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Sustainable development of Blue economies through higher education and innovation in Western Balkan Countries – BLUEWBC

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1. Introduction, current situation in Montenegro

1.1. Activities related to Blue Economy in country towards the University of Montenegro

According to Blue Economy Concept Paper, at the core of the Blue Economy concept is the de-coupling of socioeconomic development from environmental degradation. To achieve this, the Blue Economy approach is founded upon the assessment and incorporation of the real value of the natural (blue) capital into all aspects of economic activity. The world economic globalization raises various issues, however, the Blue Economy offers suitable opportunities for sustainable, clean, equitable economic growth in both traditional and emerging sectors, as in Shipping and Port Facilities or Tourism.

A Blue Economy approach where ecosystem services are properly valued and incorporated into development planning will further advance the transition to lower impact activities, where the natural capital is maintained as an integral part of the process.

In Montenegro, the policy-makers have made efforts to improve the situation by highlighting the maritime sector, i.e. Blue Economy activities, into the focus of development. The Montenegrin Government adopted several strategies and documents covering this area, with the four most important being, the Strategy for the development of the maritime industry for the period 2020-2030 (2020), the Transport Development Strategy - Montenegro 2019-2035 (2019), the National Strategy for Sustainable Development until 2030 (2016), and the National Strategy for Integrated Coastal Zone Management (2014). The development of the Blue Economy can only be achieved through the synergy between the maritime industry, maritime education, Government, legal regime, civil society, and environmental protection organizations. In these strategic documents, it is pointed out the significance of the maritime sector for the future sustainable development of Montenegro. What more, national guidelines and procedures match with the trends in the EU, but the concrete implementation is missing.

The EU measures and tools designed to increase recognition and transparency of skills, competencies and qualifications, such as the European Qualifications Framework, the European Skills, Competences, qualifications and Occupations (ESCO) portal, Europass and quality assurance and credit systems are also highlighted in the document, as well as the need to take the requirements of the Blue Economy into account. Knowledge Alliances under the Erasmus Programme and marine Sector Skills Alliance (SSA) can also be used to support the development of skills in the Blue Economy and provide closer cooperation between higher education and the private sector.

The Blue Economy concept can support linkage between the higher education (HE) and Innovation and Entrepreneurship (I&E). The goal is to intensify the participation of these activities in the growth and development of the national economy, as stated in the Strategy for the development of the maritime industry for the period 2020-2030 (2020).

Basing on the report “Overview of educational programs for I&E in Montenegro and Albania”, some activities at the University of Montenegro (UoM), related to entrepreneurial innovation, are realized through the national project granted by the Ministry of Science “Specific Support to Montenegro - Towards Entrepreneurial Innovation Ecosystems in Montenegro which was realized from June 2018 to March 2019. One of the main activities was the foundation of the partnership for creating innovation ecosystems in Montenegro that involved more than 100 representatives of national and local institutions, organizations and companies. UoM also established the Research and Innovation Centre of Excellence, intending to develop entrepreneurial and innovation activities and make bound between scientific and research and development (R&D) activities within the business sector. Additional initiative in this context is the establishment of the Science and Technology Park of Montenegro. It is founded by the Government of Montenegro (participation of 57 %) and the University of Montenegro (participation of 43 %). The Science and Technology Park of Montenegro is founded to give support and strengthen the potentials of economic growth and development of Montenegro, through the establishment of the companies/teams in high

tech sectors. As well, a special activity aspect of the Science and Technology Park Montenegro is associated with the support in developing and commercializing innovative ideas and projects.

The Blue Economy in Montenegro could be realized through several innovation and business centres respecting the principle of balanced regional development:

- Innovation and Entrepreneurship Centre Tehnopolis,
- Business centre Bar,
- Business incubator Cetinje, and
- Regional business centre Berane.

Innovation and Entrepreneurship Centre (IEC) Tehnopolis is one of the key scientific research centres in Montenegro and it is the first institution that has for an objective the improvement of I&E activities. It is founded by the Government of Montenegro, while the Ministry of Science, Municipality of Nikšić, Ministry of Agriculture and Rural Development, and Investment and Development Fund are its strategic partners. The aim is to develop entrepreneurship improvement, which generates possibilities for opening new enterprises, creating new jobs and developing companies based on new, innovative ideas and technologies. Unlike IEC Tehnopolis, other business centres from Montenegro are not strategically linked to the University of Montenegro but operate regionally and locally.

Other important actors are: Business Centre Podgorica, Digital factory MTel, Digitalizuj.Me, Beta-Bar, while business associations that in their activities related to I&E are: the Chamber of Economy of Montenegro, Montenegrin Employers Federation, Montenegro Business Alliance, Association of Montenegrin Managers, the American Chamber of Commerce in Montenegro and others. The Chamber of Economy of Montenegro often organizes round tables and trainings to support the Blue Economy, I&E activities in the whole country.

1.2. Ecosystem involvement in I&E education

Since UoM's last accreditation in 2017, it is mandatory to involve business partners in the education process. Accordingly, the Faculty of Maritime Studies Kotor has more than 40 different experts from the private sector involved in the education process while the Faculty for Tourism and Hotel Management has more than 45 signed agreements with the business sector. In almost all national/international projects, business partners play an important role. In addition, the Faculty of Maritime Studies Kotor meets the European standard for the maritime sector of 'Standards of Training, Certification, and Watchkeeping' (STCW), which means that the Faculty offers practical exercise to students.

The improvement of the collaboration between the academic community and IEC Tehnopolis is very important. There is the same methodology as VILNIUS TECH (tech laboratory of industrial design, a Fab Lab). There is a collaboration with the university to meet the needs of the community and students while defining equipment and services. Students could use services and implement their works in the labs.

For example, when creating the first of its kind creative space in Lithuania, Vilnius Tech collaborated with the University of Napier in Edinburgh to take over their experience and know-how. This partnership is an opportunity to learn from real examples and to move the best foreign universities' experiences to Lithuania.

2. SWOT analysis: University of Montenegro

The below SWOT analysis is based on the data collected during the survey with staff from the UoM, gap analysis and online interview held on 23rd October 2020.

Strengths	Weaknesses
Study courses - Implementing students' projects in MSc and PhD levels, organising workshops & summer schools. - There are research activities on I&E and I&E-related courses offered at the University. - Guest lectures from the business sector are involved in study process. - Country has entrepreneurship strategy and most of the staff is familiar with it. - UoM Career Centre implements additional activities regarding the student entrepreneurship orientation. **Students** - More than 60% of the students have working experience. - Students have innovation courses and are mostly satisfied with them, are engaged in I&E courses. **Business** - Business supports the cooperation with university. - Business participates in curricula development. - Business representatives would like to be more active involved in the study process.	**Study courses** - Missing students' projects on BSc level (real problem solving in a collaboration with business). - Not enough entrepreneurship courses provided - Lack of planning I&E activities and their sustainability over long-time period. - Technology transfer office missing at the university. **Students** - Most students do not use the opportunity to study abroad. - Lack of engagement in entrepreneurship programs. - Solving real problem/practical assignments are not often employed. - Blue Economy topic is new for the students. **Business** - The cooperation between university and business is not sufficient, there is no Technology Transfer Office at the university.
Opportunities	**Threats**
University - Joint learning programs offered by university. - Integrating I&E centres into educational programs. - Training and keeping updated the staff (internships, involvement to projects, trainings). - Implementing various innovative education projects which will help to constantly update the educational programs (e.g. participating in Erasmus+ and other funding programs). - Better possibilities to get governmental support. - Better employability of students leading to higher number of new students. - Focusing the activity of students more on practical aspects than theoretical knowledge. **Country** - Innovation in education that needs to be elaborated and updated every year: general country strategy on	- The business sector is barely referred to the academia for expertise and knowledge transfer. - Entrepreneurship initiatives remain low among young generation. - Bureaucratic difficulties. - The decisions are top down, lack of consistency for an I&E centre. - Not enough support from governance on start-ups, business. - Reduced funding for universities. - Lack of a governmental strategy for start-up accelerators and hubs. - Too little publicity for raising the awareness of professors, students and decision actors. - Missing legal documents from governance, dissemination of information to public, transfer of best practice from abroad.

how to foster collaboration between university and business, support measures. - Teaching I&E leads to higher quality of education, stronger labour market, better international recognisability. - Increased development of new products and technologies, new businesses in the country.	

3. Recommendations

In the face of a rapidly growing economy, it is needed to develop entrepreneurial, innovation and digital skills to stay competitive on the contemporary market. Actually, in all areas of business, we note the growing role of innovation and digitization. Digitalization is essential in combination with I&E in education within the Blue Economy. The I&E centres that are planned to be established during the project will provide a good foundation for developing these skills in collaboration with the industry. However, digitalization is not a prior theme in the document, and it is mentioned in the recommendations as an important complementary factor for further increase of I&E competences and employment of IT centres (IT tools, handling of data, big data, ongoing simulation projects within these maritime education programs in Montenegro). Therefore, the competencies related to innovation and entrepreneurship, and the creation and employment of appropriate IT tools are required.

Regarding the promotion of I&E and the development of digitization, the following challenging areas affecting UoM are identified:

1. The study courses are still reflecting mainly traditional education and specialization: the integration of awareness of I&E and the Blue Economy is presented to a lesser extent or fragmented.
2. The awareness of promising perspectives of the Blue Economy with a focus on specializations of the young generation needs more effort to be taken.
3. Even though there is an increased number of faculties and study courses with a focus on business and market orientation, I&E, and Blue Economy need to be highlighted more in the curricula.
4. More initiatives need to be embedded for the employment of innovation into the market opportunities initiatives, especially that one which promotes the utilization of I&E-related infrastructure.
5. There are few opportunities to match the business operating in the Blue Economy with skilled and trained young people – training programs are partially offered at the UoM.
6. There are more than 30 partnerships established among businesses and each faculty unit of UoM for internship.
7. Weak exploitation of international cooperation potential for learning, exchanging of experience, practice and know-how in the field of I&E integration and application in study courses, as well as with the focus area of the Blue Economy.

The guidelines are the base for improving I&E capacities and skilful handling of data (for improving digitization capacities which can contribute to the I&E competencies). The main goal of the guidelines is to help to increase capacities and favourable environment that will allow the current and future students, as well as the academic staff to employ their ideas into new innovative solutions. These guidelines will provide recommendations for the UoM on upgrading and/or development of new curriculum, promotion I&E in Blue Economy, improve the ability of HE providers to understand and teach I&E related modules with the smart data and IT tools employment, practical implementation real business' problems, thus providing students, early-stage entrepreneurs, and businesses with

more relevant, effective interdisciplinary training. Moreover, some insight will be provided for the promotion of university and business collaboration, international cooperation, mobility.

The strategic aim for HEIs should be to achieve the highest standards in research-led I&E-related projects implemented by the learning community that empowers all to learn and develop to their full potential. To support it in achieving this aim, we suggest UoM develops and modernizes curricula in accordance with the following Principles:

Research-led I&E-related projects

All degree (BSc, MSc) courses must include a major project. This major I&E related project will provide a 'capstone' to HEIs education that allows students to demonstrate their ability as independent learners, final thesis or equivalent (at undergraduate level typically 60 ECTS and at postgraduate level typically 120 ECTS) where students are able to demonstrate the development of their research and practical (prototyping, piloting, demonstrating, employment of I&E centre infrastructure, etc.) study skills, as well as their expertise in their chosen field of study. The I&E-related project tasks must be included as a part of complex work, implemented in combination with the businesses or region challenges or at least in collaboration with other UoM faculties or departments, in order to include the interdisciplinarity aspect.

Inter- and cross-disciplinarity

There are a lot of interdisciplinary study courses implemented at UoM. Therefore, we still would like to highlight the importance to support and promote the initiatives of inter- and/or cross-disciplinarity, thematic and issues-based (business sector, society, economy), that will attract staff across disciplines in ways that reflect the increasingly cross- and inter-disciplinary character of I&E related study courses' activity. This could also be supported by the summer schools, hackathons which could be implemented (see section 4.2.).

Employability (self-employability) and skills

Study courses should contribute to the development of a wide range of 21st-centuryskills1 for students, with many of these skills being acquired through inquiry-led activities that develop various key attributes required by employers (the term 'employability skills' here means: to support students with employment opportunities, job search and career) and which prepare graduates for the competitive business market (term 'self-employment skills' here means: to support students who in the future will start working on their account, from entrepreneurs and start-ups, freelancers and subcontractors). The skills developed through inquiry-led activities could be combined in all study courses with the development of I&E skills that will provide students with the competencies to

1 https://www.qcaa.qld.edu.au/senior/senior-subjects/general-subjects/21st-century-skills

succeed in the labour market, and the ability to manage their own intellectual and professional development into the ability to develop their own innovative business.

Internationalization

Curricula is to be designed to provide students the opportunity to grow as international citizens. Mostly all study courses at the UoM are internationally relevant (in ways that are appropriate to their subject area), so that students could make a positive contribution to an increasingly globalized society. All undergraduate and integrated master's courses shall normally offer the opportunity for students to transfer into the equivalent course with an additional year abroad, and subject to such a year abroad opportunity has to be available.

3.1. Innovation spaces

The idea of a university innovation space (I&E Centres) is quite recent, with the first one dating back to the Massachusetts Institute of Technology (MIT) maker space in 2001 (Barrett et al., 2015). While innovation spaces are appearing in many universities and engineering schools across the countries, there is still very little empirical assessment of their importance.

There can be many types of university innovation spaces according to management type, budget structure, and theme:

- Management type: student-run, faculty run, specific staff run.
- Scope of supervision: always supervised, partly supervised.
- Budget structure: funded by the university, funded by university and business, funded by the community.
- Theme: engineering and mechanics, engineering + multimedia, engineering + multimedia + entrepreneurship.
- Location: on-campus / off-campus.
- Membership: university access only, open to the community.

The innovation space is a collaborative workspace inside a school, library or separates public/private facility for making, learning, exploring and sharing that uses high-tech to no tech tools. These spaces are open to kids, adults, and entrepreneurs and have a variety of maker equipment including 3D printers, laser cutters, CNC machines, soldering irons and even sewing machines. It's more of the maker mind-set of creating something out of nothing and exploring your interests that's at the core of the innovation spaces. These spaces are also helping to prepare those who need the critical 21st-century skills in the fields of science, technology, engineering, arts and math (STEAM). They provide hands-on learning, help with critical thinking skills and even boost self-confidence. Some of the skills that are learned in the innovation spaces pertain to electronics, 3D printing, 3D modelling, coding, robotics and even wood-working. Innovation spaces are also fostering entrepreneurship and are being utilized as incubators and accelerators for business start-ups.

3.1.1. Establishment of I&E Centre at the University of Montenegro

According to the BLUEWBC project agreement, the UoM is planning to establish I&E Centre by providing new prototyping equipment and using it for the existing study courses for practical training. Additionally, UoM will also upgrade existing equipment, and it will include:

- IT equipment, 3D scanner, 3D printers, Eye-tracking glasses and software for eye-tracking glasses, Statistics database, IoT sensors, Led walls, Lab software, and upgrade of existing marine simulators at the Faculty of Maritime Studies Kotor.

It is important to emphasize, that the established I&E Centre must be accessible to students, teachers and all researchers, in order to make the spaces more appropriate to use.

These guidelines respond to the needs of the following future actors:

- I&E education providers (UoM), who recognize I&E capacities as an important trend, but the practical implications are still missing therefore the practical employment and promotion of I&E skills is needed be strengthened.
- Early-stage entrepreneurs and management studies students (future entrepreneurs) who need to know, how to build technology and innovation development, how to properly employ "big data" skills into their business plans from the start of their business in order to help capitalize on market opportunities.
- From a long-term perspective, SMEs managers (current entrepreneurs), who need to learn how to grow their business and innovation capacity even with limited resources.
- Improvement of digital competencies in general.

3.2. Directions specifically for the University of Montenegro

Education and training in I&E in general, and within the specific Blue Economy fields such as maritime transport, coastal tourism, fisheries and mariculture, shipbuilding, oil and natural gas including the environment aspect are widely spread over the UoM.

After analysis of the WP1 State of Art DEV 1.2 "Overview of educational programs for I&E in Montenegro and Albania" report and interview with the academic staff of the UoM, stakeholders, and students, the recommendations are the following:

UoM, according to the BLUEWBC project, is planning to revise and modernize the existing study courses related to I&E and/or in the Blue Economy:

1. 7 BSc courses (in English):

1.1. 6 BSc courses (in English) Navigation and Sea Transport and Maritime Management and Logistics at Faculty of Maritime Studies Kotor and

1.2. 1 BSc course (in English) in Tourism and Hotel Management at Faculty of Tourism and Hotel Management.

Also, few new courses are planning to be developed:

2. 4 MSc courses (in English):
2.1. 3 MSc courses (in English) in Maritime Sciences and Maritime Management and Logistics at Faculty of Maritime Studies Kotor and
2.2. 1 MSc course (in English) in Tourism and Hotel Management at Faculty of Tourism and Hotel Management.

3.2.1. Directions for the modernization of existing study courses

1. The revised courses should include practical components and methodology related to I&E. Learning I&E in an education setting is often divided into three categories; learning *about* I&E, learning *for* I&E and learning *through* I&E. Learning *about* I&E takes place in the classroom when focusing on the theory about I&E. Learning *for* I&E could for example take place through business plan courses where students develop skills for I&E in future careers. These skills could be business basics, marketing, presentation skills etc. Learning *through* I&E occurs when students learn through actually performing I&E activities, such as developing a prototype, solving a real-life problem from the industry or starting a student company. In the revised courses, ideally one should strive to have all three learning methods of I&E present, with an emphasis on the latter. There should be a theoretical component where students *learn about I&E*, a skill-developing component where students *learn for I&E* and a practical component where students *learn through doing I&E* themselves. There are several teaching methodologies that could be applied for achieving this, for example start-up development, design thinking and student projects on innovation challenges from industry. The aim of the new course components must be focused on working with I&E opportunities within the Blue Economy in Montenegro.
2. The upgraded study courses should include practical workshops in I&E centres. This will introduce students to the technology available at the I&E centres, such as 3D scanners and printers, eye- tracking glasses, IoT sensors, led wall, simulators and lab software, etc. The emphasis in the workshop should focus on the application of the available technology to create new business opportunities within the Blue Economy. The workshops could for example be facilitated in collaboration with industry, municipality etc., who could suggest real-life practical challenges for students to work on during the workshop.
3. The existing study courses should include the practical disciplines, which are related to I&E. The disciplines like business management, organizational management, start-up development, design thinking, etc. The course needs to include a practical discipline that

analyses organizational management, innovation and technology development and application, solving business and regional challenges, etc. Study course related to the promotion of I&E in Blue Economy with practical disciplines. The idea is to let students in maritime and tourism education to develop business skills which would help students to make use of their education to develop the Blue Economy in the region. Part of this course should be dedicated to the Blue Economy issues. The long-term goal could be to achieve good ranking among the world's TOP universities in the area of Business Management by "QS World University Rankings by Subject".

4. Upgraded study courses should include practical workshops in I&E centres. This could be implemented by integrating in a course for example a complex course project, which includes the practical activities and/or workshops in a new established I&E centres. A complex course project means a cross-interdisciplinary project that is prepared and implemented by students from different departments (faculties), combining several subjects with the participation of several departments. The study course of the complex project is the responsibility of the department leading the project.
5. More proactively promote teachers and MSc and PhD students to take part in mobility programs (for example Erasmus+), to be able to get an international experience. In order to encourage the mobility of students and teachers – the incentive system for mobility needs to be revised in the university. The informational seminars for teachers and students about mobility possibilities and advantages of it need to be organized at least once in a semester (before the call for mobility).
6. By a systematic review of the study courses, the basics of improving I&E capacities with the skilful handling of data (for improving digitization capacities which can contribute to the increase of I&E competencies). This could be done in collaboration with the business partners, involving the I&E centre infrastructure, IT tools, which are practically being used in the business sector.

3.2.2. Recommendations for new study courses

1. New study courses could be for example "Start-up development", "Product development", "Idea commercialization", "Sustainable innovation" and "Innovation project". New courses should have a practical component where students *learn by doing I&E* (hackathon, MAKEADEMY program, etc.) and have a focus on I&E opportunities within the Blue Economy in Montenegro. Lectures for students should be given not only by the UoM teacher, but also by representatives of business partners, mentors, incubators, business angels, venture capitalists, etc. The duration of a course would be at least 1 semester.
2. New study courses (*non-formal education element*) like examples of "Start-up development" and "Start-up idea commercialization". Lectures for students have to be given not only by the

UoM teachers, but also by the representatives of the university's business partners, mentors, business angels, venture capitalists, etc. The duration of each at least 1 semester. Also, the element or study field of Blue Economy is appreciated in this course.

3. Newly developed study courses should include practical workshops in I&E centres. The same like for existing study once – for example a complex course project, which includes the practical activities and/or workshops in a new established I&E centres. A complex course project means a cross-interdisciplinary project that is prepared and implemented by students from different departments (faculties), combining several subjects with the participation of several departments. The study course of the complex project is the responsibility of the department leading the project. The emphasis in the workshop should focus on the application of the available technology to create new business opportunities within the Blue Economy. The workshops could for example be facilitated in collaboration with industry, municipality etc., who could suggest real-life practical challenges for students to work on during the workshop. Examples of these courses are in section 5.2., e.g. MAKEADEMY program, DEMOLA, etc.
4. More proactively promote teachers and students to take part in mobility programs (for example Erasmus**+**) to be able to get an international experience. Also includes the same recommendation as for the existing study courses.
5. We recommend that new courses also would have some basics of improving I&E capacities with the skilful handling of data (for improving digitization capacities which can contribute to the increase of I&E competencies). This could be done in collaboration with the business partners, involving the I&E centre infrastructure, IT tools, which are practically being used in the business sector.
6. If it is relevant, we would recommend developing a common study course for example in Business management with other EU country HEIs including the practical activities as well. This will make a more attractive study course for students to choose it (*non-formal education element*). Also, more benefits of it:
    a. Internationally recognized degree.
    b. Possibility to get a double degree.
    c. Students have an opportunity to take internship in international and foreign capital companies.
    d. Students are trained to work in international companies, foreign capital companies, etc.
    e. Graduates can participate in an internship according to Erasmus+ program within EU country.

3.2.3. Recommendations for I&E Centre

1. I&E centres have to help creating leaders and bridge the skills and knowledge gap by:
    a. **increasing capacities** of staff for driving change in their institutions by employing new approach in study process.
    b. **aligning the good practices** at UoM with collaboration strategies (quadruple helix approach).
2. The newly developed I&E infrastructure should serve as the spaces to improve education and I&E ecosystems of UoM through the promotion of interdisciplinary actions. For example, practical disciplines like complex course projects where students from several departments by working together can combine different competencies, skills and knowledge.
3. Ensure the development of cross-discipline (digital as well) ecosystems. I&E centres should be based on the quadruple helix, i.e. involving education, government (cities), business, society, in different phases and forms of collaboration activities with business, internships, practical prototyping, functioning as a platform for employment of new innovative ideas, solutions for solving different challenges, stimulating innovation, efficient use of integration of universities with a real business. This could be done via various initiatives like Hackathons where students alone or a group of students can work together on solving regional, city, societal or governmental challenges by creating, developing and prototyping ideas with the practical approach.
4. The centres must serve as collaborative I&E space and be a part of study courses related to I&E promotion in the Blue Economy for learning, making and sharing. There must be a platform for students, researchers & business companies to connect and combine their resources in pursuit of innovation. It could be done in close cooperation with businesses working in the field of Blue Economy. Students might work with the company and develop innovative solutions that are needed for the company.

3.2.4. Recommendations for the promotion of UoM-business cooperation

1. Development and constant maintenance of Alumni database. It is recommended to hire full time person for this position. Someone from the faculty/university department would be highly suitable.
2. Constantly engage business into UoM processes:
    a. development of the study courses and upgrades. Obligations include annual meetings with the business partners to find out the need and lack in the qualification of existing students and alumni. Invite the representatives from the business sector to the existing courses. It is recommended to demand the list of possible lectures which representatives from the company can give during the semester. Usually, the big

companies have topics, specialized in practical areas, which can easily be integrated into a study process.

b. site visits to companies. This can easily be implemented by organizing the visit, as a part of a lecture. This is already implemented in the EU HEIs. It allows the students, together with the lecture, to visit the company to observe more directly the management processes. And from another point of view, it gives the company the possibility to meet and select the best students by giving the practical tasks during the visits.

c. internships. Business always needs high-quality human resources – this is the main attraction point for them and business can contribute to the preparation of such. University is the main source of high-quality human resources (students, future employees). Therefore, it is very important during the development of new study courses or upgrading the existing once – to involve business companies, other related industry stakeholders that can contribute to the efficient development of study course content.

3. It is recommended to consider the industrial PhD program in Montenegro and at UoM, in order to grow human resources for business. Another way of attracting business, could be real employment of I&E infrastructure for solving real business problem. Renting I&E space for business (with the supervision of UoM representative) – so that the engineers of the company would come and use the infrastructure of it (this can help to keep close contact with company in the future).
4. New initiatives involving regions, cities, and businesses to solve countries, city, society challenges. Students' interdisciplinary teams have to work together with business, city representatives, or mentors (for example hackathons). Hackathons are the initiative where students alone or groups of students can work together on solving regional, city, societal or governmental challenges by creating, developing and prototyping ideas with the practical approach.
5. Very praiseworthy the collaboration initiative with business and innovation centre IEC Tehnopolis, which needs to be continued and even more extended for more possibilities of business-science collaboration in all the levels (study process, research and businesses). It is highly recommended to encourage collaboration with other centres from Montenegro, which are not strategically linked to the University of Montenegro.
6. If it is relevant for UoM, the internal department (like Technology Transfer Office TTO, Research department) responsible for business and science cooperation can bridge UoM with the required business representatives. If the UoM does not have the department, responsible

for science-business collaboration – this could be a good occasion to start the discussion with the UoM management to establish one.

3.2.5. The main milestones

1. Revised and upgraded study courses.
2. Developed I&E centre.
3. Developed new study courses.
4. Developed alumni database.
5. Constantly engage business into UoM processes.
6. Proactively promote the mobility.
7. Development of cross-discipline (digital as well) ecosystems.
8. Establishment of the TTO – recommendation not necessary within the project.

4. Practical examples on suggested recommendations

4.1. Recommendation: apply experiential learning methods

Experiential learning is the process of learning through experience, and is more specifically defined as 'learning through reflection on doing'.

The first principle of experiential learning is that classrooms need to be highly engaging environments that emphasize **collaboration and cooperation**, rather than emphasizing **traditional** structure. Experiences may not always lead to success, but they never fail to produce experience, since students can still learn from their failures (https://www.educationcorner.com/experiential-learning-guide.html).

There are many versions of experiential learning activities that can be used in a class (whether face-to-face or virtual). We suggest involving a few of them in BSc and MSc study courses:

Project-based learning (PBL)

Project-based learning could take several forms or be a combination of:

- Designing and/or creating a tangible product, performance or event,
- Solving a real-world problem (may be simulated or fully authentic), and
- Investigating a topic or issue to develop an answer to an open-ended question (https://www.edutopia.org/blog/pbl-vs-pbl-vs-xbl-john-larmer).

Project-based learning involves an increased number of standards and time dedicated to learning. This means that PBL is a remarkable opportunity to get through many of the requirements on the to-do list. Examples of PBL learning could be:

- In New Utrecht High School, for instance, students dove into the intriguing world of tourism and worked with the following guiding question: "What makes a place a destination?" They then created marketing strategies and even a website for their "client country".
- At ARISE Academy, students used a variety of different media outlets to present a civil rights topic of their choice to a panel of judges who asked difficult questions about the choices they made. Such projects help to teach 21st-century skills (such as collaboration or oral communication), making learning meaningful to students. Don't forget to incorporate extra time for feedback throughout the project for your students to discuss and for you to apply continuous assessment (https://craftedcurriculum.com/what-is-the-difference-between-problem-based-and-project-based-learning/).

More detailed examples of project-based learning are provided in section 5.2.

Problem-based learning (PrBL)

Problem-based learning allows to focus on skills and on the learning process rather than on the product.

Problem-based learning typically follows prescribed steps:

- Presentation of an ill structured (open-ended, 'messy') problem,
- Problem definition or formulation (the problem statement),
- Generation of a 'knowledge inventory' (a list of 'what we know about the problem' and 'what we need to know'),
- Generation of possible solutions,
- Formulation of learning issues for self-directed and coached learning, and
- Sharing of findings and solutions (https://www.edutopia.org/blog/pbl-vs-pbl-vs-xbl-john-larmer).

Some of the examples in section 5.2 can be applied as a problem-based learning, when the task is focused on the process and not the prototype (e.g. working on a problem during summer school).

Games, Simulations, Role-Playing, Debate

Students actively enact assigned roles that simulate real-world conditions/situations, e.g.:

- Games: http://www.ub.edu/euelearning/proactive/documents/handbook_creative_gbl.pdf
- Debates: https://www.guide2research.com/research/debate-topics-for-college-students

Community Engagement

Students are immersed in actual real-world conditions. Internships, practicums, service learning, and research studies enable students to apply acquired skills and/or to feel out situations or conditions in the outside world (https://teachingcommons.unt.edu/teaching-essentials/engaged-learning/what-experiential-learning).

4.2. Best practice examples

We believe that learning by doing is the best way to motivate students, empower collaboration between university and business and achieve the best results.

Examples below cover activities implemented in Vilnius Gediminas Technical University in different scale:

- One-week challenge (Hackathon *HACK4VILNIUS*),
- Two weeks summer school,
- 3-month programme *Makeademy*, and
- Challenge based programme *DEMOLA.*

Examples prepared by NTNU:

- Interdisciplinary study programs and courses in I&E at NTNU in Aalesund,
- Experts in teamwork – interdisciplinary innovation project at NTNU in Aalesund.

University of Split experience:

- Strategic framework for Blue Economy, innovations and entrepreneurship in Croatia.

The examples below are more concept based not a topic based which means the same concept can be applied on different topics.

4.2.1. Hack4Vilnius

Idea

Hack4Vilnius is a three-day challenge, intended to promote innovations in Vilnius city. The Hackathon aims to generate ideas, how to solve problems of Vilnius city and businesses here and to provide alternative and innovative solutions.

Concept

The event (Figs. 1 and 2) is organized by Sunrise valley science and technology park, Vilnius Gediminas Technical University and Vilnius University in a collaboration with Vilnius city municipality.

All persons (IT specialists, designers, engineers, inventors, entrepreneurs, etc.), who have their ideas, want to create and suggest new solutions, can participate in the hackathon. During the last three years, 400 + participants participated in the hackathon and created 59 prototypes. 25+ mentors were involved to support the idea development.

Figure 1. Hack4Vilnius event, part I

The topic of the hackathon – innovations for Vilnius city, how to make the city more clean, healthy, agile and smarter. Ideas can be proposed by the participants or chosen from the suggested challenges. Challenges are created together with Vilnius city municipality.

Figure 2. Hack4Vilnius event, part II

Challenges for 2020 hackathon:

- How to solve the problem of distance in the city? The Singapore example is the TraceTogether app and a special device.
- To use, integrate or adapt to Vilnius?
- The problem of surface cleanliness identification. The solution is relevant both in communication with each other and in various institutions to ensure the safety of others (schools, workplaces, etc.).
- How to manage the disposal of non-household waste (bulky, electrical electronic devices, etc.) in non-designated areas?
- How to optimize urban waste removal using open Vilnius data?
- Development of a platform for suggestions on what to do during quarantine, self-defence.
- How to make urban public transport more comfortable for visually impaired passengers?

- Development of electric car charging stations together with an interactive map showing where Vilnius residents can charge EV cars. How to choose the places where new charging stations should be installed?
- Electric scooter charging station infrastructure implementation plan.
- Summary (dashboard) of ongoing and future works and processes relevant to the population in Vilnius. Residents could see the planned renovation of the streets, emerging infrastructure projects and other relevant works.
- A way to find out where there are free parking spaces in the city. Perspective - to improve them. Parking app.
- Creation of an information platform for managing emergency situations in Vilnius by combining data from city sensors.

Figure 3. Hack4Vilnius

University – business collaboration

There are different options and motivation (Fig. 3) for the companies to be part of the hackathon:

- To be involved in setting up the challenges,
- To be involved as mentors or commission for evaluation of the pitch results,
- To be involved as sponsors to provide required tools and materials, and

- To set up a prize for the best ideas, etc.

Sometimes it is complicated to communicate with business, especially if this is not a common practice in a country. Though, we know that this practice has to be built step by step and a lot of companies support students and education.

4.2.2. Summer school

Idea

Sometimes hackathon may be a complicated task for young students due to its short term. Another option would be to organise a summer school which includes not only real prototyping, but also topic-related lectures and more guidance from the teachers.

Concept

Concept of the summer school was developed within Erasmus+ project *HEI MAKERS* together with partners from Lithuania, Latvia, Romania and UK. Summer school named Maker Camp "Makers 4.0" is a two-week programme which includes lectures on selected topics and practical tasks with evaluation at the end of the programme (see Fig. 4).

	Day 0 - Sunday	Day 1 - Monday	Day 2 - Tuesday	Day 3 - Wednesday	Day 4 - Thursday	Day 5 - Friday	Day 6 - Saturday
	30-Jun	1-Jul	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul
10:00	Arrivals	Introduction Organisational issues Tour in VGTU "LinkMenu fabrikas"	Lesson: Technological Entrepreneurship Room 2/07 Lecturer: Laurynas Braskus	Workshop: Teambuilding for 3D project(s) Room 2/07 Lecturer: Laurynas Braskus	Teambuilding - Project idea generation workshop Room 2/07 Mentor: Laurynas Braskus	Workshop: Blender Software Room 2/07 Lecturer: Justas Ingelevičius	Exploring Vilnius
11:00							
12:00		Maker Culture Room 2/07 Lecturer: Giedrius Kavaliauskas					
13:00		Lunch					
14:00		Country presentations Room 2/07	**Study visit**	Lesson: Fundamentals of 3D printing (pt 1) Room 2/07 Lecturer: Rihards Rieka	Workshop: 3D modelling with Fusion 360 software Room 2/07 Lecturer: Tautvydas Vitauskas	,	
15:00							
16:00							
17:00							
18:00							Non-teaching days
	Day 7 - Sunday	Day 8 - Monday	Day 9 - Tuesday	Day 10 - Wednesday	Day 11 - Thursday	Day 12 - Friday	Day 13 - Saturday
	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul
10:00	Exploring Vilnius	Lesson: **3D printing hardware** Room 2/07 Lecturer: Rihards Rieka	Lesson: 3D printing software Room 2/07 Lecturer: Diana Popescu	**Team project work** Room 1/05, 2/07, 2/09, 2/13	**Team project work** Room 1/05, 2/07, 2/09, 2/13	**Pitch day** Room 2/07	Departures
11:00							
12:00							
13:00		Lunch					
14:00		Workshop: **Applying 3D printing process steps for manufacturing** Room 2/07 Lecturer: Diana Popescu	**Team project work** Room 1/05, 2/07, 2/09, 2/13	**Team project work** Room 1/05, 2/07, 2/09, 2/13	**Team project work** Room 1/05, 2/07, 2/09, 2/13	Pitch competition results; Feedback of summer school; conclusion of school Room 2/07	
15:00							
16:00							
17:00							
18:00	Non-teaching days						

Figure 4. Agenda of the summer school

Partners from other organisations (Sunrise valley science and technology park; makerspace; business) were involved as the presenters during 1st week of the programme, as mentors during team project work and as commission during pitch session (Fig. 5).

Figure 5. Pitch session

Collaboration with business

We suggest to involve stakeholders in different activities:

- As guest lecturers on summer school topic,
- As commission for evaluation,
- As sponsors to provide required materials and set up a prize.

4.2.3. MAKEADEMY

Idea

The idea of Makers academy (MAKEADEMY) was created in order to motivate university students to participate in hands on activities, promote teamwork, interdisciplinary and to strengthen relations between university and business.

Concept

MAKEADEMY is a three-month program for students from different universities (Fig. 6). Students' teams (at least 4 members: electronics, design, marketing, mechanics) choose their ideas on hardware products (either bring their own ideas or choose from the list).

Figure 6. MAKEADEMY

The programme is held in different stages: instructions of the workshops and tools that are going to be used in the academy, research and brainstorm workshops, design consultations, prototyping and product finalization. In between of these stages, the critical evenings are held, during which the participants present their ideas to the mentors (teachers and business professionals). The best teams move forward in the programme, and the others have to leave the programme. MAKEADEMY prize pool is 6000 € (business support).
Teachers can serve as mentors at the makers' academy, providing guidance and consultations in the process.
Modules for all the stages of the programme could be prepared and embedded in the curricula of different faculties and suggested as supplementary modules for the students. As a result, all the teams that reach the final have a functional prototype.
The participants also have a valuable network of business companies that participate in the process.

Collaboration with business

- Commission members to evaluate intermediate and final results,
- Sponsors for materials and prizes, and
- Provide free professional topic-related courses for students.

4.2.4. DEMOLA project

Idea

DEMOLA is an international innovation challenge platform that brings together students and leading brands (Fig. 7). With *DEMOLA*, global and local organizations challenge university students to create a better future. Today, *DEMOLA* innovation challenges bring together over 50 universities, 750.000 students and the leading companies from around the world (https://www.demola.net).

Concept

DEMOLA trademark and innovation platform is owned by *Demola Global*. *Demola Global* was established in Tampere, Finland. Now *DEMOLA* operates in 18 countries: Finland, Sweden, Denmark, Norway, Spain, France, Lithuania, Latvia, Hungary, Portugal, Mexico, Namibia, South Africa, Slovenia, Japan, China, Nepal and Tunisia.

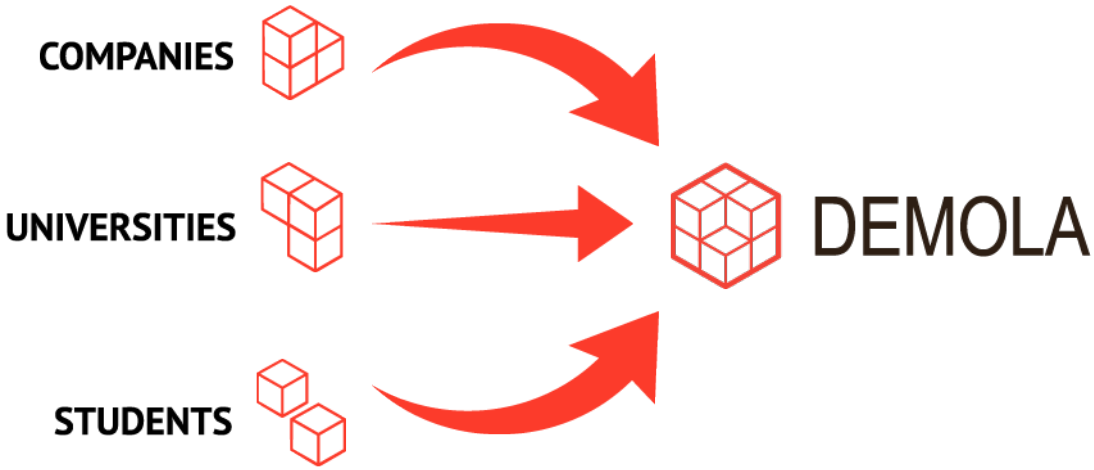

Figure 7.DEMOLA

DEMOLA work is challenge driven, with the project ideas coming from the industry and other organizations. The students' work is supported by both the industrial and academic partners, whose role is to provide guidance to the student team throughout the project. During an eight-week process, the team co-creates solutions to the given theme.
The process of the *DEMOLA* challenge covers following activities:

- Proposition of the challenge, problem definition
- Initial/brief meeting, sharing of ideas, definition of the brief
- Various supervised meetings and workshops; brainstorming and contextualising the proposed solution(s)
- Jam meeting to share challenges and solutions
- Pitching session for the presentation of the solution

DEMOLA is an international network and university itself can not apply these ideas so simply. Our recommendation is to bring *DEMOLA* to Montenegro and be part of that network. Even if this process is long, some *DEMOLA* concepts could be already applied. Especially knowing that *DEMOLA* proves to be particularly successful in areas where university/business cooperation hampered by weak collaboration models.

4.2.5. Interdisciplinary study programs and courses in I&E at NTNU in Aalesund

Idea:

Interdisciplinary bachelor degree in biomarine innovation at Norwegian University of Science and Technology (NTNU) in Aalesund. A study programme that has I&E specific courses combined with discipline specific biomarine courses. The biomarine component consist of courses within marine resources, aquaculture, seafood, general science courses and biomarine internship. The degree has become one of the study programs with the highest application rates at NTNU in Aalesund. It prepares students for a biomarine career where they take on responsibility for innovative and entrepreneurial efforts in the sector.

Concept:

NTNU has the main responsibility for education in engineering and technology in Norway. The university has several study programs and courses within I&E at the university, and the campus in Aalesund is known for its interdisciplinary study programs in I&E and close collaboration with industry.

In 2005, the bachelor in innovation & entrepreneurship was established at NTNU in Aalesund and quickly became a popular study program among students (Fig. 8). The study program is a combination of theoretical and practical courses with substantial focus on hands-on practical I&E in training, especially in the third year of the study program. In the final year, students create their own start-up through the JA Company Program model in the last semester. Afterwards, several continue with their business ideas after graduation and establish their own companies. The structure for the bachelor program is illustrated below with a brief description of the different I&E courses.

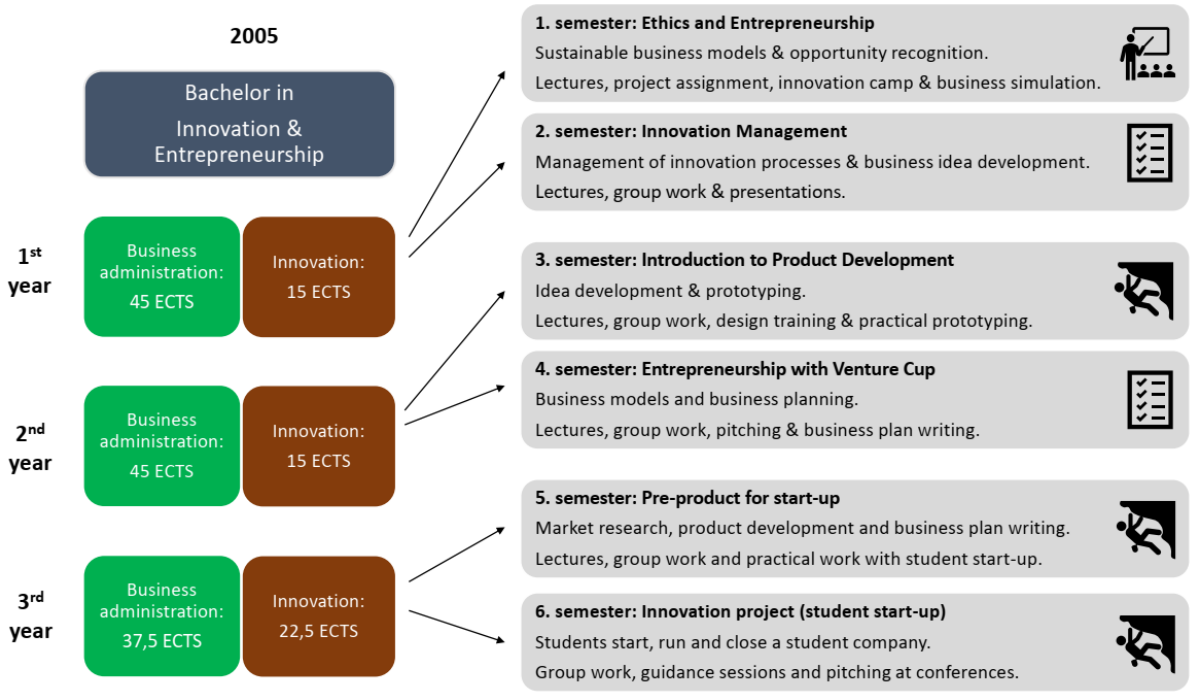

Figure 8: Study program structure of bachelor in I&E

The bachelor degree in I&E formed the basis of an interdisciplinary bachelor degree in biomarine innovation (Fig. 9). The study program combines marine courses from the biology department with I&E and business administration courses from the business department. An overview of the structure for the bachelor program is portrayed below with a brief description of the different I&E courses.

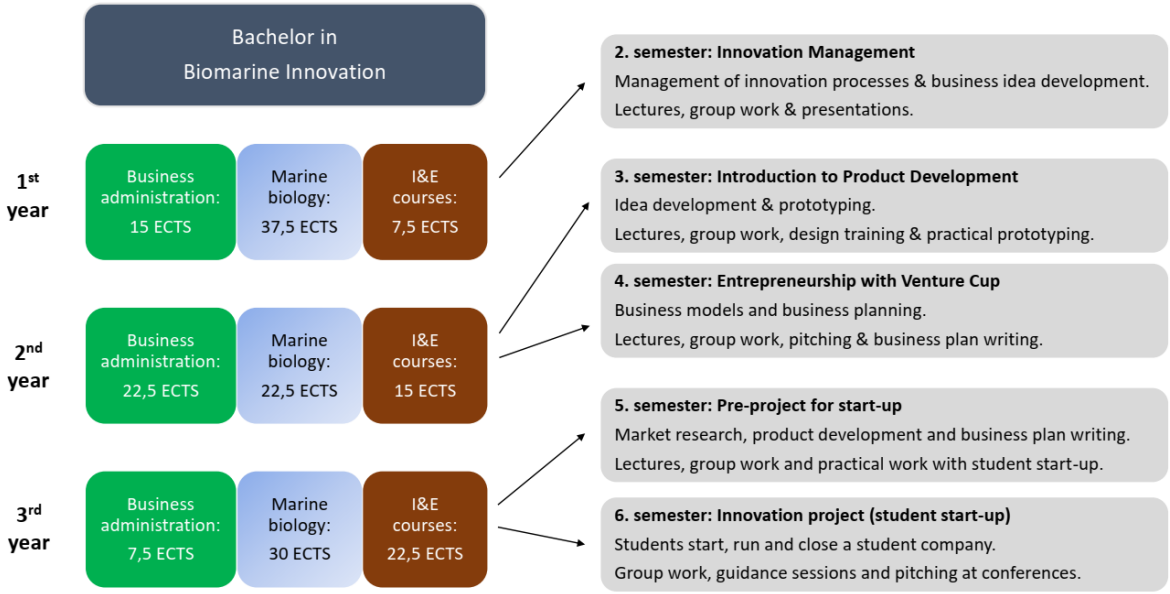

Figure 9: Study program structure of bachelor in biomarine innovation

The study program provides students with knowledge and competence about marine resources, as well as on how to make use of the marine resources for commercialization and value creation (Fig. 10). The study program has been developed in close cooperation with the regional marine industry, and students remain in close contact with industry partners throughout the studies. In the first year, students obtain basic knowledge about marine resources, science and business. In the second year, students are introduced to aquaculture and seafood courses, as well as business development courses with focus on sustainable value creation. In the final years, students have internships in industry and thereafter create a student start-up which they run for a whole year.

Figure 10: Student in biomarine internship on fishing vessel

The competitive advantage of the bachelor program is the unique interdisciplinary competence that students acquire which enables them to understand marine biology and science, while at the same time having skills and competence on how to exploit commercial opportunities within the industry. The majority students have already signed employment contracts in industry before they start their final semester.

4.2.6. Experts in teamwork – interdisciplinary innovation project at NTNU in Aalesund

Idea:

To have one interdisciplinary innovation project for all master students at NTNU. The course is mandatory for all students in master degrees and students work in interdisciplinary teams with an innovation challenge throughout one full semester. The course is 7,5 ECTS. Several of the challenges are related to the marine and maritime sector.

Concept:

At the master level, students register for the course *Experts in Teamwork* (Fig. 11). The course is mandatory for all master students at NTNU across all master degrees. In the course, students work in interdisciplinary teams to make suggestions for an innovation challenge. Interdisciplinary teamwork is used as an opportunity to develop collaboration skills while carrying out an innovation project. Students spend one full day each week on the project with guidance from a faculty, student facilitators and industry mentors. The students can choose among innovation project topics depending on their field of interest. In the course students are challenged to develop innovative solutions, often in close cooperation with industry partners.

In terms of Blue Economy development, several of the topics are related to creating business opportunities through sustainable development of ocean resources. There are 16 different topics to choose from at NTNU in Aalesund this semester. The ones related to Blue Economy this semester are:

- Sustainable Value Creation in Ocean Space (https://www.ntnu.no/eit/ip509118)
- Oceanic Recreation (https://www.ntnu.no/eit/ie509118)
- Making money from waste (https://www.ntnu.no/eit/am500218)
- Hydrogen in transportation for a safe and sustainable future (https://www.ntnu.no/eit/tpk4852)
- Oceanic Plastic Waste (https://www.ntnu.no/eit/tep4854)
- Digital twins (https://www.ntnu.no/eit/tdt4860)

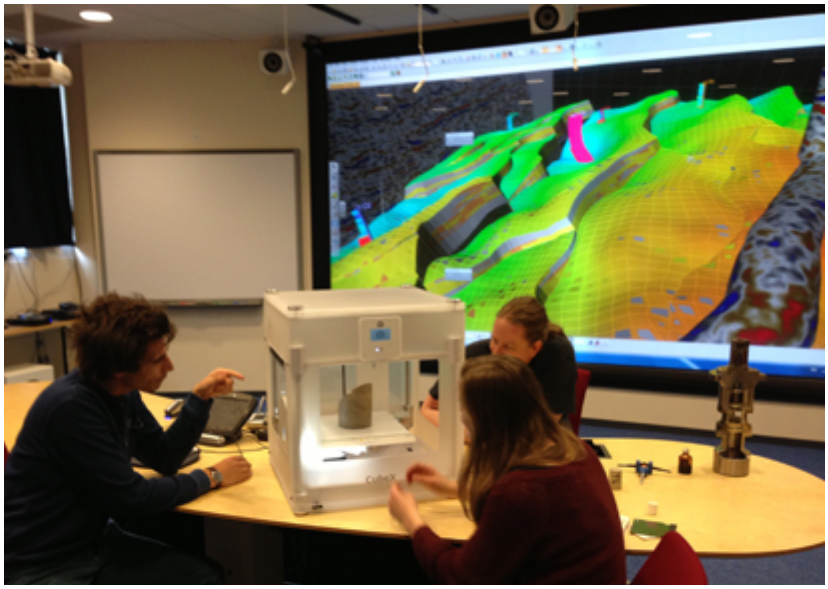

Figure 11. Experts in teamwork: 3D visualization of petroleum data, NTNU in Trondheim

4.2.7. Blue Economy, innovations and entrepreneurship at the University of Split, Croatia

The list of strategic frameworks/policies affecting the **Blue Economy, Innovations and Entrepreneurship** in the Republic of Croatia:

- The Strategy of Maritime Development and Integral Maritime Policy of the Republic of Croatia for the period 2014-2020 (2014).
- Tourism Development Strategy of the Republic of Croatia until 2020.
- Nautical Tourism Development Strategy of the Republic of Croatia for the Period 2009 - 2019 (2008).

- The Transport Development Strategy of the Republic of Croatia for the period 2014-2030.
- Strategic Environmental Impact Study of the Transport Development Strategy of the Republic of Croatia 2017-2030.
- National Innovation Strategies. The Strategy for Innovation Encouragement of Croatia 2014-2020 and Croatian Smart Specialization Strategy (S3) 2016 – 2020, i.e. their overall strategic framework serves to encourage and synergy use of public and private resources for research, technological development and innovation, which should result in improved efficiency of the national innovation system of the Republic of Croatia.
- The Strategy for Innovation Encouragement of Croatia 2014-2020
- Croatian Smart Specialization Strategy 2016 – 2020 (S3)
- Social Innovation Policy Framework for Croatia, Global Relations Policy Handbook.
- The National Strategy for the Creation of an Enabling Environment for Civil Society Development (2012-2016)
- Strategy for the Development of Social Entrepreneurship in the Republic of Croatia for the period 2015-2020.

The **University of Split** has many years of experience in applying for and implementing projects from EU programs and funds. In the last few years, over 40 projects financed from EU programs and funds have been successfully implemented, and over 20 are ongoing. This experience is based on partnership in numerous projects funded by Horizon 2020, Erasmus+, COSME and the European Social Fund, the European Regional Development Fund as well as other sources of funding.
(http://www.unist.hr/en/science-and-innovation/projects-office/university-projects)
Among many projects, the most important one is **Erasmus+ project** (Key Action 2 – European Universities): **The European University of the Seas (SEA-EU).** Alongside the University of Split, the SEA-EU consortium consists of Universidad de Cádiz (Spain); Université de Bretagne Occidentale (Brest, France); Christian-Albrechts-Universität zu Kiel (Germany); L-Università ta' Malta (Valetta, Malta) and the University of Gdansk (Poland). The idea of encouraging emergence of European Universities was initiated by Member States, the Council and the European Commission. The objective is to establish around twenty European Universities by 2024.
(https://www.clustercollaboration.eu/profile-articles/european-university-seas-sea-eu)
SEA-EU will engage in concerted efforts towards building an inclusive, sustainable and resilient future for people and planet, with the specific vocation of dealing with the sea that unites us. SEA-EU will actively foster an entrepreneurial, ownership-taking, mind-set, **supporting green/blue growth** and sustainability. SEA-EU will develop innovative pedagogies and promote the latest digital technologies in order to deliver personalised content, enable knowledge sharing, foster competitive skills and promote open science. It will assist in building the **human resources and skills necessary to match the needs of the evolving marine and maritime sectors**, now and in the foreseeable future.
(https://sea-eu.org/alliance/)

Events organised at UNIST related to Blue Economy:

- *European Sustainable Development Week (ESDW) at the University of Split (September – October, 2020)*
- *SEA-EU Blue Talks - a series of short on-line webinars focused on the topic of a blue economy organised by the European University of the Seas SEA-EU (October 2020 – March 2021)*

The University of Split is pursuing its **curriculum** on the principle of full synergy with scientific achievements, both in areas of fundamental research and in areas oriented to direct industrial and economic applications. At the University of Split, following faculties offer studies within Blue Economy sectors:

- **Faculty of Maritime Studies** - offers 5 undergraduate studies, and 4 graduate studies. All studies and almost all courses refer to Blue Economy. New elective subject *Science and innovations* (15 ECTS) has been included in curricula of all master study programmes since academic year 2019./2020.
- **Faculty of Economics, Business and Tourism -** offers 3 undergraduate study programmes (Economics, Business studies and Tourism) and 3 graduate study programmes (Economics, Business studies and Tourism and Hotel Management).
- **Faculty of Electrical Engineering, Mechanical Engineering and Naval Architecture,**
- **Faculty of Chemistry and Technology,**
- **Faculty of Law,**
- **Faculty of Science**,

and following departments:

- **University Department of Professional Studies,**
- **University Department of Marine Studies,**
- **University Department of Naval Studies.**

The studies related to Innovations and Entrepreneurship can be found at:

- **Faculty of Economics,**
- **University Department of Professional Studies** – (Business Administration and Tourism - Study program Management of Trade and Tourism)**.**

(http://www.unist.hr/en/about/faculties-and-departments)

At the University of Split, there are several existing institutional initiatives that **support I&E**, either as informal learning or institutional support.

Student Business E-Academy (SBeA) - is a free, open, online programme developed within Erasmus+, KA203 project for university students which introduces young people to the business world and teaches them how to make a successful business model through entrepreneurship education, practical work on ideas and development of business ideas up to the start-up phase of the enterprise.

Approximately, it takes six weeks to follow the programme which comprises of the following modules: Innovation, Venture Development, Marketing Innovative Products and Services, Entrepreneurial Finances, Business Start-ups and Business Model Development. SBeA also offers a guidebook and a library. In its full implementation, programme requires a mentorship from a teacher/entrepreneur. Programme is available in Croatian, English and Spanish at http://e-learning.efst.unist.hr/

List of courses:

- Business Model Development
- Business Start-ups
- Entrepreneurial Finance
- Innovation
- Venture Development
- Marketing Innovative Products and Services.

Student Business Incubator (SPI) operates at the Faculty of Economics in Split in order to support all pro-active and enterprising students of the UNIST. SPI's aim is to promote youth entrepreneurship by providing significant support in the preparation of business ventures. The initiative to start a SPI was primarily born out of the need for new programs to encourage entrepreneurial activity of students and those who recently acquired the appropriate level of formal education. Launching of SPI in 2015 was co-financed by the EU from the European Social Fund under the Operational Programme Human Resources Development.

For its members, SPI offers: technically equipped co-working space, mentoring support in developing business models and projects, training and workshops, networking events, business advisory services, SBeA programme, support and preparation for national and international start-up competitions, participation in the international entrepreneurial camp Summer Jam Croatia (SJC) that is successfully organized for several years in a row (http://www.efst.unist.hr/en/cooperation/business/student-business-incubator).

UNIST Technology Park Ltd is a company established by the UNIST with the aim of development and enhancement of entrepreneurial infrastructure for the university graduates as well as other enthusiasts in their independent ventures in the field of high technologies and general ones. It particularly emphasizes mentorship and assistance to entrepreneurs in the early development of their ventures followed by fast and sustainable development, through incubation and acceleration programmes and use of professional services.

As an infrastructure, UNIST Technology park offers modular offices, co-working space, conference rooms, hardware laboratory, accelerator office, entrepreneurial centre, meeting room, etc (https://unisthub.com/).

Technology Transfer Office (TTO) is a university department established with the scope to increase commercialization of the intellectual property at the university and to strengthen link between university and economy. Office promotes entrepreneurial spirit among students and scientists,

encourages and supports transfer of the knowledge and research results from the university to the economy (http://www.utt.unist.hr/en/o-nama/o-nama).

TTO is a part of Enterprise Europe Network (EEN). Through EEN, TTO provides free of charge services to entrepreneurs including information on technology supply and demand, publishing technological profile in the network technology database, organization of brokerage events and trainings about innovation management, support in finding partners for European research and development programs.

Events organised at UNIST related to I&E:

- Global Entrepreneurship Week https://www.genglobal.org/croatia/global-entrepreneurship-week-split-2019
- Summer Jam Croatia – international entrepreneurship conference: The second SBeA conference 2017 http://sbea.efst.unist.hr/the-second-sbea-conference-starts-on-23-august-2017/
- Global Opportunities Beyond Borders (Move it forward – Conference: 4 hours of workshops for entrepreneurs where experienced entrepreneurs from Chicago will help you tackle your business goals: WORKSHOP 1: Idea to prototype; WORKSHOP 2: Entering the market; WORKSHOP 3: Scale, grow, prosper; Learn to collaborate – Can you network like an American? Meet the team from the region that was in Chicago last spring, get their feedback and polish your networking skills with Super Six from Chicago at the networking event after the conference.) https://www.gobb2017.com/
- Shift Dev 2021 conference: A new way to bring the World's Developers Together (A two-day open air and hybrid Developer conference specifically created to continue the tradition of delivering amazing educational and inspirational talks that the developer community has come accustomed to but in a format fit for the world we live in today.) https://dev.shiftconf.co/#about

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