MARINAzine

Our engagement with the Ocean

N. 4 OCTOBER 2018

IN THIS ISSUE

"MARINAzine. Our engagement with the Ocean" is the official, four-monthly issued newsletter from the Horizon 2020 MARINA Project. Each MARINAzine issue aims to deepen the analysis of one of the six dimensions of Responsible Research and Innovation when applied to marine and maritime issues, namely: Public Engagement; Gender Equality; Science Education; Open Science; Ethics, Harmonious Governance models . It is developed and compiled with contributions from the MARINA Consortium Partners and relevant stakeholders.

Realized by APRE. Contacts: marina@apre.it.

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Open Science in the context of RRI

by Mara Gualandi, Italian SWAFS (Science with and for Society) Horizon 2020 National Contact Point

"Open Science: a systemic change in the modus operandi of science and research that affects the whole research cycle and its stakeholders "(Commissioner Carlos Moedas)

In the Spring of 2016 several important steps were taken towards a transition to an open science system, including the reselase of the publication "The Three Os - Open innovation, Open science and Open to the world" by the Commissioner for Research, Carlos Moedas, the establishment of an Open Science Policy Platform and the conclusions of research ministers at a meeting of the Competitiveness Council.

There are far reaching changes in the *modus operandi*. They have an **impact on the entire research cycle**, from the inception of research to its publication, as well as on the way in which this cycle is organised. These changes have been referred to as *'science 2.0'*, or *'open science'*.

The institutions involved in science are affected (research organisations, research councils, funding bodies), as is the way in which science is disseminated and assessed e.g. the rise of new scientific disciplines, innovative pathways in publishing (among them a substantial rise of Open Access journals), new scientific reputation systems, and changes in the way the quality and impact of research are evaluated.

Open Science describes the on-going transition in the way research is performed, researchers collaborate, knowledge is shared, and science is organised. It is driven by digital technologies, the globalisation of the scientific community, and the need to address big societal challenges.

The acceptance of Open Science practices varies from one discipline to another and not all researchers have the same skills to adapt to this change. In order to address this skills gap specific training for researchers and academics addressing key skills fostering the culture of Open Science will be supported.

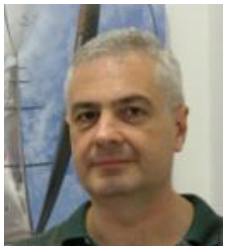
This should be done by a knowledge coalition based on a quadruple helix model of innovation in which civil society organisations, industry, government and academia are committed to work together and share knowledge and data among each other and interested third parties. By doing so, Open Science is put in action in order to produce Responsible Research and Innovation solutions for a particular societal challenge.

As citizens and civil society organisations are becoming increasingly involved in research and innovation projects and processes, input by Citizen Scientists can be considered.

Open science represents an approach to research that is **collaborative, transparent and accessible**.

A key component of open science is **open access** which is the practice of providing on-line access to scientific information that is free of charge to the reader. This is reflected in the **Science with and for Society work programme of Horizon 2020** with calls addressing text and data mining, and innovative approaches to release and disseminate research results and measure their impact.

Elements of 'Open science' will also gradually feed into the shaping of a policy for Responsible Research and Innovation and contribute to the realization of the European Research Area and the Innovation Union, the two main flagship initiatives for research and innovation. ■



The MARINA project is entering in the final semester of the planned activities and this number of MARINAzine is the occasion for shortly summarising the results already reached and the results that will be fulfilled in the next semester.

*The project has organized **37 local Mobilization and Mutual Learning (MML) workshops** and **8 international MML workshops**. The outcomes of the workshops are described and discussed in two deliverables and two milestones, and documents, pictures, videos and comments are also available on the events uploaded on the MARINA platform (link: www.marinaproject.eu). All marine issues from biotechnologies, deep sea mining, sea transportation, to marine pollution, fishing, aquaculture, maritime spatial planning have been **discussed with about 1000 stakeholders** representing industry, research, civil society and policy makers.*

*The preliminary version of the **MARINA platform** has been released and upgraded. After one year of use that is involving selected communities, the project is going to release the lastand final version that includes the suggestions from these communities for better addressing their needs. The project will guarantee the sustainability of the communities that have been federated in the platform and of the platform itself.*

*Furthermore, on an initiative of the European Commission **the platform is going to be exploited in the sector of cultural heritage** by launching a twin platform for the Community of Innovators in Cultural Heritage. The **MARINA and the ROCK projects** will collaborate for acquiring this objective.*

*On 2018 the MARINA project has organised **two scientific conferences**: RRI-SIS MARINA 2018 and TRRIPP 2018 in the context of the RRI-SIS multi-conference.*

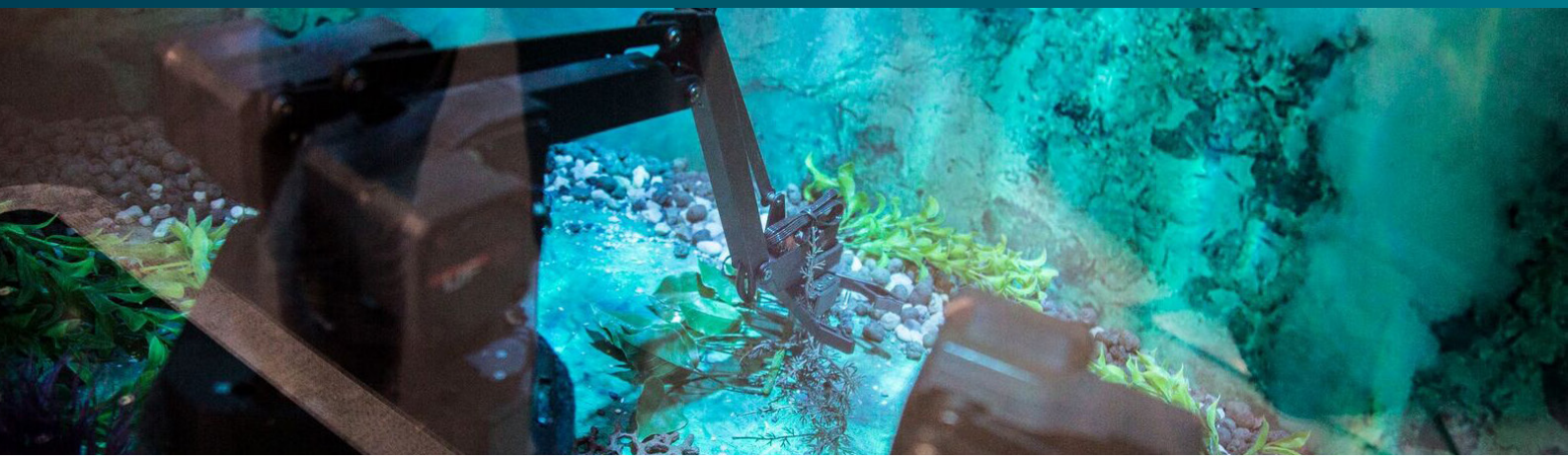
*In the final semester the project is working on two further main results: the **RRI roadmap** and the Policy Briefs specification.*

*The RRI roadmap is built by capturing the lessons learned from the MML workshops. The lessons learned come from extensive active stakeholder and citizen participation in the 45 Mobilisation and mutual learning workshops. The roadmap provides guidance for involving the different actors in defining common visions and specific action plans for tackling societal issues and sustainable initiatives related to the marine sectors through Responsible Research and Innovation principles, to make research and innovation more beneficial to the society and simultaneously protect the environment. The roadmap will represent a general value beyond the specificity of the marine issues. **The aim is to design an interactive** process where societal actors, researchers, and innovators actively cooperate to co-define and co-design solutions, services and products that are socially acceptable, sustainable and resolve important societal issues.*

*Finally, **Policy briefs** will be prepared and edited for future institutional use across Europe that focus on the lessons learnt and best approaches for institutionalizing RRI principles and effort into the policy-making process. The main end users will be the policy makers and the policy briefs will allow reducing institutional costs and facilitating RRI efforts related in tackling marine and coastal issues while using public procurement as a policy instrument to set incentives for business enterprises. That goal will be achieved through the identification of institutional cost drivers, the definition of key performance indicators and business strategy incentives.*

Fernando Ferri
MARINA Project Coordinator

Summary



MARINA Traveling Exhibition is now open!

by Sander Kask, AHHAA

If you want to exemplify oceanic science and innovation to a general audience, it is best if you let them try it out themselves. But only few among us have the privilege to, for example, operate an underwater research vehicle or experience the force of the ocean on a wave-energy collecting platform. This is why MARINA consortium created the MARINA Traveling Exhibition: to bring scientific experiences closer to everybody, in a true responsible research and innovation fashion!

MARINA Traveling Exhibition was created in Estonia, at the Science Centre AHHAA, in collaboration with the French aquarium centre Nausicaa. **Hands-on, playful experience and curiosity-sparking are keywords here at AHHAA, which are reflected also in the MARINA Exhibition**. The influence of Nausicaa, the biggest aquarium in Europe, can be seen in the story of the exhibition, interlinking different exhibits with expert marine knowledge, expanding the provided information and thus the lessons learned. With such a team on board, the traveling exhibition succeeds in bringing together active participation, discovery and examples of science and innovation put to good use.

The exhibition consists of four exhibits, each concentrating on a different contemporary marine issue, or marine opportunity, to be more precise. The sea holds many treasures, of which many must be approached with care and responsibility. This is the message that the MARINA Traveling Exhibition wants to send to its visitors, both young and old.

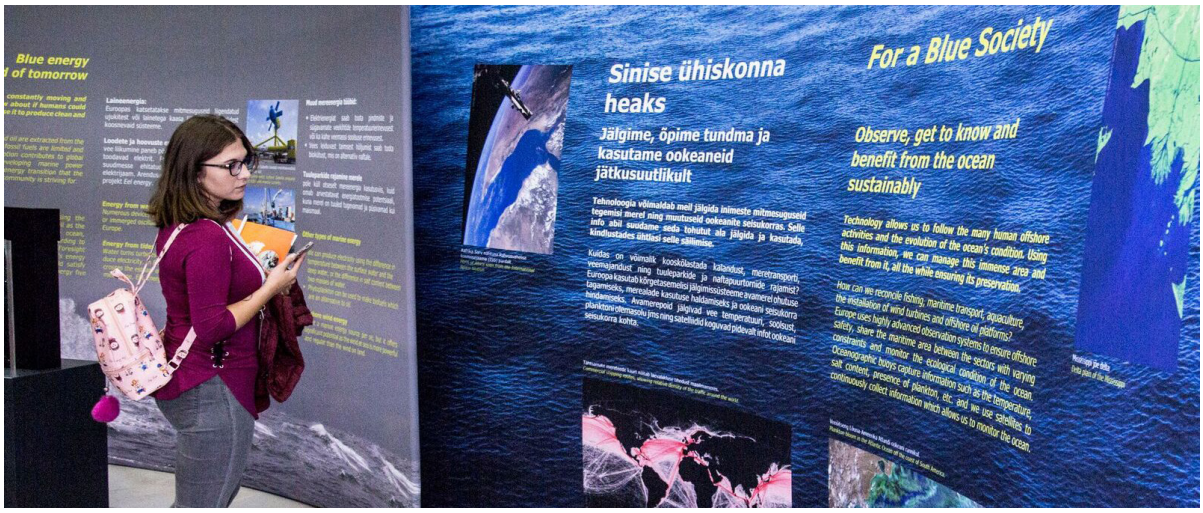
Take control of the arms of an underwater robot, operating in the abyss of the ocean. Hopefully the operator will choose to only harvest the valuable materials and leave delicate aquatic life alone. Or replicate a raging sea with rhythmic lever movements and see how electric current can be even produced in a small mock-up wave tank. It makes you wonder why humanity isn't already using this technology on a large scale, as just 0.1% of the ocean's energy converted into electricity would satisfy present world's demand for energy five times over!

Opening drawers of the exhibit that resembles a museum's valued treasury shows the visitor which type of products can be made of which marine organism. Thirty-six links are thus established between different creatures and different outcomes, which is sure to focus your attention on the value of aquatic organisms.

And we have only started to scratch the surface with blood oxygen carriers from lugworms and algae-based bioplastics. Who knows what we will continue to discover or what discoveries could be lost forever if we don't take care?

The final piece of the exhibition is a gigantic screen visualizing the whole world, where the user can turn on and combine different data layers, many of which are live feeds from sensors around the world. This allows to find novel connections between the state of the ocean, such as water temperature, concentration of chlorophyll, and salinity, between weather data and human activities. Become a scientist, but don't mix up correlation and causation!

The sea map exhibit incorporates data provided by our partners at the EU Copernicus Marine Service, TeleGeography and others.



Photos by Mathis Bogens, AHHAA

Visit the MARINA Traveling Exhibition at Science Centre AHHAA until the end of 2018 and after that at Nausicaa and other locations near you!

All updates soon on www.marinaproject.eu

Two days of MARINA Conference 2018: from case studies to RRI institutionalization

by Elena Giusta, ISPRA

The second international conference on the implementation of the Responsible Research and Innovation concept organized by the partners of the H2020 project MARINA was held in **Tartu (Estonia) from 17-18 September 2018**. Like the previous event, which took place in September 2017 in Rome, the overarching goal of this year's conference was to gather researchers, policy-makers, representatives of NGOs and other interested stakeholders who were motivated to present practical cases of RRI implementation, discuss the main benefits of this approach in decision making and analyze in depth which barriers are to be overcome in order to improve its adoption by public authorities.

The conference splendidly hosted by the Estonian partner of MARINA, the **Science Centre AHHAA**, had been conceived as a multi-event taking three days and composed of workshops addressing specific dimensions of the RRI concept such as public engagement in marine issues, science education, governance of research and innovation applied to the sea and open access to knowledge on Blue Growth.

The first day of conference was focused on almost a dozen of **different case studies** presented by speakers from Romania, France, Italy, Spain, Greece, Israel and India who highlighted their experiences in tackling relevant marine issues involving citizens, sharing knowledge with stakeholders and increasing the active public participation in dealing with problems such as marine litter, cetacean stranding, tidal wave energy, beach pollution, climate change, aquaculture, marine biodiversity, blue growth.

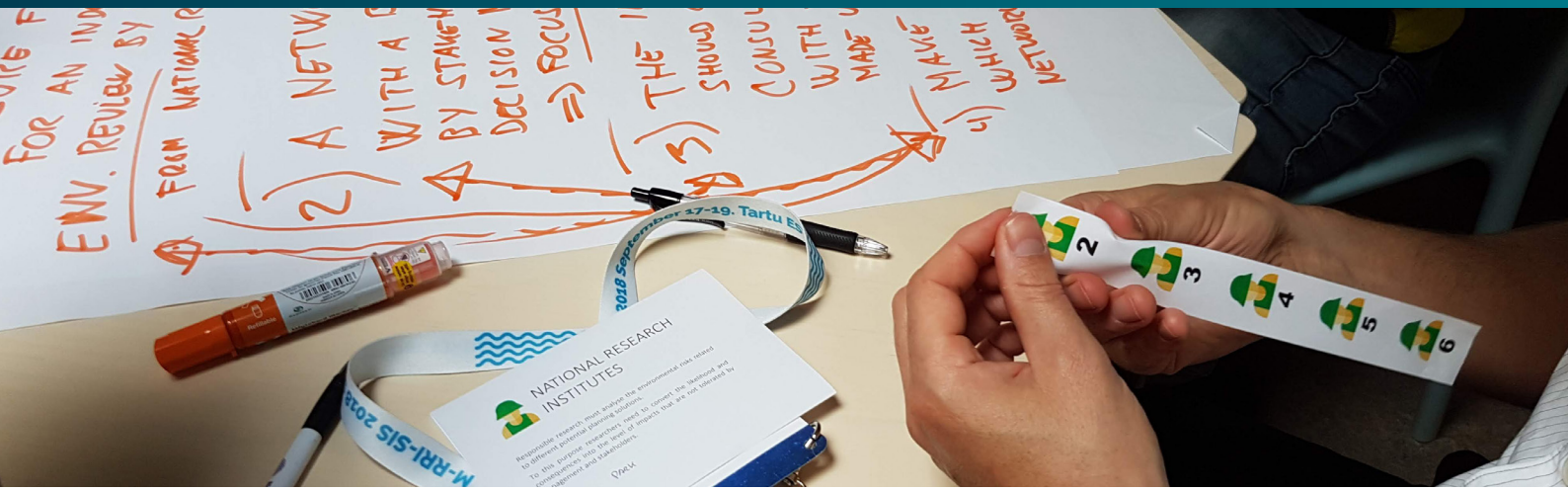
The take home messages of this first part of the conference can be summarized with these few takeaways:

- ***Public engagement is essential to tackle marine challenges more effectively;***
- ***Scientific information plays a fundamental role to provide evidence-based knowledge for better policies and governance related to sea and ocean management;***
- ***Good RRI practices and communication to promote this concept to multi-stakeholders can produce a strong impact on citizens' education and active involvement in environmental protection.***

The core of the second day's conference was how to institutionalize the Responsible Research and Innovation approach. The results of the survey carried out by the Marina project among policy-makers in 16 European countries and beyond were presented as introduction to the following discussions.
The answers to a questionnaire circulated among representatives of public national institutions and international organisations and some face to face interviews to policy-makers and implementers have shown that there is a good level of awareness of the RRI concept and its applied dimensions (gender equality, ethics, science education, open science-open access, public engagement, governance) even if there are still barriers to its full implementation. These are mainly related to lack of trained and dedicated staff and scarcity of financial resources to be allocated for this specific purpose.

Then **practical examples of implementing the RRI approach** were presented and in particular the benefits of this concept, if correctly applied, can bring to solve possible conflicts of interest and take better decisions for the sake of the whole societal community. Within the activities of the Plan4Blue project a GIS based innovative mutual learning platform was developed to support the participatory negotiations related to EU Maritime Spatial Planning in the Baltic Sea. Another case proposed to the general attention was focused on the community involvement by means of citizens science and other concrete initiatives to make RRI operational carried out by the Danish University of Aalborg.

Another paper and related presentation was focus on the RRI process supporting the decisions to be taken on deep sea mining, a topic that has a lot of implications for many different stakeholders. Particularly interesting for the institutionalization of RRI was the **change management approach** proposed by a representative of the business sector. This approach is based on eight gradual steps in the internal organizational procedures which are recommended also for public institutions willing to embed RRI in their behaviors and activities. ■



RRI and policy making: how to make it engaging and inclusive. The MARINA approach

By Francesca Ronchi, ISPRA

How to get inputs and a fresh view on an unusual topic such us the "Institutionalization of the Responsible Research and Innovation principle"? In MARINA, we are willing to **test different engaging processes involving RRI practitioners and policy makers**, with the aim of providing a practical implementation guidance on the inclusion of RRI into the policy-making approach.

During the **MARINA TRRIPP conference held in Tartu on the 18th of September**, a panel discussion on this theme, attended by relevant representatives of the policy and research sectors, was organized by ISPRA on behalf of MARINA.

To ignite the discussion, a **role game** based on a real case study of maritime special planning - the establishment of a safe buffer zone around an offshore renewable energy installation in Estonia - was organized before the panel debate: 17 participants, organized in 3 working groups, acted as different stakeholders (cruise company, fishermen associations, NGOs etc.) thanks to the information received in their "role card" and provided suitable ideas to ensure that all the voices were considered on the policies related to the use of the sea. The working groups recognized the need for a transparent, inclusive study and decision-making process requiring the authorities to present an in-depth cost-benefit analysis and a risk assessment for each project. They also stressed the value of a network or working group of stakeholders to support decision making; to ensure that all voices are considered it was suggested the creation of an enforcement mechanism to ensure adherence to the process.

The **panel discussion**, facilitated by Xenia T. Schneider of the XPRO Consulting Limited, was composed by: Dr. Robert Aps from the University of Tartu, Dr. Ülle Must, consultant of the Estonian Ministry of Research, Prof. Kalle Olli of the University of Tartu, Ms. Agni Kaldma of the Estonian Ministry of the Environment and Dr. Michael J. Bernstein from the NewHoRRIzon project.
Starting from the plenary presentation of the working groups, we had the opportunity to hear their **experience-based insights** on which are the burdens and opportunities from the application of the RRI dimensions in sea policies. One of the obstacles seems to be the lack of coordination among the key actors. Dr.. Must pointed out that "the EU research programme has funded many projects but there has been a scarce uptake of the RRI concept and few exchanges have been set between, for instance, researchers and entrepreneurs". Ms. Kaldma agreed: based on her experience, different scientific opinions often imperil the process of engaging citizens. However, a general optimism was expressed. "Many attempts to establish science-policy-society interfaces have been done during the last years and this approach is already a reality - said DR. **Aps** - but clear definitions must be issued and their application must be checked". ■

MARINA Highlights

RRI Roadmap: where we are and what's next

by Xenia Theodotou Schneider, XPRO Consulting Limited

Since the last MARINA Newsletter, we have progressed in our work of forming the Responsible Research and Innovation Roadmap "RRI Roadmap", aiming at helping any project, initiative, institution or company that wishes its research and innovation activities to be useful to the society and to have trustworthy societal and environmental impacts.

RRI is a cross-cutting priority for European Research and Innovation Projects

Performing a search only on "RRI" on the newly released "Funding & tender opportunities" portal by the European Commission retrieves 63 calls where RRI is clearly mentioned as a cross-cutting priority, let alone the calls where they require one or more of the RRI dimensions. This is **18% of all European research and innovation calls**. Hence, RRI is becoming an important cross-cutting priority for European research and innovation not only in the areas of social research but extending in sectors like agriculture, blue growth, bioeconomy and food sector to name a few.

Where we are

The last four months, XPRO has been testing the first two versions of the RRI Roadmap and has been doing adjustments to create a highly practical and applicable tool for any research and innovation field.

The first RRI Roadmap was released in May 2018 during a MARINA policy workshop at EU-level with DG MARE, the European Commission's directorate dealing with European marine policies and blue growth initiatives and DG Research and Innovation. During this workshop, the RRI Roadmap was walked-through and feedback has been collected for further clarifying the RRI concept.

In July during the European Science Open Forum (ESOF) 2018 conference, we held a workshop to "road-test" the RRI Roadmap through a highly participative game where all workshop participants played a stakeholder role applying the RRI Roadmap. Valuable input was received from different types of stakeholders present.

In September 2018 during the MARINA General Assembly meeting, all partners and present advisory board members tested the RRI Roadmap and provided their feedback.

In parallel, we have been working to extract practical lessons learned from the many MARINA Mobilisation and Mutual Learning workshops in order to make the RRI Roadmap even more practical and operational. The partners ISPRA, World Ocean Network, Mare Nostrum under the leadership of XPRO Consulting have been closely working to distil the extracted knowledge, classify it and generalise it, so that each step of the RRI Roadmap has some good examples and things-to-avoid examples.

Where we are going

In our experience from different MARINA project results presentations, it is evident that practitioners are very much interested in what works and what does not work. The participatory methods are working well in theory, but when they come to application often fail to provide the necessary guidance on how to achieve active and fruitful participation of diverse people from all walks of life. This is the goal of this MARINA task to collect the valuable knowledge and make available the Do's and Don'ts.

In the next two months, the work of extracting, distilling, organising and formulating the lessons learned will be finalised. The RRI Roadmap will be adjusted and it will be enriched with applicable lessons learned and good practices.

The final version of the RRI Roadmap is not called any longer MARINA RRI Roadmap and it does not focus only on Blue Growth or Marine societal challenges. The RRI Roadmap will be an attractive on line manual applicable to any field and industry that wishes to apply the RRI principles.

The value proposition of the final RRI Roadmap is that it will provide guidance as to how to apply RRI and how to make RRI "stick" in an organisation and its research and innovation processes so that when practitioners work do not question any longer if their activities follow RRI, but instead RRI has become the "way we do business around here"! ■

SAVE THE DATE! MARINA Annual Conference 2019 in Boulogne sur Mer

by Iwona Gin, Nausicaa

The next international MARINA conference about Responsible Research, Innovation, Science and Society will take place on 12 - 13 March 2019. *It will be hosted by Nausicaa, National Sea Experience Centre, one of the biggest aquariums and marine science centres in Europe.*

Organized in the framework of the MARINA project funded by the European Commission's Horizon 2020 programme, the conference will bring together European researchers who will share their findings about Responsible Research and Innovation, marine and coastal issues, societal challenges and Blue Growth.

The event will be an occasion to present the **travelling hands-on exhibition** about Blue Growth and Responsible Research and Innovation. Developed by the Science Centre AHHAA and Nausicaa, it showcases how the treasure from the sea can benefit our daily life whether we live on the coast or in the hinterland.

The conference results will be published by Springer Publishers, taken forward to shape the legacy of the project and to inform future policy and research.

In order to build a challenging agenda you **will be invited soon to submit your abstract proposal,** so save the date and stay tuned to our communications and announcements. ■

MARINA and Nausicaa teams very much look forward to welcoming the scientific community in Boulogne sur Mer!

Why at Nausicaa?

Nausicaa is part of the MARINA Project Consortium. It has disseminated scientific information on marine ecosystems and developed educational programmes, communication campaigns, tools and events to highlight the relationship between man and the ocean for 27 years. In 1999 it was recognized as the world's Centre of Excellence for ocean education by the UNESCO's Intergovernmental Oceanographic Commission. Nausicaa has also initiated a forward-thinking reflection on the Blue Society, where oceans are managed across sectors and borders in a sustainable way. In 2018 Nausicaa opened new exhibitions with new tanks and educational and multimedia interactive tools. ■

Opinions

Open Science: who benefits?

by Jonathan Tennant, Founder of Open Science MOOC

Science affects almost every aspect of the world around us, from the water we drink and the air we breathe, to the houses we live in and the way our body functions.

According to Article 27 of the UN Universal Declaration of Human rights, (1) Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits; and (2) Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

To enjoy the arts and to share in scientific advancement and its benefits is a fundamental human right. How great is that? Yet, it is being violated every single day.

It might come as a surprise to most people, but virtually all scientific research is locked away behind ridiculously expensive paywalls operated by one of the most ruthless industries in existence. Even today, **only around 25% of all published research knowledge is actually accessible to the wider public**, and the rest is treated as a private commodity to be traded at the whims of corporate giants like Wiley and Springer Nature.

Not only do these companies therefore operate on a business model of depriving most of the world basic human rights, but they also pervert the entire research process. **Every researcher knows the mantra 'publish or perish'**. This means that researchers are forced into a system where the journal in which they publish is more important than the value of the research they conduct. Who owns those journals? The same corporate giants who make most of their money by enforcing a system of knowledge discrimination. These commercial entities essentially sell brands, but brands which researchers are forced to chase after as this is what they are evaluated based upon.

The consequence of this is that rigour and reproducibility, fundamental aspects of research, are often side-lined by researchers who are forced to play a game in which providing a narrative and a story that publishers can sell is more important. We now live a research ecosystem around the world which is beset on all sides by poor or questionable research practices, retractions of high-profile papers, proliferation of misinformation (think vaccines and autism) as a result of this system, often redundant or wasteful research, slowly communicated, and a game where only the wealthiest or most elite have a competitive advantage, and others are locked out.

This is not science as usual. All the way back to the origins of scholarship, research was open, it was

rigorous, and it adhered to strong principles. However, somewhere along the way, we diverted from this and we made it closed. We broke the system, and the values that we hold so dear in science became corrupted by very different values around branding, marketing, and commercialism.

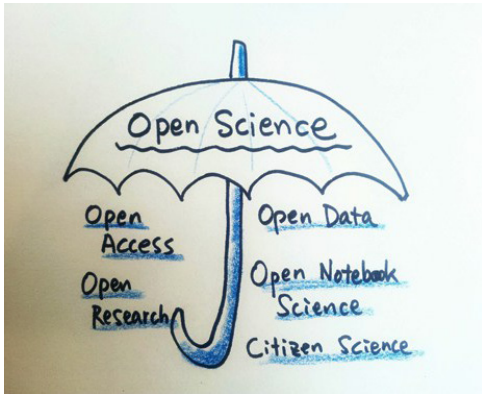
Open Science is the movement to return science to its origins, based on core values and principles that return the practices of science to its humble and foundational origins. As it based on human rights, one could argue that it is a social justice issue relating to the equitable access and distribution of research and knowledge for the betterment of society. We need to better communicate this aspect, to reach the natural conclusion that we need to more widely adopt the practices that we associate with [open] science in a modern, digital research world.

If we look at the **17 UN Sustainable Development Goals**, it is very difficult to find one in which science or research does not have an important role to play. Climate action, clean water and sanitation, quality education – in all of these goals, science has a clear role to play in helping to solve them. Locking science away is not doing the sustainability of this planet, and those who live on it, justice. One would think that this in itself would be a fairly strong case for Open Science, but sadly it seems to need more than this.

Almost all discussions these days around Open Science come down to one core thing: **incentives**. How do we encourage scientists to share data, to make their code open, to publish in Open Access journals. For me, this is the wrong discussion, and has been for some time now.

Every researcher starts off as an open scientist. Find me one researcher who does not come into the system with a heart full of passion for discovery, who wants to find something new about the world and then share it with all who will listen. This is a common shared value that virtually all of us possess, otherwise why would we be doing the job in the first place? However, this often seems to become ground out of our best and brightest, as they realise that 'publish or perish' is very real, and a game they have to play if they want to eat, support their families, or pay the rent.

So, we need to focus our discussions on these core values, and how do we 'incentivise' them, by creating an environment which allows them to flourish without risk, for us to be creative and to fail, and to reward good scientific principles and practices. Open Science is not really any different to science – it is just science conducted the way it was meant to be, and for the betterment of society and our world. Everyone benefits from a culture of sharing, freedom, equity, collaboration, and **it is up to researchers themselves to take control of the system** they live in and make this culture the new norm. ■



European science goes open

Where we are and what European Commission stands for

by Elena Giglia, Head Open Access Unit, University of Turin

The European Commission has taken a strong stance towards Open Science.

Open Science is perfectly defined in the French National Plan[1]:

Open science is the practice of making research publications and data freely available. [...] seeks to create an ecosystem in which scientific research is more cumulative, better supported by data and more transparent with faster and more universal access to results. Open science makes knowledge accessible to all, which is useful for research, education, the economy and society. [...]. It reduces duplication in gathering, creating, sharing and reusing scientific material and thus improves research efficiency. Open science also drives scientific progress – especially unexpected breakthroughs – as well as innovation and economic and social progress [...]. Finally, open science fosters scientific integrity and people's trust in science.

The European Commissioner Carlos **Moedas** has been lending support to Open Access and openness as the foundation of science and as a driver for innovation. His words are clear: "*I am convinced that excellent science is the foundation of future prosperity, and that openness is the key to excellence. [...] Let's dare to make Europe open to innovation, open to science and open to the world*"[2]. The idea "*as open as possible, as closed as necessary has become the norm in Horizon 2020 and Open science is recognized as a "core strategy" in Europe to improve knowledge circulation and thus innovation*[3].

The idea of openness is inclusive, it creates bridges among disciplines and helps in facing common challenges: "The future of innovation lies in bringing as many different people, concepts and fields together. [...] In my eyes, the future lies in open innovation, because openness fuels innovation"[4]. This idea will support the next "mission-oriented" approach in Horizon Europe.

The purpose is "*about making sure that science serves innovation and growth. It guarantees open access to publicly-funded research results [...]. Facilitating access to those data will encourage re-use of research output. For example, companies, and particularly SMEs, can access and re-use data, infrastructures and tools easily and at a reasonable cost and can accelerate the implementation of ideas for innovative products and services*"[5].

The official framework to the European policies is

1 French National Plan for Open Science, 4th of July 2018.

2 Carlos Moedas - Commissioner for Research, Science and Innovation, The importance of research for the future of Europe 31 August 2015, University of Helsinki, Opening of the academic year & 375th Anniversary.

3 Open Science, http://ec.europa.eu/programmes/horizon2020/en/h2020-section/open-science-open-access

4 Carlo Moedas, The importance of research for the future of Europe.

5 Idem.

provided by:

- **the Conclusions of the 2016 Council on Competitiveness (May 26),** which "ACKNOWLEDGES that open science has the potential to increase the quality, impact and benefits of science and to accelerate advancement of knowledge [...] and ultimately contribute to growth and competitiveness of Europe" and calls for immediate.
- the **Commission Recommendation of 25 April 2018 on access to and preservation of scientific information,** urging Member States and research institutions to enact Open Access policies for texts and data, to improve data infrastructure, and to adapt the research evaluation criteria to Open Science practices.

The European Open Science Policy Platform in its Integrated advice identifies eight priorities:

- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Future of Scholarly Communication
- European Open Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science

These eight pillars clearly recalls the twelve actions of the Amsterdam Call for action, which remains essential in setting a roadmap to openness.

last but not least let's focus on European Open Science Cloud ESOC and FAIR data.

The **European Open Science Cloud** will be crucial for Open Science. The relevant documents[6] are **The EOSC Declaration** and the **EOSC Strategic Implementation Roadmap**. In the first one we read: "*European science must be grounded in a common culture of data stewardship [...] Only a considerable cultural change will enable long-term reuse for science and for innovation of data created by research activities: no disciplines, institutions or countries must be left behind*".

FAIR data are the building blocks of EOSC, and the FAIR data Action Plan and Turning FAIR data into reality, are a practical way to get from vision to implementation.

On September 4th PlanS was launched by eleven funders. **It will be crucial in flipping journals to Open Access** by 2020. Robert Ian Smits, special envoyé for Open Access, perfectly summarized the purpose and the rationale of PlanS: **APCs (Article Processing Charges) will be capped and hybrid journals will not be compliant**. There were several reactions in Europe.

All in all, the signals of a complete transition towards Open Science ar really encouraging. ■

6 Both documents available at the page: https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud#

RRI Stories

Mainstreaming Responsible Innovation into Regional Smart Specialisations Strategies: the MARIE Project

By Tiina Ramstedt-Sen, Regional Council of Tampere, Mika Raunio, University of Tampere, Giulia Bubbolini, CISE and Jessica Huntingford, Resolvo Srl

MARIE, a cooperation project funded by Interreg Europe, considers how public authorities in 8 European Countries can integrate elements of responsible innovation into their regional smart specialisation strategies and innovation funding schemes. Thanks to three years of interregional exchange, partners will define practical means of achieving real integration of responsibility to their policies.

The project started in January 2017 and partners are now drafting Action Plans to achieve these policy improvements. MARIE has already produced a Responsible Innovation Maturity Mapping of her regions, an enterprise survey (results available here) and a catalogue of relevant experiences from partner regions.

Open Innovation, the use of both internal and external ideas, partners and sources to encourage innovation, lies at the heart of the responsibility concept. As such, it is a core theme for exchange within MARIE. The link between responsibility and open innovation can be best illustrated with a **case study** from Tampere, represented in MARIE by the Regional Council and the University of Tampere.

Open innovation platform (OIP) policy has long been a priority in Tampere region and is integrated into their Regional Smart Specialisation strategy. **An OIP is considered as a physical or digital platform, where platform members use different practices of an open innovation and co-creation process to create value**. OIPs change innovation processes: they are a new, alternative way to do Research, Development and Innovation (RDI).

Thanks to a policy framework, common interests of different actors and enthusiastic personalities, Tampere has been able to create an atmosphere and mindset that make open innovation possible. A good example is Demola Network, which has grown from a local OIP into a global business.

Many sides of OIP thinking fit into a concept of responsibility. Firstly, openness. The core of an OIP is that the innovation process is open to its target group, with actors and the wider region benefiting from RDI results. Inclusiveness is also ingrained into platform thinking, setting a good mindset for citizen participation and strong connectivity between stakeholders. In co-creativity, the diversity of participants are beneficial for the results of the innovation process. Finally, increasingly complex and systemic innovations and technologies make anticipation of socio-environmental consequences to environment extremely difficult to predict. Despite its complexity, **systemic and careful policy design** to evaluate and anticipate impact is compulsory. Open innovation can be part of this.

While OIPs clearly implement several dimensions of responsibility, before the MARIE project, the concept of responsible innovation in the context of the OIPs had not been openly discussed, with no intentional or systematic responsibility approach attached to OIP policy and practice. In spring 2018, within a sub-project of National SixCities Strategy, an anticipative and responsible impact assessment workbook was developed by the University of Tampere in co-operation with Mika Nieminen and Veikko Ikonen from Technical Research Center of Finland. MARIE and National SIx Cities then organised a joint event in Tampere to consider Responsibility in OIP Development. These initiatives are the basis for reflections in Tampere region on how to improve regional innovation policy and its funding instruments, so that responsibility will be fully integrated into future innovation ecosystems. ■

Voices from stakeholders

Towards sustainable maritime Research, Technological Development and Innovation (RTDI)

An interview with Evagoras Isaias on his engagement at MARINA workshop in Larnaca

by Andreas P. Andreou, CNTI

Evagoras Isaias

Cyprus based, biologist – oceanographer, with contributions to research and consulting for the last ten years. As oceanographer he is mostlry interested in large scales view of challenges to better understand technical requirements, which eventually lead to contributions by other disciplines, such as engineering, technology and socio-economic experts, to provide solutions.

Q. Why did you decide to participate at the workshop?

A. I decided to participate at the workshop for three reasons: marine research, Responsible Research and Innovation (RRI) and Structured Democratic Dialogue (SDD). It is essential to integrate the basic marine research (ecosystems, biodiversity, habitats) as an applied arm of marine research. Specifically, the shipping sector has set up very ambitious goals in reducing greenhouse emissions by half and is additionally one of the main drivers of biological invasions as marine organisms are transferred in ballast water. Consequently, the industry needs significant support from my discipline, which creates further opportunities for collaboration and applied research which could be achieved from a workshop like the one orhganized by MARINA project in Larnaca. Concurrently, the fact that in Cyprus and Europe generally, there are no professional bodies to set a compulsory "code of conduct" regulating the ethics of marine research, highlights RRI as an important step to amplify the urgency of effective, qualitative approaches such as transparency, gender equality and public engagement, to co-create solutions, services and products that are socially acceptable, sustainable and resolve important societal issues. RRI focuses on how to make research and innovation more useful to the society and how to protect the environment at the same time. Lastly, the methodology of SDD offers the opportunity to produce a collective solution to the challenge examined and involves all the spectrum of stakeholders. Opinions and statements from different point of view are synthesized together to produce the collective wisdom and a roadmap which finally integrates all vies expressed during the process.

Q. Numerous of workshops are run every year with the purpose to protect the marine environment. What is missing to put the outcomes of these workshops into action?

I strongly believe that there is still a gap between the production and the implementation of research results and I agree with the position that reports are seldom implemented, as a result of the practice by the research community and the way projects results are disseminated. Although other European legislation implies the access of the public in research products funded with public funds, there is still a lot of effort to be practiced on the subject. This is not an absolute responsibility of individual researchers or institutions, but is also related with the educational and cultural levels of maturity of the society; which means that the public and generally ***the civil society should also demand involvement and access****. Significant responsibility results also by the organizational and structural nature of funding mechanisms which must include public awareness actions, public engagement through campaigns, social media etc. and incorporate research briefings into policy procedures. The role of policy is also extremely important, therefore the political bodies must be constantly trained on issues related with RRI.*

A postcard from MARINA

OPEN SCIENCE TO PROTECT MARINE BIODIVERSITY

ASI (ACCOBAMS Survey Initiative), an unprecedented European initiative for monitoring cetaceans in the Mediterranean Sea, mega-fauna and marine litter, implemented by ACCOBAMS, the Agreement for the Conservation of Cetaceans in the Black Sea, Mediterranean Sea and Atlantic contiguous area.

Marian Paiu, ecologist at Mare Nostrum NGO partner of the MARINA project, is the only Romanian that became a team leader in ASI, participating in aerial survey for cetaceans monitoring in the Southeast Mediterranean.

The **aims of the ASI** are to optimize cetacean monitoring efforts in the long term, build capacity for scientists and national experts in the region, and ultimately improve regional cooperation to support international commitments to protect the marine biodiversity of the ACCOBAMS Agreement area.

The initiative was developed to understand the conservation status of cetaceans, mega-fauna (fish, turtles, sharks, seabirds, etc.) as well as the presence of marine waste, by producing a report centralizing all observations made by air monitoring.

The results of ASI will support the development and adoption of local conservation activities, such as promoting marine protected areas and promote, support and improve national or transnational systems and procedures for the conservation of cetaceans.

Find here more details and preliminary results

www.marinaproject.eu

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