

Resource efficiency

DBU-Funding information – Funding subject 7



Copper wire (close-up)

Funding subject 7: Efficient use of resources thanks to innovative manufacturing processes, materials and surface technologies

Some of the greatest challenges we face in terms of establishing a sustainable economy are reducing consumption of natural resources and materials and minimising harmful emissions. Innovative manufacturing processes, materials and surface technologies are becoming increasingly important in terms of improving efficiency. We support innovative approaches to reducing resource consumption across the entire life cycle of a product.

Project targets could be measures that are integrated into the manufacturing process, the use of new materials or surface functionalities, further development of the recycling economy, for example by considering more efficient traceability during product development or new

waste separation processes for composite materials. Furthermore, resource efficiency should be increasingly integrated into education projects as content that promotes awareness of sustainability and skills in the area of sustainability as well as to increase the number of qualified young professionals entering the job market in the future.

We are looking for pre-competitive development projects in SMEs that offer innovative ways to reduce resource consumption as well as practical projects for education or research with a holistic perspective and exemplary approaches to problem-solving.

In particular, the following measures are eligible:

- New processes and production methods that increase resource efficiency across the entire value chain for processes and applications that require a great deal of raw materials
- Projects for developing new material and surface technologies that significantly decrease resource consumption
- Innovative ideas for closing material cycles with the greatest possible added value
- Developments to prevent the use of or find substitutes for toxic materials or materials with toxic emissions
- Projects that replace particularly scarce or problematic materials with materials that are not problematic
- Educational concepts to promote skills in the area of sustainability and systematic and problem-solving thinking and action



DBU-funding – competent and service-oriented

The Deutsche Bundesstiftung Umwelt (DBU) can look back on more than 25 years of funding. The foundation has a broad wealth of experience and professional expertise in various fields. In its work, the DBU can rely on a broad network of experts working as honorary consultants.

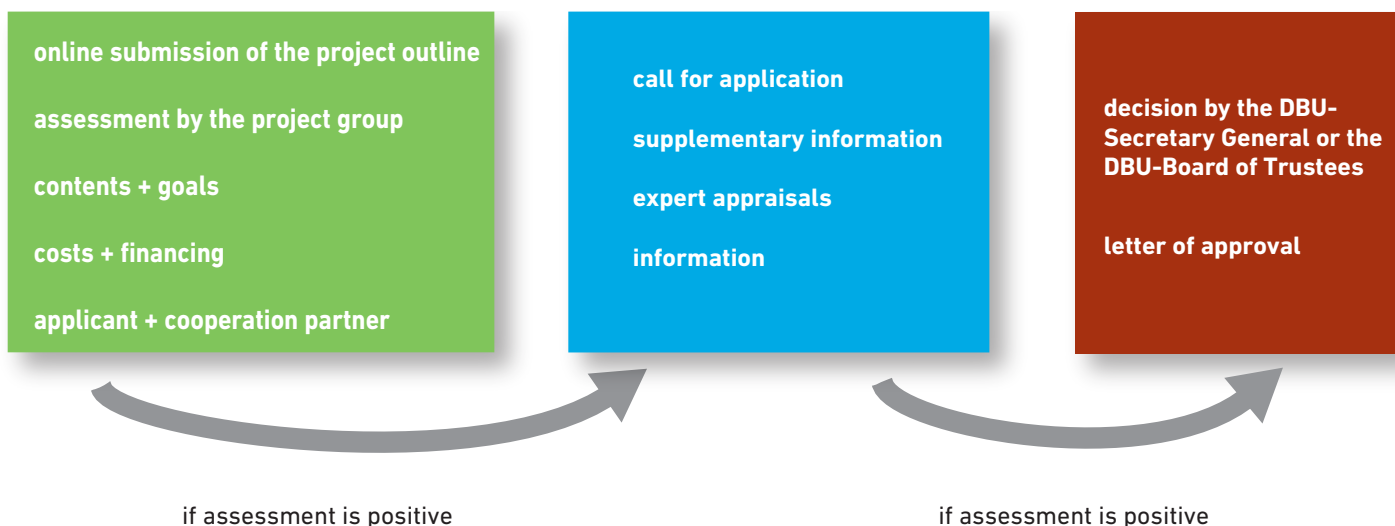
The DBU is independent and neutral from any political party. When submitting an application, only the technical quality and the innovative content of the application are important. The DBU offers its applicants competent, result-oriented advice and individual support by a highly qualified, interdisciplinary team. The internal

assessment of the projects and the external evaluation lead to a further development and qualification of the project proposal.

The DBU accompanies project partners from the project outline to implementation and provides support in finance and expertise.

DBU-partners of particularly successful projects are also supported in the dissemination of their project results by appropriate communication measures (trade fairs, exhibitions, events, publications, press work).

From outline to funding



First steps in a project outline

We are interested in receiving innovative, exemplary project ideas which contribute to the reduction of CO₂-intensive processes.

Initially, it should be clear:

- Does the project idea fit the support subject?
- Does the project idea involve at least one or more solution approaches?

If this is the case, the following criteria must be taken into account when preparing a successful project outline:

- The objectives of the project outline are directly related to the support subject.
- The methods, processes or products developed go beyond the current state of the art/knowledge or develop it further.
- The solution approach is tested in practice and examined for strengths and weaknesses.

- The solution approach can be used as a model for similar problems.
- The special unique selling point of the project in terms of technical significance and/or innovation is named.
- The results of the project will be communicated to the public and relevant experts in a target-group-specific manner.
- The project offers approaches for related education and qualification.

If these criteria apply, interdisciplinary and systemic project approaches are of particular importance to the DBU.

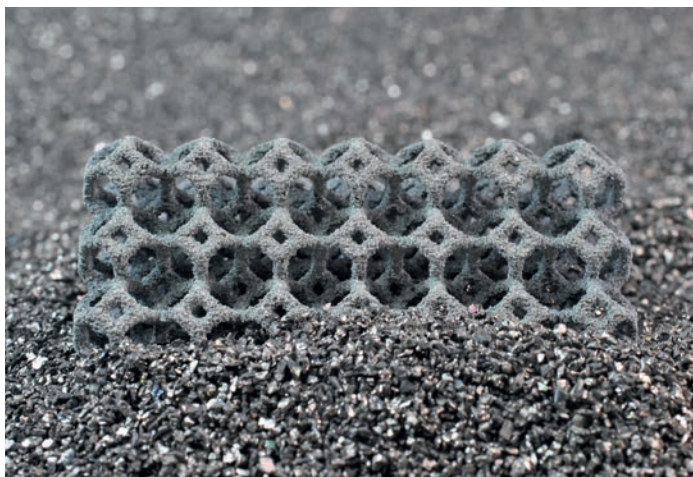
You can submit your detailed project outline online www.dbu.de/antragstellung

Exemplary DBU-funded projects

The following projects show an excerpt from the thematic range of funding subject 7 and specify the implementation in the fields of action mentioned on page 1. Further information on the projects can be found at www.dbu.de

Resource-intelligent scrap sorting (AZ 32322)

In order to increase the proportion of recycled material used in the production of modern metallic high-performance materials, it is necessary to precisely determine the alloy composition of the scrap used. Laser-induced plasma spectroscopy (LIBS) enables the recognition of elements based on their unique optical spectrum. PROASSORT GmbH of Werdohl uses this »fingerprint of light« to precisely analyze the alloy composition of scrap metal. To do this, it is essential to clean the measurement area and remove coatings beforehand. This is done via »laser ablation« - a laser technology developed by Clean-Lasersysteme GmbH of Herzogenrath for cleaning surfaces. The COLA (Collaboration Of LIBS and Laser Ablation) process, which has already been successfully tested on a laboratory scale, is currently being implemented as a prototype and is subsequently being tested and further developed under real-life conditions.
www.proassort.com



Ceramic light constructional components (AZ 32014)

The goal of a project by WZR ceramic solutions GmbH, of Rheinbach, is to repeatedly produce ceramic components using an innovative 3D pressure process. On the one hand, the new process is intended to make it possible to vary the material density within a component, in order to achieve materials savings through this combination of »material and cavities« while maintaining at least the same load-bearing capacity. In order to further reduce materials consumption, it is planned to use various ceramic materials in a single component, and to avoid over-dimensioning by means of locally adapted properties such as density, toughness and strength. The aim of the project is to decouple workpiece design, workpiece mass and workpiece strength, which offers lightweight construction potential with mass reduction of around 30 %.
<https://wzr.cc>

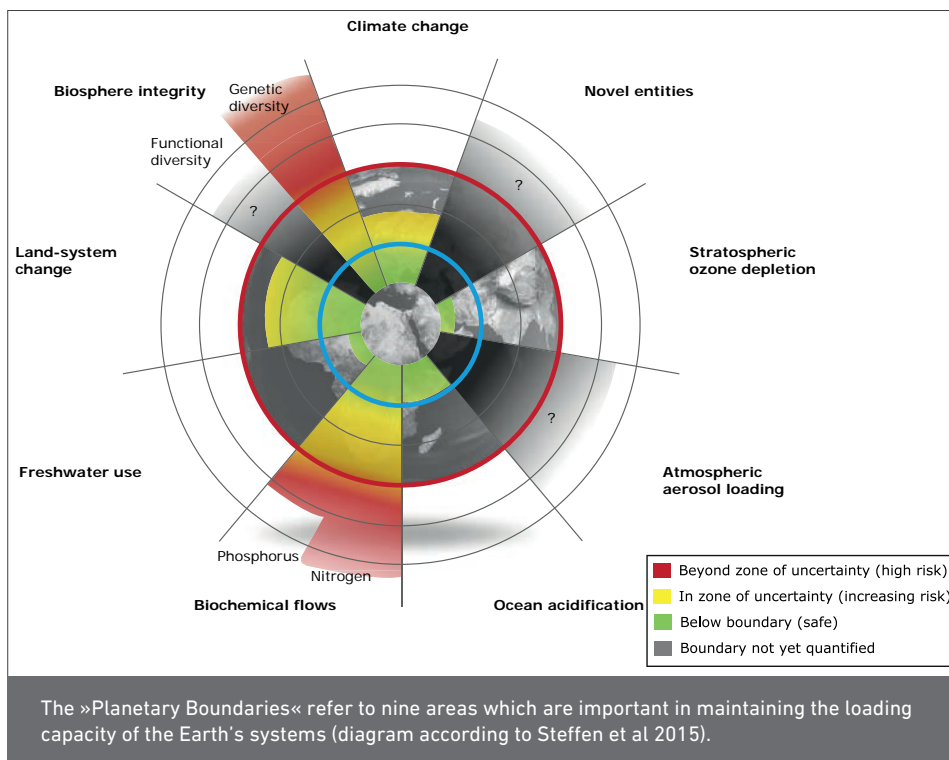
Low-emission UV paints (AZ 33646)

Solvent-free systems, low energy consumption during drying and high levels of material efficiency – these are the advantages offered by paints and coatings that are cured using UV rays. UV paints generally contain what are referred to as photoinitiators, which initiate chemical cross-linking reactions. These photoinitiators and their waste products can cause VOC emissions (VOC = volatile organic compounds) that may be harmful to health, particularly as indoor air pollutants. In response, Innovative Oberflächentechnologie GmbH (IOT), a company based in Leipzig, Germany, has developed »Direct Cure«: a process for direct cross-linking of paint binders without photoinitiators. Recently, they have been able to further develop this process, which was initially only used for printing food packaging, to be used with significantly thicker coatings for furniture and flooring elements. The company has achieved such low VOC emission levels that they have even undercut electron beam curing, which up till now has been the industry benchmark. The company has already launched this technology on the market. www.iot-gmbh.de/en



DBU – We promote innovations

The Deutsche Bundesstiftung Umwelt (DBU) supports innovative, exemplary and solution-oriented projects for the protection of the environment in accordance with the foundation's mission statement, with special consideration for the mid-sized business sphere. Funded projects should achieve sustainable effects in practice, provide impulses, and have a multiplier effect. It is important to the DBU to contribute, in particular, to solving current environmental problems which result from unsustainable economic practices and ways of life in our society. The DBU sees key challenges above all in climate change, biodiversity loss, the unsustainable use of resources, and harmful emissions. The funding subjects thus tie in with both current scientific findings on »planetary boundaries« and with the Sustainable Development Goals adopted by the UN. Especially with regard to biological diversity (biosphere integrity) and the disruption of the nutrient cycles of nitrogen and phosphorus (biochemical flows), the planetary boundaries have been far exceeded. Humanity has therefore moved a long way from any safe operating space, and is now exposed to a high risk of negative ecological, economic and social consequences. Mankind has also already moved into the danger zone in terms of land-system change and climate change.



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Your contact for the funding subjects

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