

“GreenTech Innovation Competition – Digital technologies as a key for the ecological transformation of the economy”

Call for proposals on the basis of the “Development of digital technologies” funding programme

The following call for proposals is made on the basis of No. 2.2 of the “Development of digital technologies” funding programme (Federal Gazette AT 11.07.2022 B1), and is subject to its general rules.

1 Background and motivation

In the coalition agreement “Dare more progress” of 7 December 2021, the Federal Government set itself the goal of making more use of digital technologies in the transformation of the economy towards greater sustainability, more climate action and more environmental protection. The “GreenTech Innovation Competition” call for proposals builds on this and aims to help strengthen Germany and Europe as high-tech centres of digital technologies and business models based on them, to help attain Germany’s and Europe’s climate and environmental targets, and to consolidate Germany’s and Europe’s sovereignty.

Also, the call for proposals is to make a major contribution towards sustainable development within the meaning of the Agenda 2030 and to address in particular the following Sustainable Development Goals of the Agenda 2030: SDG 8 (e.g. economic growth), SDG 9 (e.g. innovation), SDG 12 (e.g. sustainable production) and SDG 13 (climate action).

According to current studies, the deployment of digital technologies like AI, digital twins and edge and cloud computing can cut emissions that damage the climate by up to 20% around the world. New, innovative digital technologies and business models based on them can achieve a further substantial increase in the potential reductions. Digital technologies and business models based on them are therefore important components in solutions to challenges like climate change and scarcity of resources. At the same time, the development and use of innovative digital technologies can boost the competitiveness of German and European companies, particularly in the rapidly growing markets of green technologies and green services. The envisaged flagship projects are to encourage widespread use of the pivotal function between economic and ecological benefits played by digital technologies.

Digital technologies can help to boost energy and resource efficiency across the economy, and thus help the climate and the environment. The added value of the digital solutions consists in particular in the possibility to integrate different processes – previous to this, it has only been possible to make isolated improvements to each individual process. In principle, the digital technologies must be designed to be resource-efficient in order to minimise the consumption of resources induced by the digitalisation. Here, it is particularly important to avoid rebound and backfiring effects from the use of digital technologies.

The aim of the call for proposals is to progress the use of digital technologies as a key to the merging of economic and ecological interests. The projects are to have a high level of impact across the targeted sectors, and to develop spill-over effects. Also, the aim is to promote projects which focus on a transfer of expertise and technology.

Further information about the ongoing programmes of the Federal Ministry for Economic Affairs and Climate Action can be found at www.digitale-technologien.de.

2 Funding scope

The aim of the call for proposals is to develop, trial and apply platforms, tools, methods, business models, use models and standards for the economic development and integration of digital technologies in the field of sustainability. The supported projects are to trigger a decisive boost to the ecological transformation of the economy, particularly in terms of climate action and environmental protection.

The call addresses digital technologies and sustainability at three levels:

1. Sustainability via digital technologies
2. Sustainability of digital technologies
3. Using digital technologies to measure sustainability

The project sketches to be submitted (cf. No. 4) are to be categorised in at least one of the levels. The development fields cited below are merely illustrations and do not represent an exhaustive list of possibilities. Submissions of project sketches are also welcome in other development fields in the three levels.

1. Sustainability via digital technologies

Digital technologies offer the chance to make products and processes more efficient and less resource-intensive. Also, digital platforms can be used to couple different sectors and to leverage synergies between sectors. Furthermore, digital solutions offer the opportunity to network existing supply and recycling chains and turn them into circular value chains.

The projects might address the following development fields:

- Smart, emission-reducing product development and machinery control using green digital twins
- Sector-coupling exchange platforms with open-source standards and interfaces
- Digital tools for the efficient design of circular value chains
- Innovative use of robotic systems in the recycling sector (desirable with the use of the SeRoNet platform)

2. Sustainability of digital technologies

Digital technologies consume resources like rare earths and energy in their production and operation, and themselves generate greenhouse gas emissions. For this reason, a second thematic area is that of sustainable development, sustainable design and the sustainable use of the digital technologies themselves.

The projects might address the following development fields:

- Developer tools which support green coding principles
- Optimised resource management of software and hardware (e.g. communication networks)
- Storage systems based on data minimisation principles
- Efficient concepts for the training of AI models (e.g. via federated learning or the recycling of AI models)

3. Using digital technologies to measure sustainability

Investors, companies and consumers need information about the sustainability criteria of a product or a service so that they can invest and consume in a sustainable manner. Digital technologies can be used here to make sustainability more measurable and comparable. In the context of this call, solutions are to

be developed and tested which make it possible to archive and evaluate the sustainability criteria, e.g. the carbon footprint of systems, processes, a product or a service, on the basis of real-time data in a uniform, transparent and seamless manner.

The projects might address the following development fields:

- Analytical tools for the measurement of emissions and inefficiencies on the basis of real-time data
- Decentralised digital (object) identities and digital product passes in order to assign emissions to specific products and services and to enable traceability along value chains.
- Green digital twins to provide and model information which is difficult to ascertain, in order to establish a relevant data basis

The starting point for the solutions to be developed should be technical systems using digital technologies (e.g. AI, robotics, data-driven business models, etc.). However, the solutions which are developed should be viewed in a holistic way. For example, the technical system must be embedded in a use concept which incentivises sustainability and a corresponding business model which combines ecological and economic aspects.

Digital technologies offer a great deal of potential for sustainability in their applications across the economy. The call for proposals is therefore deliberately sector-neutral and technology-neutral. Effects on the entire value, supply and recycling chain and adjacent sectors are if possible to be included in the concept in order to facilitate a holistic perspective. Rebound effects must be avoided.

In principle, current findings from applied research should be used, so that these can be integrated and developed in overarching conceptual systemic solutions.

3 Grant provisions

The grant provisions and the nature and level of the grant are set out in the afore-mentioned "Development of digital technologies" funding programme. The financial arrangements for the projects awarded funding must be made via profi-Online. The following framework rules apply specifically to this call for proposals:

3.1 Funding volume

Subject to availability of budgetary funding, funding of up to €75 million is available for this call for proposals.

3.2 Implementation period

The date of the project launch is 1 May 2023. The duration of the projects is to be oriented to a maximum of 36 months.

3.3 Funding instruments

Funding is to go towards applied projects and technology projects in line with No. 2.2 of the funding programme (rough dimensions: grant of three to ten million euros; three to seven partners). It is expected that all the assisted project partners will make their own, substantive contributions to the attainment of the project objectives. It is possible to subcontract R&D work.

It is possible to include international partners in the project (e.g. via the international EUREKA R&D network). However, the international partners cannot be funded by the German side.

3.4 Language of communication

All official documents for this call have to be provided in German, especially the sketches and the full application. Thus, this document should only be seen as a means of orientation.

4 Procedures

Generally applicable details can be found in No. 7 of the “Development of digital technologies” funding programme.

Applications to participate in this call for proposals take place in a two-stage process; in a first stage, it is necessary to submit a project sketch as a basis for the evaluation and selection of the best project proposals which may benefit from funding. In a second stage, the project management agency of the Federal Ministry for Economic Affairs and Climate Action calls on the selected applicants to submit formal funding applications for their projects. It must be noted that, due to a lack of budget funding, it is not normally possible to fund all the projects.

The selection process leading up to the launch of the projects on 1 May 2023 is divided into four phases: submission of idea application, evaluation, full application and approval. Figure 1 provides a rough outline of the process. The individual phases, with relevant deadlines, events and information, are described in detail below.

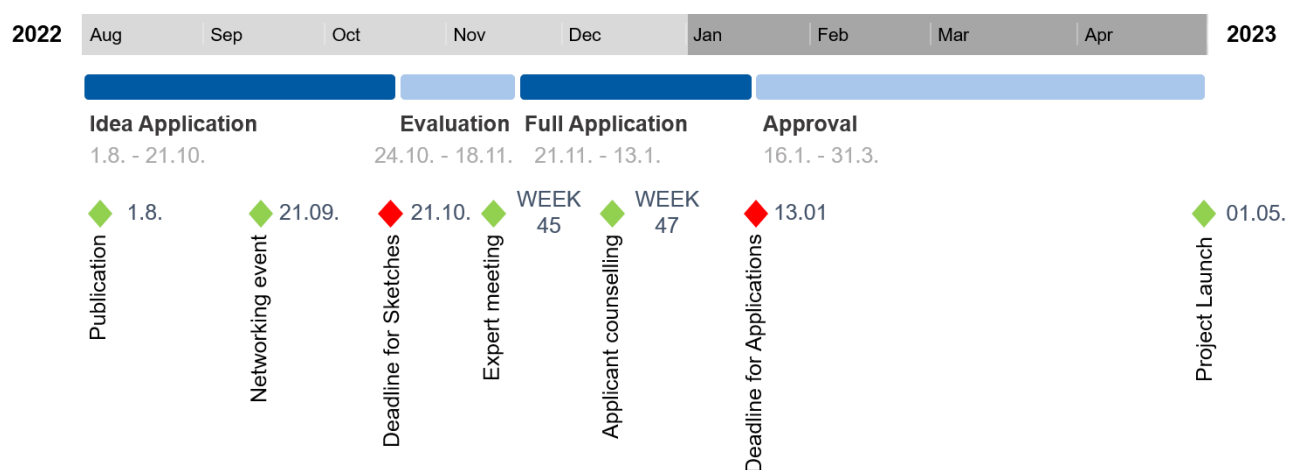


Figure 1: Call for proposals: process up to launch of projects

4.1 Idea Application

The phase in which the project sketches are submitted commences when the call for proposals is published on 1 August 2022. **This phase ends at 12 noon German time on 21 October 2022 – the deadline for the submission of project sketches. Sketches submitted after this deadline cannot be considered.**

Sketches must be structured as shown in the template.

The sketches must be submitted via this link: <https://ptoutline.eu/app/green-tech>. Further information about participation in the competition can also be found via the link.

Those interested in obtaining funding should form consortia to submit the project sketch. If possible, a company should be responsible for leading the consortium. A substantial involvement of small and medium-sized companies is explicitly desired. The partnering portal <http://partnering.pt-dlr.de/green-tech> can be used to find interested partners.

A **networking event** will also be held (probably on 21 September 2022) to facilitate the formation of consortia. Parties interested in networking should contact the people mentioned below in advance. They will then be given a template for a presentation / search profile and more information about the event.

4.2 Evaluation

The evaluation phase follows immediately after the idea application phase in which the project sketches are submitted. At the beginning, internal and external evaluators will make a shortlist of the submitted sketches. The projects on this shortlist will then be invited to attend a virtual **meeting of experts**, probably in the week beginning 7 November 2022 (45th calendar week). The evaluation process will be in line with the description in the funding programme (7.4). The parties submitting the selected sketches are obliged to attend the virtual meeting. The results will be announced, with the invitation to submit applications, shortly after the meeting of experts.

The **selection criteria** for the project sketches are oriented to the purpose of the funding (cf. 2.). Also, the sketches are selected in line with the overarching and formal selection criteria and their weighting as described in the funding programme (cf. 7.2 of the funding programme). These criteria must be built into the project sketch via specific details/variables. Also, the evaluation will be based on a rough project and work plan, a financing plan, the presentation of the individual goals and milestones, and a rough commercialisation plan showing the marketing potential.

4.3 Applications

Once the parties have been invited to submit applications, these must be made via the easy-Online portal. The specific link will be provided when the recommendation to submit the application is made. Other information necessary for participation in the competition can be found at www.digitale-technologien.de.

In order to improve the accessibility of state funding for R&D, **advice on how to apply** is offered at the beginning of the application phase. The advice session will be offered in the week beginning 21 November 2022 (47th calendar week).

The deadline for the submission of applications will be 12 noon German time on 13 January 2023.

4.4 Approval

The applications will be treated confidentially. The project management agency entrusted with the implementation is:

Deutsches Zentrum für Luft- und Raumfahrt e. V (German Aerospace Center (DLR))
DLR Projektträger; Digitale Technologien

The processing of the application will take place in cooperation with the applicant. It may be necessary to provide additional documentation and information.

5 Other provisions

The submission of the application documents signifies acceptance of the conditions for participation in this call for proposals and the “Development of digital technologies” funding programme.

6 Contact points

The following people at DLR will gladly advise you about the call for proposals:

Contact persons for substantive questions:

Mr Markus Zabelberg, email: pt-foerderaufrufe@dlr.de, tel.: +49 228 3821 2457

Ms Christiane Graß, email: pt-foerderaufrufe@dlr.de, tel.: +49 228 3821 2410

Contact persons for the management of funding:

Mr Belal Sabzehi, email: pt-foerderaufrufe@dlr.de, tel.: +4922838212312

Berlin, 1 August 2022

Federal Ministry for Economic Affairs and Climate Action

For the Minister

Ministerialrat Axel Voß