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ResBios Final conference – December 7, 2022
c/o EURADA, Rue Montoyer, 24 – 1000 Brussels
(hybrid event)

"Responsibility in research & innovation. Challenges for the biosciences and future policies"

Presentation Note

This Presentation Note is a tool to facilitate participation in the ResBios hybrid Final Conference. The note sketches the main objectives, issues and general structure of the meeting, and provides some questions the speakers and the other participants can take into account.

1. The final conference within the ResBios project

The event is organized in a hybrid format (in Brussels and online) in the context of the project ResBios "Responsible research and innovation grounding practices in Biosciences", coordinated by the University of Rome – Tor Vergata and funded by the European Union's Horizon 2020 Research and Innovation Programme (Grant Agreement No. 872146).

ResBios is embedding **Responsible Research and Innovation** (RRI) practices within four universities and research institutions in the field of Biosciences in four European countries (Croatia, Greece, Spain, and Ukraine). This takes place through the implementation of 15 RRI **Grounding Actions**, to achieve sustainable institutional changes. The Grounding Actions (GAs) are related to RRI keys and take into consideration the Sustainable Development Goals. The project, strongly oriented to mutual learning, is focused on biosciences, as they are – more than other disciplinary areas – at the crossroads of the relationship between science and society. An **International Network for Responsible Biosciences** will be launched, alongside the Responsible Bioscience **Manifesto** which has been developed based on the experience gained during the project.

The final conference of ResBios is aimed at:

- Discussing the key themes of the science-society relationship, with particular regard to biosciences, in the light of the proposals of the ResBios Manifesto
- Presenting the main ResBios results
- Exchanging ideas and practices with other projects and experiences
- Reflecting with European decision-makers and stakeholders on policies regarding responsible research & innovation and Open Science
- Presenting the International Network for Responsible Biosciences promoted by the project.

2. Responsible research and biosciences

Here, some ideas and issues are presented, taken from the ResBios document: ***"Responsible biosciences. A Manifesto for the Transformation of Science-Society relations"****, that can be taken into account in the discussion.*

Role of biosciences in the contemporary societies

Directly or indirectly, **biosciences** play a decisive role in many of the challenges facing contemporary societies, related to the environment, climate change, food security, supporting an ageing population, developing new materials, preventing and managing pandemics, the fight against cancer, obesity, and chronic diseases, etc. The future of many productive sectors depends largely on bioscience research and the weight of the bio-economy – the goods and services produced using biological knowledge, resources, processes, and methods – is dramatically increasing. Partly because of their growing relevance, biosciences are exposed to strong social and political pressure.

Biosciences have become a field characterized by **hyper-competition**, with strong epistemic, organizational, and social consequences, in terms of loss of perspectives for young researchers, unjustified race to publish (independently from the quality and originality of publications), non-replicability of many research data and experiments, demotivation to undertake long-term projects. At the same time, biosciences are the field where, more than anywhere else, the question of **responsible science** has arisen and new approaches, practices and solutions have been developed, in terms of ethical issues and societal acceptance of scientific products.

Bioscience research has a strong, multilayered and diversified impact on the relations between science and society (for example, on social inequality, gender equality, cultural orientation, social values, and behavioural patterns, stakeholders' and people's expectations and trust in science). Hence the need for researchers and research institutes to "position" themselves precisely in their specific research field to understand what responsibility means for them. In this sense, biosciences can play a **pioneering role** in embedding responsibility-related principles and practices in science.

Science and society: a new social contract?

All this takes place in a rapidly changing context. Political, legal and research institutions, with their rules and functions, appear today weakened, questioned, and put under pressure in a society where individuals have more opportunities, autonomy, and power to judge and operate. In this context, the **old "social contract"** of an autonomous, mono-disciplinary, state-funded science, which characterized the science-society relationship from the 19th century to the 1960s, has collapsed. The autonomy of science has eroded because of budget constraints and international competition (making research funding conditional on delivering specific results), as a result, much more research now comes from outside universities, in semi-public and private institutions, and in big corporate industries, with the growing importance of multi-, inter-, and trans-disciplinary research.

However, during the previous decades, **new arrangements and practices** have emerged that relate science and society to each other in novel and promising ways. These new arrangements already could be seen as anticipatory elements of a new social contract between science and

society. And perhaps the Covid-19 pandemic has provided a further push, especially in the case of biosciences. A new social contract should lead to institutional changes, or stable organisational arrangements, which must be at the centre of our attention.

What elements of a **new emerging social contract** can be identified? To find them, you need to keep in mind at least three trends: the openness of scientific institutions (responsiveness to society, transparency, more and better communication and sharing of results, the combination of scientific knowledge with other kinds of knowledge, etc.); the usefulness of research (now public support is often given while expecting science to produce marketable or socially applicable knowledge); the changing organisation of scientific institutions, where the autonomous community of peers is becoming a sort of factory, hierarchically organised with few in a strong position and many with uncertain, temporary contracts, in constant conflict to access permanent positions and acquire scientific credits.

All this is also affecting the most intimate mechanisms of scientific production. Trends have some **promising aspects** and **others problematic ones**. A new social contract between science and society should improve how the social institution of science keeps control over its internal processes and products while supporting newly evolving relations with society and the usefulness of the knowledge produced.

Numerous **examples** can be given of how a new social contract is emerging and being sustained: the characteristics of the European Union's Framework Programs since their beginning in 1984; the experience of the Dutch National Research Agenda, where all citizens were invited to engage with science's research agenda; the experience of many non-state groups in the Southern part of the world, where activists and researchers asked what kind of research their countries would need for their development; the experience of approaches like Responsible Research and Innovation, Open Science, Citizen Science, Broader Impact, etc. The experience of the Covid-19 pandemic has also demonstrated how necessary a new social contract between science and society is.

A new social contract will **not be easy** and without tensions. The element of 'society setting a research agenda' does not imply, for example, stopping all fundamental research. A mix of society-driven and science-driven research, possibly different for each country, is advisable.

Responsibility in science and its application

The idea of responsibility emerges in this complex framework. Can we imagine science as a body moving on two legs - competition and responsibility - rather than limping on only one?

Responsibility in science is usually viewed from an ethical angle, which is important but difficult to apply to the activities of research organisations. Rather, one wonders if it is not possible to develop an **extended concept of responsibility** as a principle that reduces the negative impact of competition and equips science for better managing science-society relations.

Responsibility can allow for **better balancing** between sustainability and profitability, between goal-focused and curiosity-driven research, and between open science and market-driven science.

One of the lessons that we can draw from the many RRI projects promoted in Europe is that measures of enhancing responsibility are localised policies, within the research institutions/organizations. Hence these processes often meet resistance from researchers, since many aspects of responsibility – except perhaps open access and ethics – are not embedded in the global mechanisms of research, which determine much of the life of researchers.

Thus, an extended concept of responsibility needs to be included in the **global mechanisms of science**, in addition to the local and national levels. This means contextualizing the notion of responsibility in a fuller way. Only by ingraining responsibility in all these levels or contexts, responsibility can play its broader role, become useful for managing research, reducing wastage of time and resources, preventing risks of science and technology in society, and reducing the unintended negative consequences of competition.

In this sense, different **elements of responsibility** can be considered:

- ***Responsibility by design***, as a part of the research process (e.g., requesting applicants for funds to involve stakeholders, adopting an interdisciplinary approach, etc.)
- ***Responsibility as a critical stance to observe science and scientific practices*** (e.g., to prevent redundant papers, fake journals, distortions in research metrics, non-reproducibility of data, a hostile work environment for young researchers and women, etc.)
- ***Responsibility as a criterion to reshape science-society relations*** (to mitigate a potential decrease of trust in science, the risk to subordinate science to external influences, the risk of over-accelerating the shift from discovery to innovation, to help scientists in their role as experts for policy and a smart inclusion of stakeholders in the research process).

All these elements are already here as **ongoing trends**, e.g.: citizen science, public engagement, advanced forms of science communication, science-based movements outside of universities, ethical debates on science, post-colonial science, equity and inclusion in science, open science, and interdisciplinary and transdisciplinary cooperation.

At the same time, **these trends do not necessarily all move in the same direction**, e.g.:

- The push toward increasing the involvement of stakeholders and non-scientific experts in science *versus* the push toward an acceleration of the research process
- The push toward an acceleration of the research process *versus* the increasing time scientists have to devote to non-research activities such as administration, grant preparation, communication and large-scale collaboration
- The demand for interdisciplinarity *versus* the demand for hyper-specialisation
- The increasingly claimed contrast between fundamental *versus* applied research
- The call to science for addressing societal challenges *versus* an increasing influence by business and politics on science; the demand for a democratisation of science *versus* the growing pressure by non-democratic regimes on global science.

Social attitudes toward science are also diversified, ranging from strong support to all-out rejection.

More, the introduction of responsibility as a critical principle for a new social contract between science and society can only be **non-linear in its development** and **difficult to predict in its**

outcomes. It will require interactions and negotiations between a broad range of relevant actors, some of whom not even realising that they are relevant. But **the goal and direction of change** should be also **clear and explainable**. A science that is aware of the uncertainties in contemporary society, but also aware of the uncertainties in science itself is to be fostered. The aspiration is for science that is increasingly perceived and managed as a social endeavour, a multi-actor effort in which scientific methods and scientific values are preserved under all circumstances.

These changes can occur at **different levels** (local-organizational, disciplinary-professional, cultural and social, global ones), affecting **interpretations, symbols, norms, practices of scientific life**, and in different ways. **Instruments** such as goal setting, analysis of the contexts and actors, actions and their management, stabilisation of changes, and learning actions can be adopted.

3. The ResBios experience

ResBios project is aimed at further developing and embedding practices of responsible research and innovation in bioscience organisations, to achieve sustainable institutional change through 15 **Grounding Actions** (GAs) in four research organizations based in as many European countries (Croatia, Greece, Spain, and Ukraine). Through these actions and monitoring, technical assistance, mentoring, mutual learning, communication, and evaluation activities:

- A series of **success stories** relating to the forms of institutional change initiated in the 4 implementing organizations, with their local and national stakeholders, have been documented; the stories are about aspects such as: mainstreaming of RRI in teaching and life-long learning within the universities; structured forms of public engagement (e.g., on ocean responsibility); cooperation and synergies to implement gender equality-oriented actions; creation of networks with schools; establishment of open day committees; partnerships with local stakeholders; citizens engagement programs; co-creation of open access and open innovation programs; creation of internal bodies on Ethical issues; etc.
- Some **tools for dialogue with society** have been developed during the GAs implementation and internal mentoring activities, useful for carrying out RRI activities (questionnaires, templates for workshops, certifications, monitoring schemes, schemes for drafting Grounding Actions, etc.)
- An **International Network for Responsible Biosciences** was set up to give support and continuity to the actions undertaken by the project
- A **Manifesto** titled "Responsible biosciences. A Manifesto for the Transformation of Science-Society relations", was elaborated, to capitalise on the acquisitions of the Project, as well as other experiences in Europe and the world, in the field of responsibility in R&I, and to inspire future reflections and projects.

Through exchange and communication activities, ResBios has also made available, on its website (https://resbios.eu) and its blog (https://resbiosproject.medium.com), not only information on the activity of the Consortium members but also information on activities and research results of other actors, especially in the biosciences, relevant to the issue of responsibility in R&I.

4. Structure and themes of the final conference

The final conference will take place throughout the day on **7 December 2022**. Its structure and the main topics that participants will be invited to discuss are illustrated below.

MORNING (09.00 – 12.30)

Opening session

The Opening session is focused on the welcome addresses and on a general presentation of the ResBios project and the path that led to the final conference.

Session 1 – Challenges in contemporary societies and the role/responsibility of biosciences

This session is focused on the role and responsibility of biosciences in contemporary societies. Among the issues to discuss are: what are the contexts and contemporary phenomena on which biosciences have a growing influence (health, climate change, food, bio-economy, etc.); what political and social pressures are biosciences receiving; how the biosciences are dealing with these issues.

Session 2 – Towards a new "social contract" between R&I and society

This session is focused on how to create a social space to put or foster the "responsibility" within the current trends in science and innovation, taking also into account the proposals of the ResBios Manifesto. This session will focus on:

- The transition to a different way of producing science and innovation
- The transition to a new social contract between R&I and society (methods and anticipatory experiences)
- The tensions and contradictions of the changes taking place in the relationship between R&I and society
- The issue of responsibility in R&I
- The rules and adjustments necessary to promote responsibility in R&I
- The concrete application of responsibility in R&I (projects and experiences in Europe and the world in this field)
- The role of the various stakeholders (Quadruple Helix) for responsible research and innovation and Open Science.

AFTERNOON (13.30 – 16.00)

Session 3 – Groupwork: "Changing the course of science towards a more balanced and responsible relationship to society"

Three working groups will be held on the different contexts in which a responsible approach in R&I can be implemented:

- **Local-organizational contexts and their social/cultural environment** (how to promote responsible R&I institutional changes in research organizations: approaches, methods, actors, obstacles and opportunities, stakeholders involvement, etc.);
- **Disciplinary-professional contexts** (disciplinary, multi-inter- e trans-disciplinary aspects of responsibility in R&I; the role of professional associations; disciplinary values and professional norms and codes, etc.);
- **Global contexts** (how to promote responsible research and innovation and Open Science at a global level, taking into account aspects of the scientific practice such as publishing, research collaboration, resource availability, training capacities, scientific networking, etc.).

Session 4 - Policies: Support and Mainstreaming of "responsibility" in research & innovation

This session is focused on how to support, in the European context, a mainstreaming of the theme of responsibility and Open Science in R&I. Among the issues to discuss are:

- How to enhance the issue of responsibility within the Horizon Europe Program
- The concrete areas of intervention to support responsibility in R&I (e.g., supporting funding, training, networking, scientific communication and education, infrastructures for scientific exchanges, etc.)
- The role of the Quadruple Helix actors (research organizations, public bodies, industry, citizens' organizations) in possible future policies in support of responsibility in R&I.

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