

## SYNERGENE: The project in a nutshell

*SYNERGENE is a citizen dialogue and stakeholder networking project on synthetic biology (SynBio) with 25+ partners, involving stakeholders from science, industry, civil society, policy, art and other areas. It supports a wide variety of mobilisation and mutual learning processes at an early stage of SynBio's development.*

*Christopher Coenen, who works at the Institute for Technology Assessment and Systems Analysis (ITAS) within Karlsruhe Institute of Technology (KIT) in Germany, leads the project. He explains the rationale behind SYNERGENE, its aims and the range of planned activities.*



"Since 2010 the focus of the Science in Society Action Plan of the EU Framework Programme 7 has been to develop a concept responding to the aspirations and ambitions of European citizens: a framework for Responsible Research and Innovation (RRI). „The grand societal challenges that lie before us will have a far better chance of being tackled if all societal actors are fully engaged in the co-construction of innovative solutions, products and services“, the Commission writes in a leaflet on RRI<sup>1</sup>. In this context the European Commission finances Mobilisation and Mutual Learning Action Plans (MMLAP) on Societal Challenges. Responsible Research and Innovation in Synthetic Biology was one of the Specific Challenges for which the Commission launched a call for proposals in 2012. "

### What is the challenge in Synthetic Biology?

"Synthetic Biology (SynBio), "the engineering of biological components and systems that do not exist in nature and the re-engineering of existing biological elements", holds promise for new drugs, biofuels and in many other applications, as well as for designing novel organisms with completely new functions. Some people expect SynBio to fundamentally change the way biotechnology is performed in the future, others have argued that SynBio is merely 'genetic engineering 2.0' than a novel field in its own right. Nonetheless, it raises questions in the context of RRI to many different stakeholders, policy makers and the general public. The public is not yet much aware of this field and regulatory challenges include for example new risk assessment needs, biosecurity and dual use monitoring and intellectual property rights. According to the European Commission it is therefore essential to establish open dialogue between stakeholders, to understand public concerns and ensure collaborative shaping of the field, aligned with societal needs and expectations."

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<sup>1</sup> [http://ec.europa.eu/research/science-society/document\\_library/pdf\\_06/responsible-research-and-innovation-leaflet\\_en.pdf](http://ec.europa.eu/research/science-society/document_library/pdf_06/responsible-research-and-innovation-leaflet_en.pdf)

## This sounds like a huge task. How will SYNENERGENE deal with it?

"As one crucial means to deal with this task, we have decided to create four partly overlapping thematic platforms: 'Synbio Futures', 'Public Science and Participation', 'Art, Culture and Society', and 'Research and Policy'.

Synbio Futures explores the mid- and long-term opportunities for RRI in synthetic biology. It has started with involving international Genetic Engineering Machine competition (iGEM) teams in SYNENERGENE (see interview with Dirk Stemerding and Virgil Rerimassie). It includes, amongst other things, work on adaptive biosafety assessment strategies (dealing with synthetic biology as an emerging technology) and frame reflection labs, a method that can help generate reflexive awareness about the societal context of future applications.

Public Science and Participation focuses on informing and engaging citizens. In addition to the majority of the project's consortium partners, it includes science centers and museums in Spain, Portugal, Estonia, Poland, Italy, The Netherlands and Brazil that are developing a variety of actions to involve citizens such as science theatre, science cafes and teachers' learning. We consider this a mutual learning process between science communication practitioners and other communities that is facilitated by workshops.



*Photo: Wikipedia commons*

The Art, Culture and Society platform aims to add a cultural dimension to the discourse on synthetic biology by including people and ideas, which use and are based on creative approaches. Such approaches help the public, for example, to imagine a future in which engineers will be able to design and manufacture life forms in the way they do it with computers, cars and bridges today. They also help make explicit relevant aspects of value systems and culturally bound notions that determine the debate. In a series of workshops we are further investigating the values and value conflicts inherent in cultural images.

Research and Policy explores the prerequisites for shaping research and innovation according to societal needs and the means that could and should be used to influence research and innovation from inside and outside science in terms of embedding social aims in research. Apart from using insights from previous experience described in literature and from other projects, new approaches are developed that use experimental settings which combine different types of learning."

**It sounds like a lot of activities with different focus, here and there with overlapping themes. How do you ensure coherency?**

“The overlaps are intended precisely for the sake of coherence. The platforms represent various thematic approaches to RRI in SynBio and should by no means be understood as independent sub-projects of SYNENERGENE. Consortium partners participate in several platforms, and interactions of all relevant stakeholder groups as well as public science and participation activities take place in all these platforms.

Moreover, there are a number of cross cutting activities and two so-called ‘Core Dimensions’ (CDs): the International Dimension and Online Communication.

The International Dimension mirrors, complements and connects with activities organized in Europe in the United States, also ensuring involvement of international participants from other continents than Europe and North America. An important goal is to widen the reach of SYNENERGENE and deepen its impact, providing, among others, alternative approaches to governance, public engagement, ethical oversight and responsible practices in research and innovation. The methodology of ‘trading zones’ is used with experts and non-experts from different disciplines discussing the science and implications of a specific technological pathway. The activities in this CD also interconnect different debates, arguments, experiences and practices developed in the four platforms. It aims to foster transatlantic and other international dialogues on RRI in SynBio.

The CD Online Communication supports the communication and learning of all partners involved as well as between the project partners, the public and interested stakeholders. It also supports online dialogue with the public.

In addition to the platforms and CDs, the project has two more core elements: the ‘Open Fora’ (OFs), which are forums for stakeholder groups (business, civil society, media, policy, and science), and a special focus on working with the iGEM community (see article on iGEM as an RRI laboratory).

The OFs can be used by stakeholder groups to engage with issues concerning RRI in SynBio, supported by SYNENERGENE. While SYNENERGENE in general is open to conduct joint activities with others who are active in the area of RRI in SynBio, the OFs are an instrument, which may allow for a continuation of SYNENERGENE-inspired activities when the project has extended.”



### Policy forum

The Policy Forum connects policy makers to stimulate the debate on synthetic biology. Join the forum to keep up to date about news and activities via e-mail. The forum is chaired by Wolf-Michael Catenhusen.

[go to forum](#)

## What is SYNENERGENE's overall approach as a Mobilisation and Mutual Learning Action Plan (MMLAP) on SynBio?

"Since we deal with a large field of new and emerging science and technology, we aim to include a wide range of issues and stakeholders, and to involve citizens from very diverse backgrounds, we need skills and ideas from different fields. There is no blueprint for a successful MMLAP so we will experiment with and continuously evaluate a wide range of means of public participation and stakeholder interaction. At the same time, we will create linkages and be open for cooperation with existing networks and activities concerning RRI in SynBio. The iterative mutual learning processes stimulated and supported by SYNENERGENE will be open to change in order to accommodate the dynamics of an emergent field."

## The project will continue until autumn 2017. What has to be achieved by then to make SYNENERGENE a success?

"By then – after more than 120 single SYNENERGENE events –, significant impact should have been made concerning public awareness of SynBio and the fostering of public discourse and stakeholder interaction on RRI in SynBio.

While it is not a task of the project consortium to directly contribute to the conceptualisation of RRI, we see SYNENERGENE as a tool for collecting and analyzing input by a wide variety of stakeholders and of citizens concerning their views on RRI, not only with regard to SynBio but also to other fields of new or emerging science and technology.

In 2017, the three SYNENERGENE Agendas – a Participation Agenda, a Policy Agenda and a Research Agenda – will have been drafted and their implementation will have been started. They will be a major outcome of the stakeholder interactions, citizen dialogues and other activities that will take place in, or be supported by SYNENERGENE.

We hope that the project will help set standards for RRI in SynBio, that its results and products will be useful to all stakeholders and to citizens in Europe and beyond, and that SYNENERGENE will support the creation of responsible bio-economies. "