



How can Europe be successful in Synthetic Biology ?

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Introduction

Synthetic biology (SB) is an emerging field promising high potential for research and development (R&D), and future applications beneficial for economy and society. The EU has started first measures to develop the field. However, research activities are scattered across European regions and across scientific disciplines and are concentrated in a relatively small number of working groups.

Future success in Synthetic Biology in Europe is based on a shared understanding of the underlying definition of Synthetic Biology among the European actors and depends on an integrated European strategy. This is stimulated by the TESSY* project (figure 1). The process will develop and implement

- a common understanding and awareness of SB, its potentials and achievements
- a European strategy for the further development of SB with clear goals, milestones and suitable measures to accomplish it (roadmap),
- stimulation activities for the mobilisation of public and private resources

Figure 1: The TESSY* Process

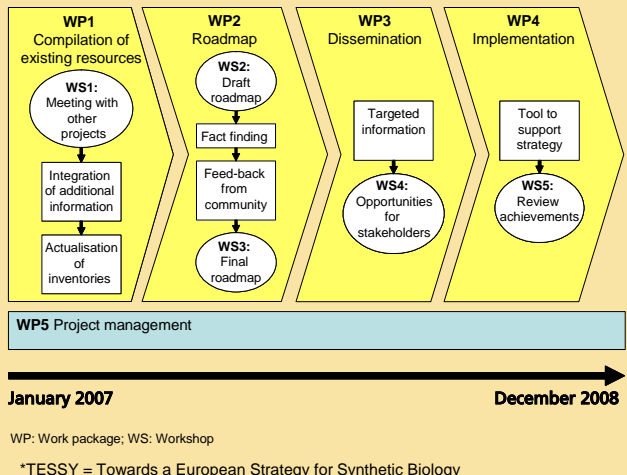
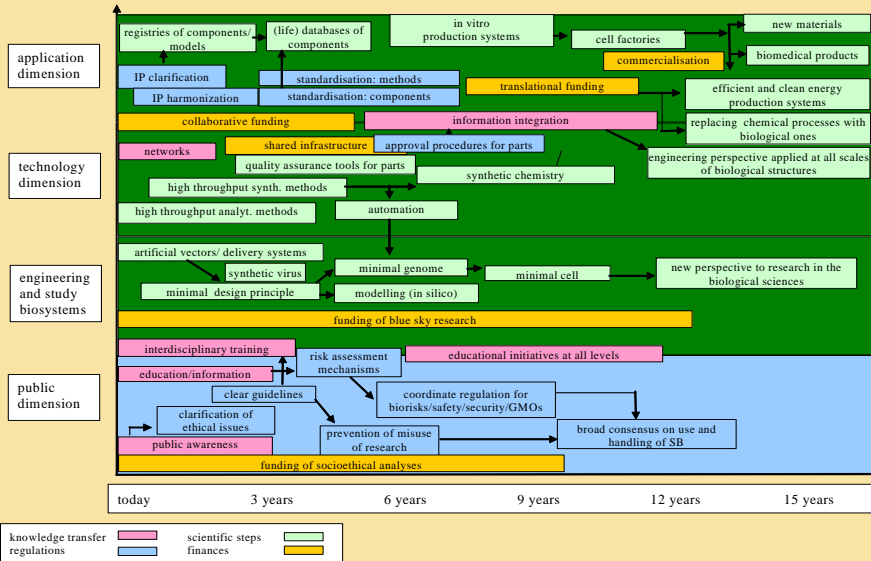


Figure 2: Draft Roadmap on Synthetic Biology Milestones in Europe



Development of a Synthetic Biology Roadmap for Europe

Based on literature analysis and expert opinion we have elaborated a roadmap to future synthetic biology technologies and applications and their integration in the public sector (figure 2). The boxes represent the period of time when the respective topics are assumed to be a major focus on the European SB agenda.

If you are interested in commenting on the roadmaps please contribute to the ongoing online survey by following the instructions under

<http://tessy.b-wise.de/en/survey/participate>

The core of synthetic biology – delineating the field

In contrast to the US understanding the European perspective of Synthetic Biology should not be focused solely on the engineering aspects (i.e. the constructive part of synthetic biology).

The challenge for Europe is to describe synthetic biology as an own specific field that allows to identify communities, stakeholders, opportunities, and challenges, but to avoid a too narrow constriction of synthetic biology, which would hamper unexpected developments, which are typical for emerging fields.

The European TESSY expert group consented on the following field delineation.

Synthetic biology aims to

1. engineer and study biological systems that do not exist as such in nature, and
2. use this approach for
 - achieving better understanding of life processes,
 - generating and assembling functional modular components, or
 - develop novel applications or processes.

* The TESSY-Consortium (TESSY = Towards a European Strategy for Synthetic Biology):

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