

Missions for sustainability: New approaches for science and society

Session abstract: Grassroot-Initiatives: Bottom-Up Sustainability Activities at German Research Organisations

Session organizer(s)

Jakob Schweizer, Scientific Coordinator at the Max Planck Institute for Dynamics of Complex Technical Systems

Session title

Grassroot-Initiatives: Bottom-Up Sustainability Activities at German Research Organisations

Session description (~500 words)

The session was divided into a presentation part (first half) and a discussion part (second half). During the first half, four presenters (affiliated with the four largest non-university research organizations in Germany, the Leibniz association, the Helmholtz association, the Fraunhofer society and the Max-Planck Society) presented for about 7 minutes each, while the second half was reserved for a discussion among the presenters and the audience. The main topics of both were the titular Grassroot-initiatives in German research organizations: The Working Group Sustainability of the PhD and Postdoc Networks in the Leibniz Association, the Network Helmholtz Climate-Neutral, the Network Sustainability of the Fraunhofer Society, and the Max Planck Sustainability Network, which are all efforts to make science and research operations in the respective organization more sustainable. These initiatives are bottom-up approaches formed by early researchers like Doctoral and Postdoctoral researchers or Students. The main motivation for these efforts is the fact that researchers across Germany tend to contribute to multiple environmentally problematic activities, such as frequently flying and contributing to traffic, producing problematic waste, and consuming large amounts of energy for electricity and heating/cooling, which usually comes from cheap, non-renewable resources.

It should be noted that this session was only marginally connected to the idea of mission-oriented research and development. While some challenges discussed in the session were related to the ones that mission-oriented R&D faces (such as scientific freedom remaining intact), the overall discussion revolved significantly more about specific targets and current challenges in meeting those targets and organizing the overall work.

For the first half of the session, the four presenters summarized the efforts in their respective organizations. Each presentation contained a few examples of achieved goals and current challenges, outlined which pillar of sustainable transformation is prioritized where and how, and explained how the measures with the biggest impact were identified and monitored. To give some examples: The Working Group Sustainability in the Leibniz Association raised awareness for the

topic of sustainability and started implementing small, everyday measures to reduce problematic waste or the individual carbon footprint. The Network Helmholtz Climate-Neutral participated in the creation of guidelines of sustainable development in non-university research organizations, works on becoming a role model for sustainable development, and sets specific carbon emission limits. The Network Sustainability of the Fraunhofer Society has implemented CR-reporting for the organization and works on becoming climate-neutral by 2030. The Max Planck Sustainability Network places a specific emphasis on ecological sustainability in combination with keeping scientific freedom intact, including CO₂ compensation and the creation of more animal-friendly buildings, while also prioritizing the targets with the biggest impact first, just like the other organizations.

During the discussion that followed the presentations, specific topics were addressed in more detail, which will be summarized below.

Main discussion points and reflections (~500 words)

The first point of discussion was prioritization of specific pillars of sustainability and their overlap. It was brought up that for the areas of social and economic sustainability and the areas where these two overlap with ecological sustainability, there are often already measures in place, while for ecological sustainability, specific guidelines have yet to be formulated. Because of this, priority is often given to ecological sustainability, specifically by the Max Planck Sustainability Network.

In relation to this, the plenum discussed an example of prioritization: It was brought up that, in scientific institutes that work on topics that do not require problematic materials and large amounts of energy (such as humanities or history research), it might be difficult to decide which sustainability measure to implement first. One solution given was to start with the aspects that all research practices share, such as electricity and heating generation/consumption and travel and their respective carbon footprint. It was also brought up that raising awareness for the sustainability topic and inspiring a culture of sustainability should be strived for in the long term.

Next, the differentiation between research for sustainability and sustainable research was discussed. It was brought up that sustainable research practices apply to all science areas and research projects, and that there is a danger of diluting the mission of making science and research more sustainable when research *content* is taken into consideration, as this affects scientific freedom more drastically, which in turn might create more negative attitudes towards sustainability. However, if scientific freedom of research area and topic choice are left alone, the idea of making research practices more sustainable can still be applied.

After this, potential connections between the activities were discussed. In sum, it was derived that exchange platforms, both within and across organizations, are needed, and that transparency and contacts between policy makers are both critical.

The next discussion revolved around current challenges for technical sustainability solutions, such as photovoltaic installations. It became clear that the hindrances were diverse, including, for example, economic, juristic, and delayed-effects difficulties.

The closing discussion point was the distribution of work capacity in sustainability initiatives. It was concluded that most of the work is actually done voluntarily, and in order for these

movements to gain more traction and to become more effective, that needs to change. Specific positions for sustainability-related tasks need to be created, which would enable people to devote a lot more time and energy to the cause.

Main results and conclusions (~500 words)

As addressed above, this session was only marginally related to the topic of mission-oriented research and development, which makes it difficult to draw conclusions in relation to that. However, the key points of the presentations and discussions were as follows:

It is sometimes necessary to prioritize a specific pillar of sustainability over the others, given differences in research methods and ways of working. However, research can be done (more) sustainably across all research areas, which means that all aspects of sustainability can and should be taken into consideration by the respective initiatives. To achieve the ambitious goal of making science and research more sustainable, connections between the big science organizations and institutes are necessary, wanted and helpful.

Since much of the sustainability work is done voluntarily, it takes time. Given the importance of the topic and current development of the world, this needs to change, for example through changes in the funding structure or through official appointments of institute directors and work councils. Overall, more people whose main task is to work on sustainability are needed.

Overall, research for sustainability is highly important, but does not affect all research areas – however, sustainable research *practices and methods* do. Therefore, a future mission should be to apply the pillars of sustainability and sustainable development to all areas of science and development, regardless of the respective topic. The most important open question is how exactly this can be achieved, but many practical ideas already exist and are being implemented.