

Mutual Learning for Responsible Research and Innovation in Synthetic Biology

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Abstract

SYNERGENE is a dialogue and agenda setting project dealing with Responsible Research and Innovation (RRI) in synthetic biology (SynBio). Funded by the European Union as a mobilisation and mutual learning action plan (MMLAP), it encompasses more than 25 European and international partners, and is due to run until the Summer 2017. The project aims to foster public, expert and stakeholder discourse and mutual learning on synthetic biology, as well as to collaboratively generate three agendas – a Participation Agenda, a Policy Agenda, and a Research Agenda. The initiative contributes to the EC's 'Science-in-Society' activities within the framework of Responsible Research and Innovation (RRI).

Within this framework, the idea is for a wide variety of social groups, stakeholders and citizens to collaborate throughout all stages of research and innovation with a view to better aligning science and technology with the values, needs and expectations of society.

Responsible Research and Innovation (RRI)

The terms 'responsible innovation' and 'responsible research and innovation' have a history in Europe and the US reaching back at least one decade.

The concept of Responsible Research and Innovation (RRI) has gained increasing relevance for EU policy in the last 3-4 years (e.g. in the European Commission's 'Science-in-Society' programme within the Horizon 2020 strategy):

It "refers to the comprehensive approach of proceeding in research and innovation in ways that allow all stakeholders that are involved in the processes of research and innovation at an early stage

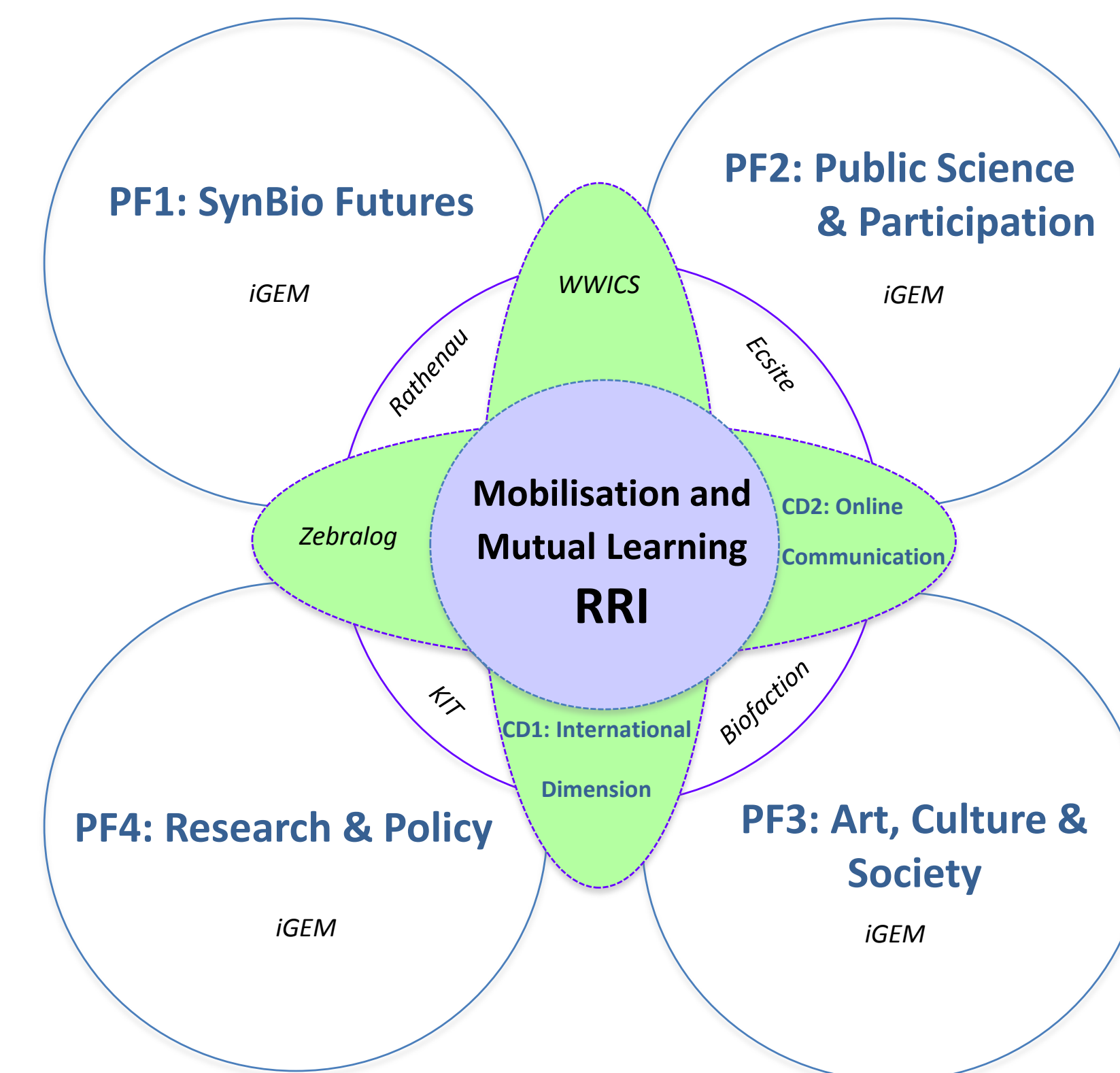
(A) to obtain relevant knowledge on the consequences of the outcomes of their actions and on the range of options open to them and

(B) to effectively evaluate both outcomes and options in terms of societal needs and moral values and

(C) to use these considerations (under A and B) as functional requirements for design and development of new research, products and services."*

* van den Hoven, Jeroen, ed. Options for Strengthening Responsible Research and Innovation: Report of the Expert Group on the State of Art in Europe on Responsible Research and Innovation. Publications Office of the European Union, 2013

SYNERGENE Organisational Features



Thematic Platforms (PFs) & Core Dimensions (CDs)

PF1 SynBio Futures:

Future perspectives, addressing the societal embedding of potential SynBio applications in an inclusive and publicly visible process of real-time technology assessment (real-time TA)

PF2 Public Science & Participation:

Public participation and citizen engagement; informal learning / access to knowledge; public engagement in research (PER)

PF3 Art, Culture & Society:

Focuses on overlaps between art and science and relevant academic research, to better understand the cultural significance of SynBio

PF4 Research & Policy:

RRI and policy issues, will also integrate results of other PFs and the CDs to enable policy makers and other actors to contribute to RRI

CD1 International Dimension:

Mutual Learning between international actors

CD2 Online Communication:

External and internal use of online communication

iGEM – SYNERGENE Collaboration

The iGEM community may play an important role in the formation of an international research culture in SynBio. To strengthen RRI in the field of SynBio we stimulate collaboration between iGEM teams and partners from SYNERGENE.

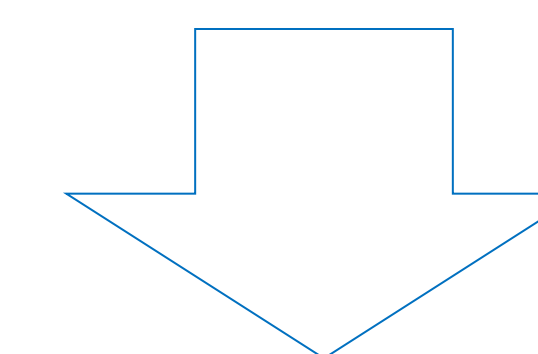


For example, SYNERGENE has invited iGEM teams to a process of real-time TA of their proposed applications involving application scenarios and techno-moral scenarios. SYNERGENE partners will take up the scenarios for an interactive TA process, involving a variety of stakeholders and iGEM team members in workshop settings and public discussion events.

SYNERGENE Activities

SYNERGENE is designed as a highly interactive project open to all kinds of cooperation with external partners:

- **More than 100 events** (such as stakeholder workshops, public engagement activities, art events)
- **Several Open Forums** (Business Forum, Civil Society Forum, Media Forum, Policy Forum, Science Forum) – These Forums are open to representatives of the respective stakeholder groups and experts in these areas
- **Additional ways to get involved** in and profit from SYNERGENE as a framework for Responsible Research and Innovation, such as joint events with SYNERGENE and the participation of consortium members in events staged by external partners



Collaborative Generation of Agendas

PARTICIPATION AGENDA

Framework for future public science and participation activities, including models of good practice concerning RRI in SynBio (and potentially beyond)

POLICY AGENDA

Interconnection and improvement of policy and governance activities on various levels, and internationally

RESEARCH AGENDA

Identification of promising research directions with a view to societal ends and potential funding-policy priorities

Expected Impact

We expect the project, and the agendas in particular, to influence societal discourse on SynBio and to achieve political impact at EU level and beyond, also influencing funding priorities and strategies for SynBio.

Project Partners

SYNERGENE encompasses 25+ international networks and institutions, coordinated by KIT-ITAS. While focusing on Europe (with partners from 14 European countries), the project also has a strong transatlantic element by partners in the US and Canada and a Third Party partner in Brazil. Furthermore, cooperation with the iGEM community and the US-based iGEM Foundation is an important element of the project.

- o Karlsruhe Institute of Technology (Germany)
- o Austrian Academy of Science (Austria)
- o University of Bristol (United Kingdom)
- o University of Paris 1 Pantheon-Sorbonne (France)
- o Delft University of Technology (The Netherlands)
- o University of Southern Denmark (Denmark)
- o Rathenau Institute (The Netherlands)
- o University of Padua (Italy)
- o University Hospital Freiburg (Germany)
- o Biofaction KG (Austria)
- o Woodrow Wilson International Center for Scholars (USA)
- o VU University of Amsterdam (The Netherlands)
- o Zebralog GmbH & Co. KG (Germany)
- o Swiss Federal Institute of Technology Zurich (Switzerland)
- o Technical University of Darmstadt (Germany)
- o LIS Consult (The Netherlands)
- o Utrecht University (The Netherlands)
- o Finnish Bioart Society (Finland)
- o The European Network of Science Centres and Museums (Belgium)
- o Geneart AG (Germany) / ThermoFisher Scientific (USA)
- o European Union of Science Journalists' Association (France)
- o University of Ljubljana (Slovenia)
- o What Next Forum (Sweden)
- o Theatre Freiburg (Germany)
- o Gene Rowe Evaluations (United Kingdom)
- o University of Bergen (Norway)
- o etc Group (Canada)



Funded by the European Union

For more information see:
www.synenergene.eu

