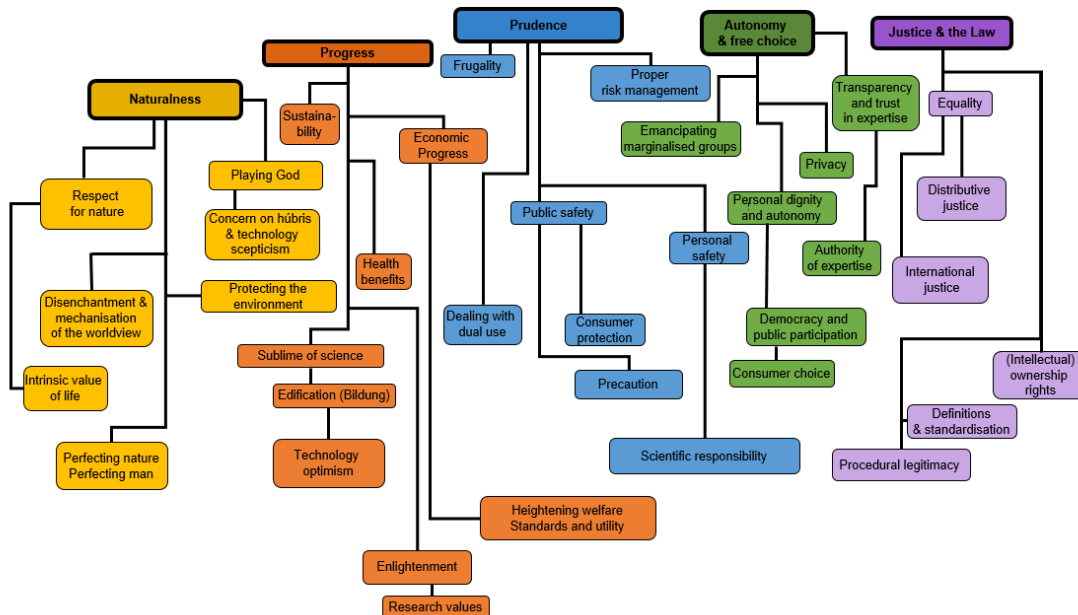


# An Overview of Socio-ethical Aspects of Science and Technology

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Synthetic biology is an important new field of scientific research which integrates biology, technology, design techniques and engineering. It not only offers a lot of promise and potential, but also raises all kinds of new questions like: “Should we make life ourselves?”, “Who benefits from this technology” and “How can we make sure that these new techniques are safe?” Such questions are important and should be addressed in the dialogue about synthetic biology with a variety of audiences. If, as a teacher or informal educator, you are keen to facilitate this dialogue, you may find yourself challenged by how best to support your students or visitors during this dialogue. The overview presented above may come in handy as it can be used as a backdrop. It enables completeness in the discussions and makes it easier to discern where participants and their arguments are coming from.

The overview contains social and ethical aspects. It came out of 5-years of practical philosophical research, conducted by Laurens Landeweerd, and is here presented for use through the Synthetic Biology Learning Platform by Liesbeth de Bakker and himself. The overview emerged in the context of some 8 national and European projects that focused on generating debate and defining recommendations to policy on research and innovation. Some of these projects focused on synthetic biology as the area of research and innovation, but also other emerging technologies such as nanotechnology were being discussed. In that sense the overview offers a general idea of socio-ethical aspects surrounding upcoming fields of technology and research.

The overview shows a subdivision into five clusters: naturalness, progress, prudence, autonomy & free choice, and justice & the law. The prevalence of these 5 clusters was confirmed in participatory events on widely differing application fields – from biofuels to eugenics, from GM crops to waste management. Further specification of the clusters was provided by various science policy experts at different occasions during project meetings and conferences. In this way the overview received input from a wide array of experts in science policy.

This overview could easily have been structured in other ways, and it is neither complete nor set in stone. But at this point in time it may prove to be a useful tool for teachers and informal educators wishing to facilitate dialogue about synthetic biology. Use it as a document to fall back upon as dialogue facilitator, or for elucidating arguments and stances in the dialogue. We do however caution against using the overview as a starting point for practical debate, since it might make it difficult for participants and students to come up with their own issues and concerns, and it may hamper the articulation of their own views.

If you are going to use the overview as a tool in your work, please give reference to the article where this overview is elaborately explained and discussed: Landeweerd, L., Zwart, H. et al. (2016). ‘A taxonomy of ELSI and RRI’. *Life Science, Society and Policy* 2016. To be submitted.