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Klimaschutz, Umwelt,
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Innovation und Technologie

THIS ENGLISH VERSION OF THE CALL GUIDELINE OF TOPIC 1 SERVES AS AN ADDITIONAL SERVICE FOR FUNDING RECIPIENTS. THE REGULATIONS IN THE GERMAN VERSION OF THE GUIDELINE ARE LEGALLY BINDING.

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**VIRTUAL WORLDS AND DIGITAL
SOLUTIONS FOR HEALTH
CALL GUIDELINE TOPIC 1 (ENGLISH
VERSION)**

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2 OBJECTIVES OF THE CALL

This Call addresses issues in the field of “Digital and Key Technologies”. A technology campaign for applied research and technology development has been established as part of the [RTI Strategy 2030](#). The aim is to strengthen the research and development of key technologies in the field of digitalisation, and in particular to support the development of new digital products and services.

The Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) intends this Call to make a comprehensive contribution to the research and development of digital technologies and to address two research fields: the development of advanced technologies in the field of digital technologies and the needs-based development of digital solutions.

The topic “Virtual and Hybrid Worlds” is designed to promote the technology-driven development of digital technologies that facilitate the connection between digital and real objects and environments. “Evidence-based Digital Solutions for Health” focuses on the needs-based development of digital solutions for the treatment and prevention of specific diseases.

Cooperative R&D projects and qualification networks are funded in both call topics. This is intended to support several strategic Call objectives included in the 2024-26 financing agreement.

The Call addresses the following objectives:

- **Technology sovereignty and open technology solutions**
Digital and key technologies should be enhanced in order to develop and strengthen European value networks. The aim is to drive the development of cutting-edge technologies and expand existing areas of strength.
- **Achieving technology acceptance and developing ecosystems**
The aim is to create acceptance for the application of digital and key technologies, and to encourage the establishment and further development of flexible and collaborative creative ecosystems. These should be designed to support collaboration between different actors and thus promote the development and use of digital and key technologies.
- **Tackling societal challenges**
Promoting digital and key technologies helps tackle societal challenges such as climate and demographic change, and strengthen democracy and societal resilience. The Call focuses on digital technologies designed to meet challenges in the health sector.

– **Competence and capacity building**

A strong focus is on developing competencies and capacities, supporting young talent, and promoting diversity and gender equality in the field of digital and key technologies. This provides a multi-perspective view on the project and the resulting products.

The different call topics and funding instruments are designed to support the various objectives of the Call. Their alignment with the strategic objectives are shown in the following table.

Table 1 Strategic objectives of the call topics and funding instruments

	Cooperative R&D Projects	Qualification Networks
Virtual and Hybrid Worlds	<ul style="list-style-type: none"> • Technology sovereignty and open technology solutions • Achieving technology acceptance and developing ecosystems 	<ul style="list-style-type: none"> • Competence and capacity building
Evidence-based Digital Solutions for Health	<ul style="list-style-type: none"> • Achieving technology acceptance and developing ecosystems • Tackling societal challenges 	<ul style="list-style-type: none"> • Competence and capacity building

The detailed objectives are specified in the corresponding Call topics.

It is possible to propose both a qualification measure and a thematically related R&D project in this Call. The two submissions will be evaluated individually and independently of each other.

3 CALL TOPICS

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The project must focus on one of the Call topics described below or an underlying research topic. The jury of experts will assess the extent to which the project content matches the Call topic.

Table 2 Call Topics

	Cooperative R&D Projects	Qualification Networks
Virtual and Hybrid Worlds	max. EUR 5.185.983	max. EUR 1 million
Evidence-based Digital Solutions for Health	max. EUR 2 million	max. EUR 0,53 million

3.1 Virtual and Hybrid Worlds

Funding instruments:

- Cooperative R&D Projects, Industrial Research or Experimental Development (max. funding EUR 1 million)
- Qualification Networks

3.1.1 Motivation and background

Virtual and hybrid worlds are becoming increasingly important and are opening many new possibilities in areas such as education, the green transition, art and design, entertainment, health, and industry. This importance is further enhanced by technological developments in audio and display technologies, AI, low-latency connectivity, and the convergence of different technologies. Virtual and hybrid worlds will significantly change the way people act, live, work and organise. This could also give rise to new ways of dealing with digital technologies which are based more on human intuition than on (previous) technical specifications. Like any effective technology, this change also harbours risks and must therefore be managed, to create an open, secure, trustworthy, fair and inclusive environment for citizens, companies and research.

European values can only be embedded in virtual and hybrid worlds when European citizens are involved in actively shaping these technologies. The European strategy [EU Initiative on Web 4.0 and Virtual Worlds](#) has been formulated to achieve this goal. The new European strategy aims to create Web 4.0 as well as virtual and hybrid worlds that reflect the EU's values and principles, in which human rights apply without restriction, and in which European companies remain competitive.

There are already developments at European and international level specifying the current definition of virtual worlds and Web 4.0 and these form the basis for the present Call. They include the [European Citizens' Panel on Virtual Worlds](#) and the aforementioned [EU Initiative on Web 4.0 and Virtual Worlds](#), as well as the [Immersive Technologies](#) Expert Group at the Global Forum on Technology.

Austrian companies, universities and research institutions are called upon to prepare the technical foundations for later applications so that future advancements accord with European values. It is vital to engage with virtual and hybrid worlds at an early stage in order to help shape technological development at European level and globally. For that reason, the BMK plans to support pioneering projects in this topic.

3.1.2 Thematic requirements

The topic “Virtual and Hybrid Worlds” is designed to connect digital and real objects and environments. Virtual and hybrid worlds include persistent, immersive environments based on XR (virtual, mixed or augmented reality) as well as digital representations of real processes, products or services, such as digital twins. For a project to meet the requirements of this topic, it must involve connecting or even merging the real and digital worlds and their objects.

Depending on the project content, the human contribution to problem solving must also be considered as a purely technical approach would be insufficient. Therefore, where relevant, the project content must consider diversity aspects (including gender) in order to reflect the diverse nature of humanity. A diverse team is further support in meeting this requirement.

Applications for cooperative R&D projects must also consider technology sovereignty and corresponding ecosystems (see section 3.1.3 for more details).

The technical solution must guarantee interfaces, human-machine interaction, safety & security and the use of data.

The projects submitted under this topic must address at least one of the requirements described below.

3.1.2.1 Interface technology

A key focus lies on the interfaces between the physical and virtual worlds, as well as those between different virtual or hybrid worlds or objects in order to ensure interoperability. Communication between real and digital objects in particular is essential for immersive experiences. Corresponding interfaces are also required for Web 4.0. Technologies must support effective interaction and provide the appropriate interfaces. New technologies must be designed to improve information throughput and ensure interaction.

3.1.2.2 Human-machine interaction

New technologies should ensure interaction between humans and machines, providing an immersive experience of the digital environment. Human-machine interaction requires input from applied cognitive science, e.g. for measuring, modelling and consideration of user attention in end user systems (‘attention-aware computing’). Advanced interaction technologies, including brain-computer interfaces, can be submitted within the framework of this Call.

A purely technical approach to human-machine interaction is insufficient as this would not adequately consider the human contribution to problem solving. Consequently, the project content must consider diversity aspects, as outlined in section **Fehler! Verweisquelle konnte nicht gefunden werden.3.1.2**

3.1.2.3 Safety & security

Users must be able to trust that any object is both safe and secure in terms of the object's influence on its environment, and the influence of the environment and users on the object itself. Both safety and security aspects must be taken into account in the development of any system.

The specific research areas have different characteristics:

- Integrated design and development processes that consider the challenges of security and safety and their interdependencies as early as the system design stage. The challenge of ensuring integrated data protection (privacy by design) should be noted here.
- Broad and universally accepted solutions in the field of user-focused security.
- System networking at all levels – on a large scale (cloud computing) and a small scale (elements of the Internet of Things) – depends on secure systems. This requires scalable approaches to protecting systems from misuse on a variety of levels as well as the hardware itself.

3.1.2.4 Data use

The focus lies in linking and utilising existing and newly added data.

Data analysis and integration deals with the processing and analysis of data in any form (e.g. images, videos, audio documents, human language). Challenges include the aggregation or fusion of multimodal or heterogeneous data, as well as new, efficient and scalable methods for dealing with real-time data streams and data complexity. There are also challenges in data extraction and data retention.

It is recommended that cooperative R&D projects enable connection with existing data spaces or the creation of new data spaces (see also section 4.2 on the data management plan). With respect to technology sovereignty (see section 3.1.3), cooperative R&D projects should also consider the data sovereignty needed for the project or its subsequent commercial exploitation.

3.1.2.5 Examples of project content

The projects could tackle challenges such as the following:

- Deeper immersion in a virtual reality (e.g. human-computer interaction & technology experience)
- Technologies for digital mapping of real-world processes, products or services (creating a connection between digital and real objects and environments, e.g. climate twin)
- Merging the physical and virtual worlds (e.g. digital identity, ownership in the digital sphere, compliance with the Data Act, interaction between the virtual and real world, technologies for scenario simulations by emergency services)
- Reducing the energy consumption of virtual and hybrid worlds
- Combining different technologies (e.g. photonic systems)

3.1.3 Requirements for cooperative R&D projects

Cooperative R&D projects should develop or enhance existing digital technologies in compliance with the requirements set out in section 3.1.2.

The distinction between new development and enhancing existing developments is reflected in the choice of research category: Industrial Research for new development, and Experimental Development for further development. For more information on the two research categories, please refer to the Guidelines for Cooperative R&D Projects.

Both software and hardware projects are welcome.

3.1.3.1 Technology sovereignty

Research and development in digital technologies must be set in the context of European technological sovereignty. Therefore, European developments must be considered and used where appropriate. By opening up new applications and application fields, technologies for virtual worlds can help establish European technological sovereignty. Equally, external project dependencies must be listed in the risk analysis or the description of commercial exploitation, according to the nature of the dependency. Examples would include dependence on available data or components (e.g. virtual glasses, software).

3.1.3.2 Consideration of regulations, framework conditions and standards

The project proposals must examine whether or which national and international regulations, legal framework conditions and standards are relevant to the project, and address them as required. This must be presented accordingly in the application. Where relevant to the use case, there should be close cooperation between the actors involved from an early stage, which must be reflected in the work plan and cost plan.

R&D projects can encourage technology acceptance by supporting compliance with European values and principles.

3.1.3.3 Interdisciplinarity

The projects submitted should play a role in establishing or enhancing ecosystems in which diverse actors work together. Therefore, the partners in the project consortium should represent a diverse range of professional backgrounds.

The methodical collaboration between the different disciplines must be clearly set out in the application so that it can be properly evaluated and must be adequately accounted for in the work plan.

Applications for cooperative R&D projects must be submitted in English.

Please note the other Call requirements in section 44

4 OTHER REQUIREMENTS

4.1 Requirements for costs and personnel

Cooperation with the following BMK initiatives for funded cooperative R&D projects should be taken into account in the cost plan by including 2 working days for each initiative (i.e., a total of 4 working days):

- The BMK offers a “Data Steward for R&D Projects” service for funded projects, which aims to support the further development of the DMP.
- For networking with other funded projects.

The applicable cost and accounting regulations are available in the Cost Guidelines. In order to eliminate ambiguity regarding cost items, the key provisions are as follows:

- In the case of funding for travel expenses, the travel activity must be associated to the project and involve a publication or research and development aspect. Costs for travel of a predominantly educational nature as part of R&D projects (e.g., participation in summer schools) or sales nature (e.g., visits to trade fairs) will not be recognised.
- Costs for marketing and customer acquisition are not eligible for funding in accordance with the Cost Guidelines.

4.2 Data Management Plan

Applicants for cooperative R&D projects under this Call are required to present a Data Management Plan (DMP) as an annex to the Project Description, which must be updated on a continuous basis as part of reporting.

A Data Management Plan (DMP) is a tool that supports the efficient and systematic management of all data generated throughout the duration of a project.

DMPs can be created, e.g., using the free tool [DMP Online](#). The [Guidelines on FAIR Data Management](#) of the European Commission also provide assistance in this respect.

A Data Management Plan describes

- what data will be collected, processed or generated within the project
- how these data will be handled in the project
- what methods and standards will be applied
- how the data will be curated and preserved over the long term, and

- whether it is planned to make datasets available to third parties for reuse (“open access to research data”)

It is sensible to ensure public access to research data which provide the basis for peer-reviewed publications and whose publication is necessary to reproduce and verify the published results.

In the event of publication, the data should be "findable, accessible, interoperable and reusable". Storing data in established and internationally recognised repositories is recommended in order to ensure broad access (see [re3data website](#)).