) schools in the area of WST.

Furthermore, during the regional iWATERMAP stakeholder's meetings, several stakeholders pointed out the difficulty to find qualified human resources in diverse aspects of water technology, particularly at technical and applied education levels, turning mandatory a relevant inside training after recruitment. Águas do Norte, a major regional player in the area of water and wastewater treatment in the region, also pointed out the need to establish personalised training courses for the new employees due to the lack of proper training courses in the VET schools. At a more advanced level, technology developers mentioned the general lack of knowledge in project analysis and evaluation, in particular for industrial wastewater treatment.

Therefore, this context served as a support for the emergence of this action. iWaterLink is committed in transfer and adopting the concept of Wetsus and WaterCampus Leeuwarden regarding the proximity between research and business institutions and training strategy. WaterCampus offers a unique research infrastructure, and is a meeting point for scientists and companies. Within WaterCampus Leeuwarden, the activities of Centre of Vocational Excellence Water (CIV-Water) on vocational level in the field of Water, inspired the creation of iWaterLink. CIV-Water focusses on educating employees and scholars on a vocational level in the field of Water. CIV-Water organizes innovative courses for professionals together with industry partners and this proximity between industry partners and students seems to be of major importance. During the iWATERMAP kick-off meeting, WaterCampus and CIV-Water in particular, was presented to the project partners. The outcomes of this meeting was transmitted to regional stakeholders during our first stakeholders meeting, where Wetsus and WaterCampus activities were discussed. In addition, at least three regional stakeholders had the opportunity to directly interact with Wetsus and WaterCampus members during iWATERMAP events.

The implementation of this action will bring private companies and Universities closer, and thus will increase cooperation, in terms of research, innovation, training and technology surveillance activities inside WST related companies and Universities. This activity will improve the knowledge-intensive economic activities, as well as the creation of value based on innovation, thus in line with the Priority Investment 1.2 "Promotion of

business investment in R&D, development of links and synergies between companies, research and development centres and the higher education sector" of NORTE2020. With more qualified companies, they will be able to improve their services and products, incorporating innovation and increase business investment (Specific objective 1.2.4). Besides, iWaterLink will be contributing to other priority investments of NORTE2020, namely PI 8.5, PI 10.2 and PI 10.4. The present action is also aligned with the NORTE 2030 strategy, and through the momentum of the Portuguese Recovery and Resilience Plan, it is expected high levels of technical and specialised training to face the industrial reconversion and industrialization processes. This will lead to a re-reading of regional strategies for smart specialization and redefinition of investment priorities in the coming years (NORTE 2030 strategy).

iWaterLink will approach students, industry and academia towards the creation of innovative educational practices, ultimately enhancing qualified employment, and private investments in R&D&I. With the implementation of iWaterLink we expect to increase the number of R&D&I projects focusing on WST in the agri-food sector, in line with the regional RIS3, and also to contribute to the requalification of Human Resources.

Breakthrough innovation requires a long-term commitment in a high trust and high risk environment and critical mass in innovation has to be developed stage by stage and cannot be acquired in a short term. The durability of the pilot action will be secured by 1) Establishment of more critical mass in innovation on WST ecosystems, with improved connections among universities, R&D centres and businesses, that will ensure a long lasting effect; and 2) Gained knowledge on WST research and training needs that will raise the innovation capacity of stakeholders and thus will contribute to development and uptake of innovation.

Therefore, iWaterLink action will be a suitable outcome demonstrating the positive reactions of regional water sector stakeholders to the delivery of an online platform capable to aggregate the knowledge capabilities of the region

- **Action**

This action aims the implementation of an online platform bridging academia and business sectors in the Norte region by aggregating the needs, interests, knowledge and capabilities on WST. iWaterLink will help private companies to find better human resources and will increase their capacity to invest in research and innovation in the area of WST. With the implementation of iWaterLink we expect to increase the number of R&D&I projects focusing on WST in the agri-food sector, in line with the regional RIS3, and also to contribute to the requalification of Human Resources.

This platform will promote the fast and efficient connection between academia and private companies, aiming ultimately to boost the private investment in R&D and technology transfer from academia to the industries. In parallel the platform will also share training offers, leading to the promotion of technical/intermediate/specialised training offers in the area of WST and contributing to reduce the gap in

human capital by capacitating and/or requalifying water sector workers. Both the training offers and training needs will be listed in the platform, and users will be able to search for a specific training opportunity. Hybrid offers, including programs designed by academia and companies will be also possible. The added value of the platform will be the concentration in one place the information that is nowadays spread through several places and are not focused on WST. With the iWaterLink, all existing courses, projects, calls focused on WST will be available for searching.

This action will be implemented through the development of a set of activities, namely:

- Task 1. Definition and establishment of a *memorandum of understanding*
  In this task a memorandum of understanding (MoU) will be prepared and the different regional stakeholders will be invited to the iWaterLink initiative. The subscription of the MoU will be voluntary and will act as a guide for future activities under the flag of iWaterLink. The identification and invitation of regional stakeholders will be carried out through personal contacts from both academia and industry partners. iWaterLink will be open and dynamic, and the MoU could be later signed by new stakeholders. The organisation of a meeting between all MoU subscribers will mark the official start of the iWaterLink.

- Task 2. Development of the online platform
  The activities and results related to the iWaterLink will be included in an online platform that will act as a virtual market place. The platform will list research interests/requests of each user, and all training actions as well as all training needs identified in the area of WST. The platform will be created in open source technology and will include an access profile according to the role of users involved, an online discussion forum, and forms to describe research interest and requests, the training offers and training needs, and the technical and scientific educational activities. UMinho will assure that all contents are updated and that research and training needs are properly described. Other stakeholders will contribute to the platform design, architecture, testing and validation.

- Task 3. Preparation of questionnaires and mapping the research, innovation, training and technology needs and offers
  A set of questionnaires will be prepared towards the collection of information related with research interests, innovative products and technologies, and training offers and needs. The questionnaires will be disseminated within the regional stakeholders, both universities/research centres and private companies (agri-food industry, water and wastewater sector and other industrial sectors, such as paper pulp or the chemistry industry). The objective of the mapping is to identify the building blocks (assets) for future concrete cooperation and potential co-promotion opportunities between the research and business institutions. All collected information will be analysed and organised, and disseminated through the online platform.

- Task 4. Identification of the existing training offers in STEMA fields related with WST
  A detailed characterisation of existing university and polytechnic degrees, training actions in VET schools, and training actions in private companies will be carried out. All courses related with WST within the STEMA fields will be exhaustively screened. For each identified course, a form indicating the title of training offer, topics covered and institutions responsible for the training will be filled and available in the online platform. Besides, all relevant educational activities targeting primary to secondary education in the area of WST will be mapped. The main goal of this subtask is to educate younger students and to spotlight, since early ages, WST in their educational path. These activities will be disseminated in the online platform.

- Task 5. Proposal and promotion of new training course targeting the initial VET and continuing VET
  In this task, a new training action will be proposed. The existing educational offer will be reorganized based on identified needs. For example, to align the industry with the challenges of climate emergence and the opportunities created by national and European Union plans for sustainable development, as well as the Recovery and Resilience Plan and the Green Deal, a new course on "Water-Energy Nexus in Industry" could arise. This new training action will be organised by UMinho and will include the participation of representatives of companies in the agri-food sector, water and wastewater sector and other industrial sectors, such as paper pulp or the chemistry industry. The course will have a mix of online and in-person classes, with a minimum number of students of 10.

- Task 6. Preparation of business plan
  The main objective of this task is to prepare the iWaterLink exploitation plan for the period after action. A market analysis to the activities of iWaterLink platform will be performed towards the identification of the size (both volume and value), the competition, and the economic environment. A positioning product/service and development strategy will be defined as well. All signatories of the MoU will contribute to this task.

- Organization of a dissemination seminar
  In the end of the action, a final dissemination event will be organized towards the presentation of the iWaterLink platform to all involved stakeholders and general public. Representatives of the regional authority and other relevant institutions will be invited to participate. The goal of this seminar is to show the potential of the iWaterLink and establish the prospects and the efforts to ensure the continuity of the project. Stakeholders' meeting targeting the evaluation of iWaterLink activities will be organised as well.

Indeed, the high level of endorsement by the regional stakeholders lead us to strongly believe that iWaterLink will be successfully implemented. Both private companies and universities demonstrated their availability to both collaborate in the provision of data to fill the online platform and to post and deliver offers and needs. After the two years of iWaterLink implementation, it is expected that the degree of usage of the platform will ensure that the stakeholders will continue to use them. Also, from the previous interactions, we understand that this kind of service is needed by regional stakeholders and will be usefully for the entire regional water innovation ecosystem. Thus, at the end of the action, UMinho will continue to make all efforts to boost iWaterLink activities and will establish a management committee together with MoU signatories. This committee will ensure the maintenance of the platform and its contents, and will study mechanisms for a self-sustainable management to be implemented in the future.

Nevertheless, in order to review the effectiveness of the iWaterLink dissemination strategy, and measure the extent to which this strategy is meeting the objectives, suitable evaluation mechanisms will be applied. Exploitation measures will address the full range of potential users and uses, and iWaterLink will establish its presence in water technology and agri-food forums (e.g., Portuguese Water Partnership, PortugalFoods), students' meetings (e.g., EXPOBIOTEC) and social media such as Facebook, Twitter and LinkedIn. Each semester, stakeholders' meetings will be organised to present and discuss the activities of iWaterLink. In these meetings, the usage of online platform will be assessed by measuring the number of website visualizations, the number of students participating in training activities, the number of available training offers, etc. The final task of this pilot action will be the preparation of the exploitation plan for iWaterLink.

- **Players involved**

The main beneficiaries of the pilot action will be: 1) the private companies that will be able to use the platform to find research, innovation, training and technology offers that match their needs; 2) the Universities that will have a direct channel to advertise their offers, and 3) students from both VET schools and Universities, but also adult learners will also use the online platform to search for specific training actions.

The success of iWaterLink implementation will depend on the high degree of involvement of the different regional stakeholders, and needs to be multi-institutional, integrating several stakeholders from industry and academia. At least three events will involve all the stakeholders, but active face-to-face meetings will be promoted between UMinho and each stakeholder, in order to guarantee an effective participation and engagement (through the signing of the memorandum of understanding). At this moment we foresee the involvement of the following stakeholders:

| Player | Role |
|---|---|
| University of Minho | Coordination and implementation of the action |
| University of Porto | Promote and use the online platform;<br>Comment and filling out the questionnaires;<br>Identifying research and training needs;<br>Collaboration in the creation of new training course;<br>Comment and contribution to the iWaterLink business plan. |
| University of Trás-os-Montes e Alto Douro | |
| Portuguese Catholic University | |
| Agrarian School - Polytechnic Institute of Viana do Castelo | |
| Polytechnic Institute of Bragança | |
| AquaValor | |
| Águas do Norte | |
| Agere | |
| SimDouro | |
| Ventilaqua | |
| Simbiente | |
| PortugaFoods | |
| Portuguese Water Partnership | |
| Startup Braga | |
| National Association of Professional Schools | |
| The Norte Region Development and Coordination Commission (CCDR-N) | Action observer |

- **Timeframe**

This action is expected to initiate in the second semester of 2021. Its development and monitoring will be until the second semester of 2023. Nevertheless, it is expected to became a permanent action.

| Task | 2021 | 2022 | | 2023 |
|---|---|---|---|---|
| | Semester 1 | Semester 2 | Semester 3 | Semester 4 |
| Task 1. Definition and establishment of a memorandum of understanding (M1-M6) | | | | |
| Task 2. Development of the online platform (M1-M12) | | | | |
| Task 3. Preparation of questionnaires and mapping the research, innovation, training and technology needs and offers (M6-M12) | | | | |
| Task 4. Identification of the existing training offers in STEMA fields related with WST (M6-M12) | | | | |
| Task 5. Proposal and promotion of new training course targeting the initial VET and continuing VET (M12-M18) | | | | |
| Task 6. Preparation of business plan (M12-M18) | | | | |
| Task 7. Organization of a dissemination seminar (M18) | | | | |

- **Costs**

The costs to be incurred with the implementation of the action will be related with the personal costs (53 577.36 €) associated with the preparation of the questionnaires, information collection and curation, management of the online platform, preparation of the training course and business plan, as well as the subcontracting of the online platform development (11 000.00 €). An amount for office and administration costs (8 036.60€) is also accounted.

- **Funding sources**

This action results from a Pilot Action submitted to Interreg Europe. The funding source will be Interreg Europe that will fund 85% the costs, being the national counterpart supported by the budget of UMinho. Other costs will be internalised in the current activities of the different players involved.

**Date**: 28-10-2021

**Signature**: