Following our Zoom meeting (30th June) in what follows I will try to summarize and overview the potential of hosting an event in collaboration with EPS & EPS-TIG in Montenegro.

Since the sustainability and science for citizens (where science is applied to resolve societal issues) are the core feature of the EPS – TIG evet , we can also use event to promote innovative way of organising the training "Maker" events where synergy of cross-sectorial, multidisciplinary capacity of country can be utilized and integrated into event that at the same time also synergies the smart specialisation strategies of Balkan region (innovation in food industry, agriculture, ICT, health tourism and education). A mission should have societal relevance, for example in the ability to improve health, nutrition, or the living environment for a large section of the citizens across a Balkan region. At the same time, it is important to set up the "projects" – experiments on which students would work so that the innovative spillovers that might result along the way may not be known beforehand and can have unforeseen applications. So, I would like to offer/develop more innovative design for TIG (or similar event) and to innovate (with support of EPS and in collaboration with CERN and maybe ELI Beamline) a new model od Maker event (or workshop) which would efficiently transform the Montenegro (and Balkan) innovation environment in a way that solves societal issues. Thus, two pillars are achieved: education, and innovation of solution for social issues. And two actors are involved: academic and citizens. Citizens define problem, and students under supervision of experts work towards the solution. This way the event has wider and deeper mission, and it is placed in the context of community/people. It is not detached as stand-alone academic activity but it is purposely designed to utilize potential of the host country (increasing the national pride and stimulating the continuity of achieved) and to increase the sense of belonging to wider/regional community. This can be achieved with carefully chosen activities that are embedded in the context with impact on society and in the context of community that host event, of course within supervision of experts that will join the event. This way, some system deficiencies in technologies as for example CERN can offered, or other EU research infrastructures that do not exist in Montenegro, can be overcome by linking the actors and institutions in the field of innovation in Montenegro, regardless of which disciplines and sectors they are related to, to work together.

So, this event in collaboration with EPS and EPS TIG can be designed in the way that integrate activities to which Balkan region already expressed its interest and commitment in the context of framework of EU innovations, and to show on practical way how advances in robotics, chemistry and food science, energy and ICT, data science and artificial intelligence, mechanical engineering contribute to the significant innovations when target is defined, societal issue named, and actors from different field included.

The proposal below is just one example how to use current national (and regional, and EU) R&I, R&D projects in Montenegro. S3 smart specialisation strategy, Green EU movement (sustainability & circular economy and zero waste), future IR (SEEIST), natural & human capital. It is not the final proposal.

Advantage of hosting Innovative Maker Event for Sustainable EU (I just coined the title) in Montenegro is that Montenegro has such beautiful and diverse nature, and it is the small country, in 2-3 hours one can travel by bus from north (with mountains) to the south part (sea cost). People are also inter-linked well, kind and ready to contribute and help. Montenegro is touristic country so many offers can be given additionally. Surrounding countries are: North Macedonia, Croatia, Serbia, Kosovo,

Albania, Bosna & Hercegovina. And I believe there would be response from others: Slovenia, Romania, Bulgaria, and etc.

Space for event can be diversified with one central part. Students can choose 2 of 4 activities.

Here are some activities I found interesting.

1. **Montenegro is developing relation to ESA. One project could be to link this activity, with marine biologists and environmental issues – Developing <u>some sensors (IoT) for tracing plastics in the sea</u>**. Students would first visit the sea cost, do some fishing on boats. It is important that participant observe surrounding and to record their observation, to collect images of the sea, beach, sense surrounding.

   <u>Mission: identifying marine debris using optical reflectance properties in the visible and infrared light spectrum. (to be explored and defined, (just as option)</u>

Then we would talk to people who lived on the sea cost (45 min by bus from Podforica). This would allow to students to get an impression what are the societal issues seeng in the context of Montenegro cultural identity but also what are the volnorabilities of nature imposed by humans (in the context of economic griwth – pollution caused by tourism).

Then we will visit team working on one project Galileo Galileo. Galileo Galileo is Europe's own global navigation satellite system, providing a highly accurate, guaranteed global positioning service under civilian contro with ESA. Students can then decide if they want to work independently, or as team. They will prototype a system that can be use as solution to societal issues such as the tracking the plastics in the sea and its mitigation (an option..).

2. Out of the box Event - Cooking with Star Chef in the Hotel Splendid (as option)

An interplay of Material & Kitchen Food as Future Personal I&R Lab. Exploring physical and chemical transformations of ingredients that occur in cooking and interplay with changes in structure and nutrition value: Food as Medicine, The Physiology of Flavour, Molecular gastronomy. This event also **incorporates the social and artistic components.**

Before that

- students can visit (has to be confirmed, now just as an idea) the Centre of Excellence for Digitalization of Microbial Food Safety Risk Assessment and Quality Parameters for Accurate Food Authenticity Certification (**FoodHub**) which was funded by the Ministry of Science in Montenegro until the end of 2022, and it is established at the private University Donja Gorica in Montenegro. Its goal is to offer help with food safety risk elimination and hazard identification, digitalized risk assessment tools, reliable certification, and tracing of food authenticity and ready to use applications for the food production industry. Modern technologies will be applied to adjust traditional processes to new trends while keeping product authenticity and traditional features.

- Moreover, students will have chance to meet and talk to researchers working on the project "**SENSORFOOD"** (research on the application of Biosensors in the assurance, quality, and safety food) and another team joined around the project **SMARTMILK** - Smart Milk Monitoring System.

- Since Montenegro is the land of wine, students will have chance to visit **Plantaze** -the **largest single vineyard in Europe**, located in the heart of Podgorica (capital town). They will discover Plantaže's long tradition of growing grapevines and producing wines, on terroir where climate and soil create unique synergy. Needs and potential of IoT in agriculture and vine production will be discussed with workers and problem addressed.


After that

- students can prototype their version of **Personalized Food Computer.**

3. **Environmental Protection with Citizen Scientists: Watching and Tracking Lake Skadar: Mission: developing IoT with Sensors and imaging technologies** (IoT Applications in Aquatic Animal Tracking). Or developing some imaging device - network of sensors.. (or developing an application for imaging device – maybe more optimal solution in this context)

Background:

https://fatbirder.com/world-birding/europe/montenegro/lake-skadar/

“Lake Skadar, a protected National Park, is a birding hotspot with more than 280 species and up to 200,000 birds overwintering on the lake. This vast expanse of freshwater and wetlands, ranging from 370 to 530 square kilometres in size as the result a natural winter flooding phenomenon, plays host to a myriad of water birds including Dalmatian Pelican, Pygmy Cormorant, Squacco Heron and several species of marsh terns. Its Mediterranean rocky hinterland, olive groves and scrub are home to species including Rock Partridge, Olive-tree Warbler and Black-eared Wheatear. Lake Skadar is perhaps most famous as one of the few nesting sites in the world of the rare and endangered Dalmatian Pelican, although breeding pairs are few in number. “

4. **Physics for Health: One activity can be related to the future SEEIIST**. Prototyping some instrumentation/method for beam monitoring. Or using Si-lab (I am leading RD50 in Montenegro and we are currently developing Silicon lab for characterisation radiation defects in Si based sensors for timing sensors for LHC and medical research). It can be something else.

At the end it would be important to connect project, as we connect the people ..making some good synergy.

So, the idea is to make more holistic event in synergy with Nature, and to allow students to “feel” the nature and integrate wellbeing of nature with wellbeing of humanity.

I think the event can started with some good talk reminding participants on what is the meaning of mission. We must learn from the missions of the past — like the Apollo Program — and how to apply those lessons to the more complex challenges of today. Perhaps, a key lesson is that missions must be bold, activating innovation across sectors, across actors and across disciplines. They must also enable bottom-up solutions and experimentation.

The aim is to motivate students to experiment with thoughts, actions, and ideas in a good way. I would highlight not the outcomes but rather the whole process of purposefully creating new ideas from a given content and in the framework of a given context with the results that are beneficial and sustainable for the whole Balkan and EU region.

Personally, I think we have to reform education in a more humanistic way aiming to build a better society where competitiveness is needed but can also destroy the willingness of collaboration of states in particular when small countries are involved with historically strong needs of self-preservation embedded into their culture.

At the end we might engage the public in celebration of outcomes, with some chemistry show and "science exp for grown-ups), final evening led by participants of above mentioned training events (and with the domestic help) .. ..(an idea).

With your suggestions this can be reframed and developed further.

Kind regards,

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