EUSAIR pillar 3– Environmental Quality

Innovation expert analysis

Slovenia

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Steps that has been taken:

Review and identification of projects focused on **pillar 3 – Environmental quality**

Presentation of selected projects with regard to **innovation (EI, CE)**

Best practice presentation from different countries, focused on Environmental quality

Proposals to stimulate eco-innovation and circular economy

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1. phase: projects‘ review and identification

Review of existing projects on pillar 3 – **Environmental quality** within 4 flagships:

- monitoring and management of marine protected marine species,
- sustainable development of the coastal and maritime zones,
- protection and enhancement of natural habitats and terrestrial ecosystems,
- transnational contingency plan in the event of accidents at sea.

1. phase: projects‘ review and identification

We have focused on projects that were related to **Environmental quality** and its four flagships, and moreover:

- **were transnational and cross-border** projects, such as **Interreg, Horizon and Life**
- Have been implemented in **time period 2014-2020** (started and finished within this time frame)
- Finally, we selected the ones that were directly or indirectly involving general i**nnovation**, **eco-innovation** or elements of **circular economy**

1. phase: projects‘ review and identification

- **98 projects** that pertain to **Environmental quality**, of which:

- 21 projects have been found to cover monitoring and management of marine protected marine species,
- 38 projects for sustainable development of the coastal and maritime zones,
- 30 projects for protection and enhancement of natural habitats and terrestrial ecosystems,
- 9 projects for transnational contingency plan in the event of accidents at sea.

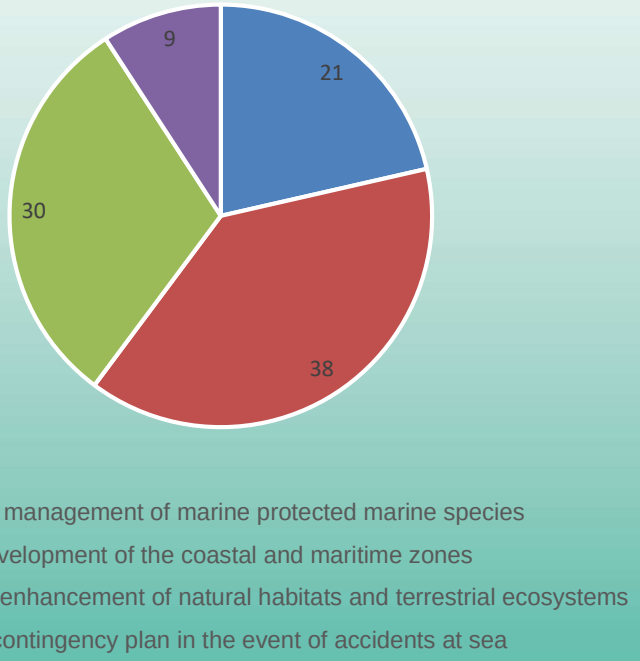
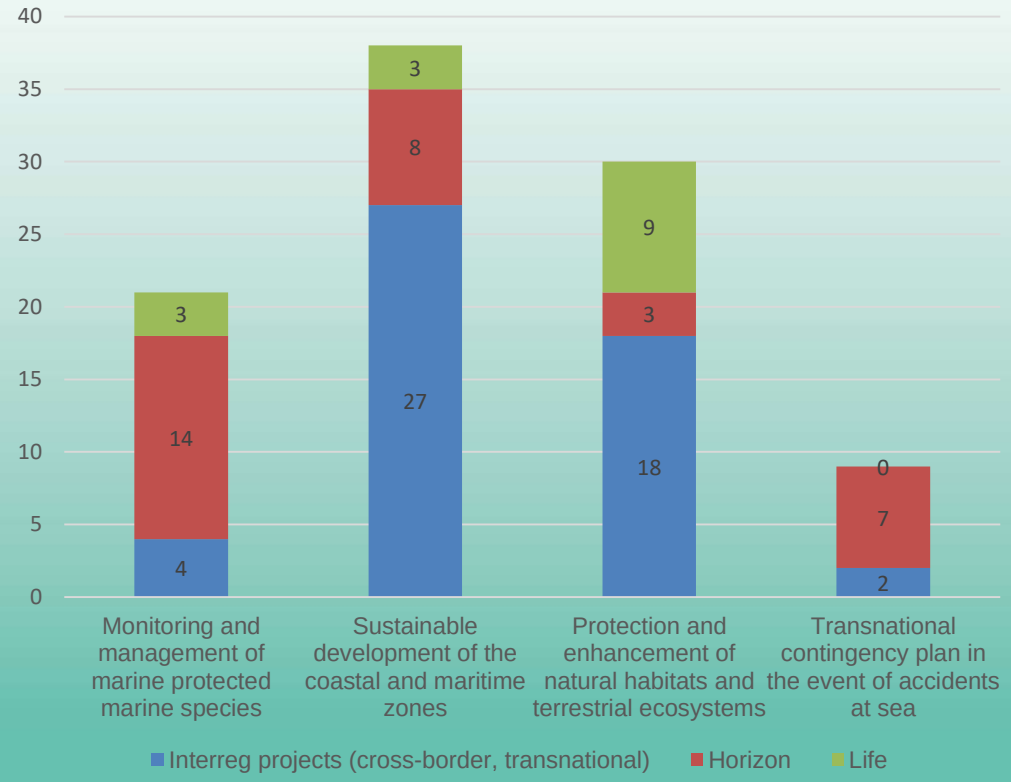


Figure 2: Shares of financed projects regarding the flagships of TSG pillar 3 – environmental quality

1. phase: projects‘ review and identification

Figure 3:

Shares of projects regarding the flagships of TSG pillar 3 – environmental quality and operational program



1. phase: projects‘ review and identification

- All together in budget, **the projects pertaining to Environmental quality, were estimated to 1 581 627 196,65 EUR.**
- In more details, in **monitoring and management of marine protected marine species** have been invested **931 316 980,31 EUR**, in **sustainable development of the coastal and maritime zones** **494 087 604,16 EUR**, in **protection and enhancement of natural habitats and terrestrial ecosystems** **128 629 383,69 EUR**, and finally, in **transnational contingency plan in the event of accidents at sea** **27 593 228,49 EUR**

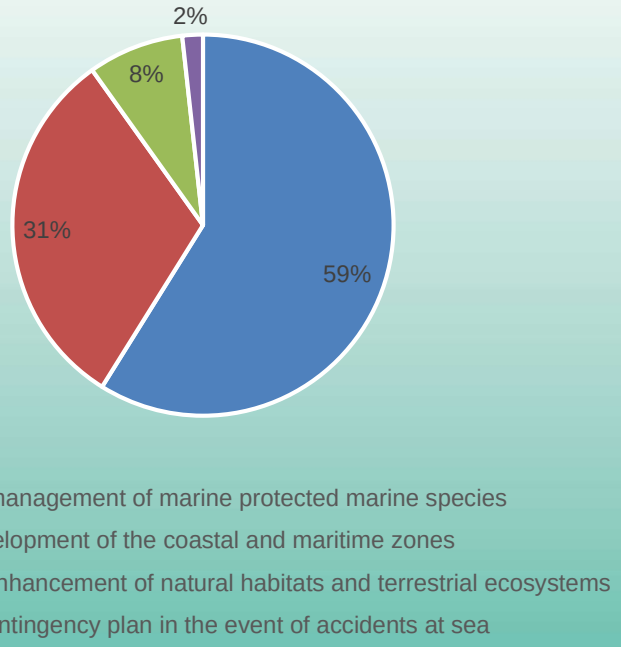
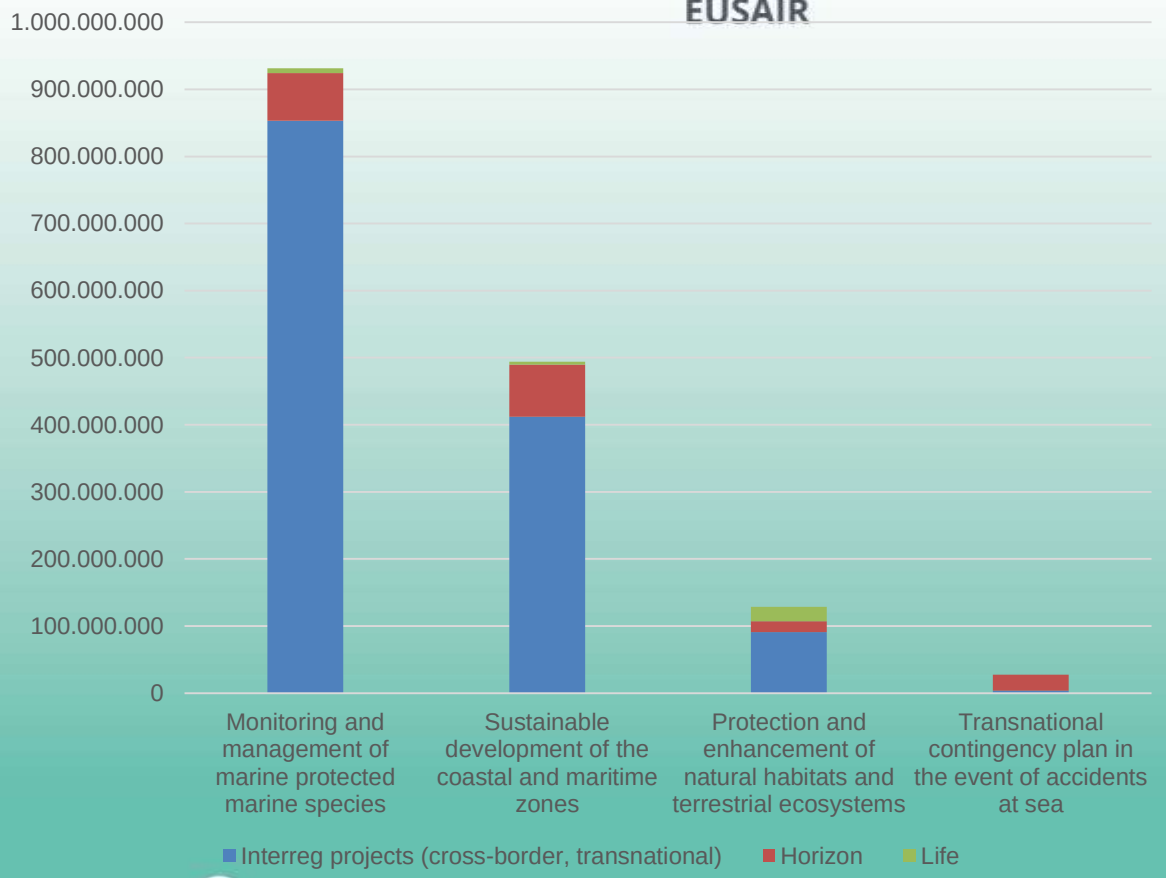


Figure 4: Budget in EUR for projects regarding the flagships of pillar 3 – environmental quality

1. phase: projects‘ review and identification

Figure 5: Budget in EUR for projects regarding the flagships of pillar 3 – environmental quality and operational program



1. phase: projects‘ review and identification

- **Monitoring and management of marine protected marine species** we identified **4 Interreg projects**, **14 Horizon projects** and **3 Life projects**.

- Elements of general innovation (organizational) were identified in **2 Interreg projects** (Compass and MEDSEALITTER),
- Among Horizon projects we identified the elements of eco-innovation (organizational, product, process) or circular economy in **7 Horizon projects**.

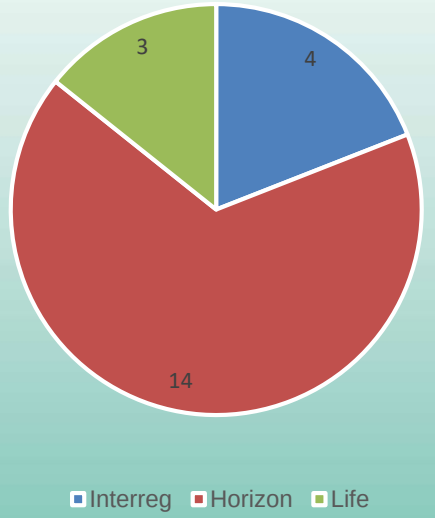


Figure 6: Number of projects regarding the operational program

1. phase: projects‘ review and identification

- **Sustainable development of the coastal and maritime zones** we identified **27 Interreg projects**, **8 Horizon projects** and **3 Life projects**.
- We identified **elements of innovation, eco-innovation or circular economy in 14 Interreg projects (7 general innovation elements, 7 elements of eco-innovation or circular economy)**.
- Among **Horizon projects** we identified the elements of eco-innovation in **4 projects**.
- **1 Life project** includes the elements of eco-innovation.
- All innovation types are present: product, process, organizational and marketing.

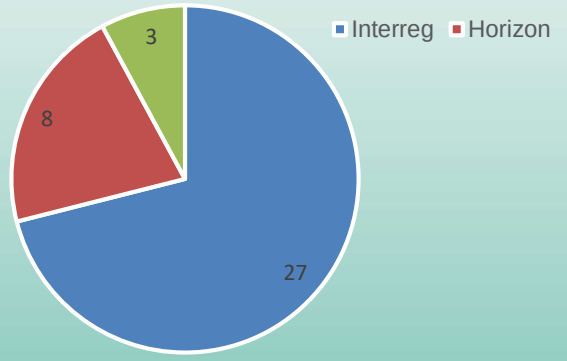


Figure 7: Number of projects regarding the operational program

1. phase: projects‘ review and identification

- **Protection and enhancement of natural habitats and terrestrial ecosystems** we identified **18 Interreg projects**, **3 Horizon projects** and **9 Life projects**.
- We identified elements of innovation only in 3 Interreg projects (product, process, organizational and marketing), which are shown as innovative data processing, collaborative networking, development of effective tools and innovative participatory approaches.

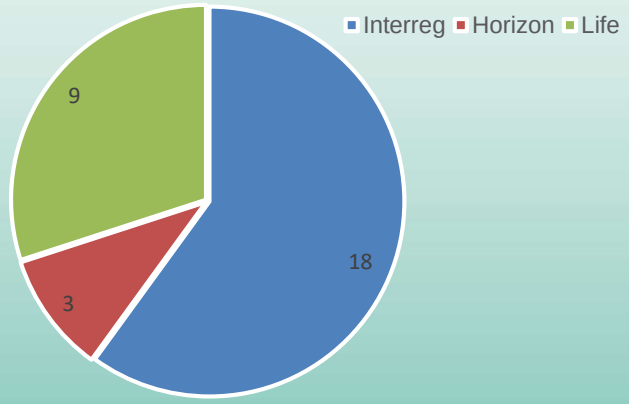


Figure 8: Number of projects regarding the operational program

1. phase: projects‘ review and identification

- **Transnational contingency plan in the event of accidents at sea** we identified **2 Interreg projects**, **7 Horizon projects** and **zero Life projects**.
- We found elements of innovation in **one Interreg** project (process and organizational),
- Among the Horizon projects, we found eco-innovation elements (product and process) in all 7 identified projects.

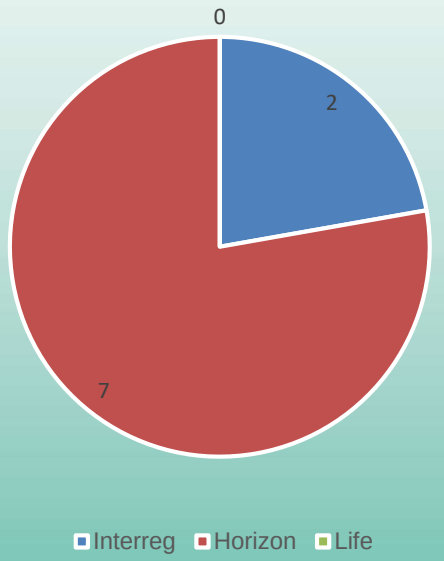


Figure 9: Number of projects regarding the operational program

1. phase: projects‘ review and identification

- Finally, the majority of these projects **indirectly promote or engage, implement eco-innovation or other elements of circular economy**, however we have found **elements of innovation, eco-innovation or circular economy in all together 39 projects.**

Among those:

- 12 projects had elements of general innovation,
- 27 projects elements of eco-innovation or circular economy.

- Many projects develop **product, organizational or process innovation**, some also demonstrate **elements of marketing innovation** – awareness raising. The majority of projects include networking, transnational cooperation, co-creation and engagement of citizens, public and many as well focus on technological innovations as software and hardware and similar elements that lead eventually to better sustainability or less harmful effects on the environment.

2. Phase – best practice identification

Regarding the pillar 3 – environmental quality we aimed to find and interview best practices from different countries, that not only address the environmental quality topic, but incorporates as well elements of circular economy or develops, implements eco-innovation

We identified 5 best practices:

- 1 from Croatia
- 1 from Greece
- 2 from Slovenia
- 1 from Italy

*Thanking the suggestions for Italy and Greece

2. Phase – best practice identification

The questions that for best practice presentation are following:

- Eco-innovation or best practice title/name:
- Size of company (number of employees/turnover) and year of establishment:
- Key products:
- Main markets:
- Company's description:
- Description/presentation of eco-innovation:
- Motivation/drivers to start with eco-innovation ?
- Main barriers, obstacles or challenges in adoption, development or implementation of eco-innovation?
- Which stakeholders have been engaged in the development and implementation of eco-innovation?
- Main benefits from eco-innovation (economic, environmental, others):
- Received and national or international support, funds, rewards?
- Company's vision/mission and further plans?
- Lessons learnt?

*Entire presentation is available in report.

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2. Phase – best practice from GREECE - Enaleia

Eco-innovation or best practice Title/name: Mediterranean CleanUp
www: https://enaleia.com/
Size of company (number of employees/turnover): 10-15 employees, turnover around 500.000 EUR annually
Year of establishment: 2016
Key products/services: Educational Services, Fishers Engagement on sustainable fishing methods and marine protection, facilitation of the integration of marine plastic into the circular economy
Main markets: Greece, Italy, Kenya

The marine plastic collected by fishermen and the used fishing equipment is recycled and upcycled, being integrated into the circular economy. Since the launch of Mediterranean CleanUp, they have expanded their activities in Europe and Africa, while in collaboration with more than 1.500 fishers in Greece, Italy, and Kenya, they have collected more than 250.000 kg of marine plastic and fishing gear.

The most impactful contribution of their project is that they have created one of the largest, most efficient, and cost-effective marine plastic cleanups in Europe. They managed to achieve it through engaging the fishing communities that collect plastic from the bottom of the sea.

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2. Phase – best practice from SLOVENIA - Toring Turbine

Eco-innovation or best practice Title/name: Toring Turbine TT200® aerator
www: https://toring.com/
Size of company (number of employees): 1-10 employees
Key products: Toring Turbine TT200® aerator
Main markets: USA, Sweden, Poland, Mexico, Chile, Colombia, Indonesia, Malaysia, Kenya…

The Toring Turbine TT200® is a highly efficient and environmentally friendly device that operates on the basis of unique technology. Toring Turbine Aerator TT200® oxygenates by injecting air into water and not water into the air. It takes a lot less energy to push air into water compared to water into air. This is the reason why the Toring Turbine Aerator TT200® is able to outperform competing aerators having up to seven times more kW.

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2. Phase – best practice from SLOVENIA - Clera.One

Eco-innovation or best practice title/name: Water recycling system for laundry rooms
www: https://www.clera.one
Size of company (number of employees/turnover): 2 co-founders, turnover: 0 (pilot phase)
Year of establishment: 2020
Key products: Water recycling system for laundry rooms
Main markets: Germany, Netherlands, France, Denmark, Norway, Ibiza

Water scarcity and microplastic pollution are emergent global problems that need forward thinking solutions. Therefore, the company introduces the cutting-edge water recycling system for laundry rooms which will allow laundry rooms to use water sustainably.

The water recycling system allows laundry rooms to use water sustainably, as it takes the standard laundry process and makes it better. All of the wastewater typically released from washing machines into the environment will instead go through the Clera.One device. Clera.one system collects wastewater, puts it through a filtration system to clean it up, and so reuses it. With the use of Clera.one device laundries will save water, energy, money and will not pollute the environment with toxic wastewater.

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2. Phase – best practice from CROATIA - Agena Marin

Eco-innovation or best practice title/name: SolarFerry
www: https://agena-marin.com/
Size of company (number of employees): 10 employees, owner Mladen Peharda
Year of establishment: 2010
Key products: SolarFerry, semiSubmarine, TaxiCat
Main markets: Croatia, Italy, Greece, Spain, Montenegro, Maldives, Seychelles, France, Mexico, Bonaire, St. Maarten

The Solar ferry is a fully sustainable, eco-friendly and cost-effective commercial boat that uses only solar and electric power sources. The economical cruising speed is 5 knots, and maximum around 6,5 knots with 6 kW outboard engine. 1.800 watts of flexible solar panels on the roof charges the battery bank. The solar roof capacity with battery bank enables more than eight hours of cruising time, depending on the speed and load. Length of the boat is 8.5 meters (27 ft.), and it can accommodate up to 12 passengers on board.

Boat is designed for minimal resistance and impact on the ecosystem. The boat's modern construction technology is also eco-friendly. It is built with a vacuum infusion technique, using a "sandwich" core made of recycled PET material.

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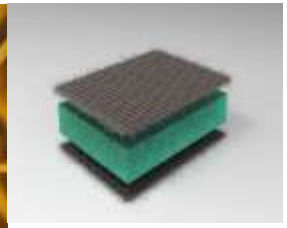

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2. Phase – best practice from ITALY - Northern Light - nlcomp

Eco-innovation or best practice title/name: rComposite, recyclable composite
www: https://northernlightcomposites.com/
Size of company (number of employees/turnover) **and year of establishment:** 3 employees / 2019
Key products: ecoracer, ecoOptimist, ecofoiler
Main markets: sailing industry (territories not yet defined)

nlcomp is an innovative startup that deals with R&D of natural fibers, recycled materials and innovative resins for the construction of sailing boats.
Composite materials normally used in the nautical industry are glass fibre fabrics “drowned” in an epoxy or polyester-based thermosetting resin matrix.

To give a concrete solution to the “fiberglass resin” problem Northern Light Composites has studied a composite material with fibers of vegetable origin, which reduces the environmental impact at the origin as they require a very low energy expenditure for their production, since they are already long and aligned in nature. As far as the matrix is concerned, Elium resin was chosen for its recyclability characteristics, which allow the composite to be given a new life at the end of its life.

5. Reflection and general guidelines for crafting proposals to stimulate eco-innovation and circular economy

- Policy instruments that are already in use at the EU-level might represent some good basis to upgrade; they do not directly tackle the specific topics of TSG3; BUT indirectly influence the adoption of eco-innovations and circular economy business practices (EU Ecolabel, green public procurement, and the Environmental Management and Audit Scheme, Extended Producer Responsibility (EPR), Eco-design for material efficiency and the pilot Product Environmental Footprint)
- Complex nature of the eco-innovation; adds another dimension "of the environment", which is much more intangible, acts on longer terms and pertains at the same time to "all" and "nobody" in specific (indivudual vs society)
- We need first to shift consumer values and user behavior to increase the awareness of the topic in a wider sense

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- Activities need to be directed simultaneously toward different stakeholders - consumers/users, producers, businesses or other entities; **the involvement of consumers is a key**
- Combination of TOP-DOWN and BOTTOM-UP approaches
- Regional, cross boarder cooperation (need of coordinated actions)
- Proposals bring synergies and spillover effects to other pillars/flagships (but still focus on TSG3/flagships)

Proposed solutions

- Proposals structured and presented according to **level of implementation** (micro/stakeholder level, governmental/national level, regional level)

- Proposals classified based on **resources needed and time frame for start or implementation** of identified activities, with stakeholders involved in their implementation*

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- Setting up regional **"ECO-INNOVATION-LIVING-LABs"**,
  - "**Think-tank"** and consultation body for the transfer of program documents into implementation strategy for smaller regions, areas or cities, representing a link from macro to micro
  - Develop a **digital repository of business practices** about circular economy and implemented eco-innovations, with their descriptions and contacts, better segmented in terms of relevance for specific stakeholders, industries etc.,
  - **Showcase how selected eco-innovations really work in practice**, demonstrating positive economic effects of their operation; how can users be engaged in them and co-create them; involvement of consumers is a key (showrooms, museums, digital laboratorites)
  - Propose **educational seminars, workshops and academies about eco-innovation** implementation for different target groups in collaboration with academics and professionals
  - Organize **local, regional and potentially international challenges as competitions** for the best ideas/practices of eco-innovation and circular economy (on different levels of education) to increase awareness and influence consumer values (Show me how you…save water…recycle…reuse…repair", present me your idea "How you would best…organize collection of waste in your city, school… "events for planting new trees, thematic drawings…"Nature as a classroom" etc.)
  - **Marketing and PR activities**, with focus on social media, influencers, building communities and "movements" (e.g., "#me too for….our planet….clean ocean…nature preservation".

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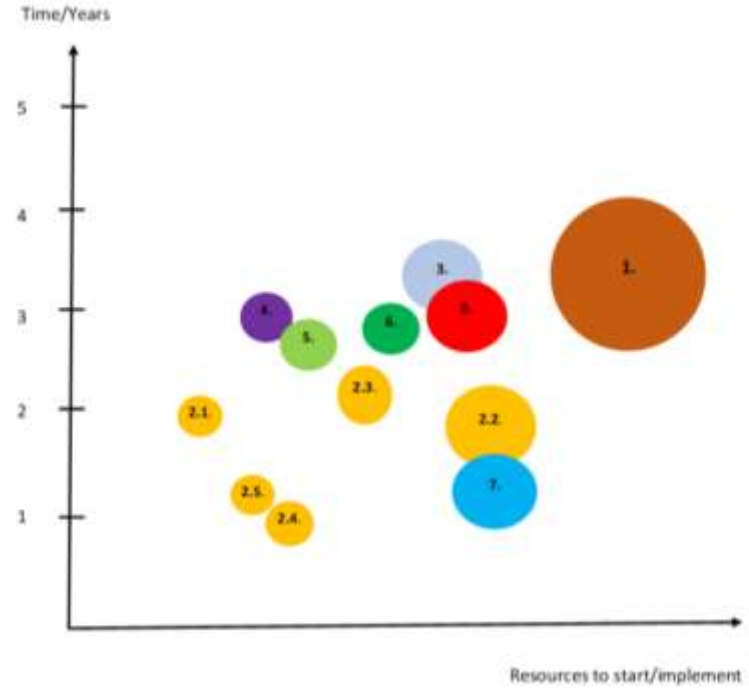
- **Interdisciplinary educational study programs** on post-gradual levels, focused on management of sustainable development, summer business schools, inclusion of professionals as guest speakers into undergraduate study programs
- Create **local networks of stakeholders and partners** to introduce eco-innovation and circular economy practices in order to explore the possibilities of coordinated activity, vertically connect different stakeholders, and contribute to overcome identified barriers
- More **public tenders for adoption of eco-innovation and circular economy** to include different kind of organizations (e.g. social entrepreneurship, NGO,..)
- **Measure the regional eco-innovation performance** to drive regions' ambitions while benchmarking them against other regions and increase their performance
- Further **study of key obstacles of implementation of eco-innovation**,
- Continue **monitoring, research, data collection, analyses**, identification of trends and best practices of circular economy and eco innovation

Figure 10: Classification of proposals based on resources needed and time frame for their start or implementation



Source: Own categorization

Table 5: Summary of main measures to stimulate eco-innovations and circular economy business practices

Color/Number	Measure/proposal	Stakeholders involved
1.	**Program calls** directed toward **marketing innovation in circular economy** – awareness rising and promotion activities	Managing authorities, ministries
2.1.	Eco-innovation-living-lab: **consultation body**	Experts, faculties, municipalities
2.2.	Eco-innovation-living-lab: **digital repository of business practices about circular economy and eco-innovations**	Marketing agency, IT company, faculties, enterprises
2.3.	Eco-innovation-living-lab: **demonstration of operation & effects of eco-innovations and circular economy business practices to wider public and businesses**	Businesses, students, wider public, influencers
2.4.	Eco-innovation-living-lab: **seminars, academies, workshops**	Faculties, experts
2.5.	Eco-innovation-living-lab: **challenges as competitions for the best ideas/practices eco-innovation and circular economy**	Faculties, schools, kindergartens
3.	**Local networks** of stakeholders and partners to introduce eco-innovation and circular economy practices	Ministries, experts, governments, NGOs, businesses, others
4.	**Thematic clusters** with focus on specific innovation elements related to eco-innovation & circular economy	Ministries, experts, governments, NGOs, businesses, finished project consortiums
5.	**Benchmark of regions eco-innovation performance**	Regions, ministries, experts
6.	**Study of key local obstacles for implementation** of eco-innovation and circular economy business practices	Experts
7.	Continuation of **monitoring, research, data collection, analyses, identification of trends and best practices** of eco-innovation and circular economy	Experts
8.	**Formal educational programs (masters), summer schools, guest lectures**	Faculties, experts

Source: Own categorization

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There is not a one-size fits-all solution over the wide scope of challenges associated to their faster and wider implementation, but the approach should be incremental, systematic, coordinated, and inclusive, to engage all relevant stakeholders, if we want it to be effective.