



HORIZON 2020

LE PROGRAMME DE RECHERCHE ET
D'INNOVATION DE L'UNION EUROPÉENNE

**Research & Innovation funding opportunities for Big Data
in Horizon 2020 Work Programmes (2018-2020)**

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Excellent Science (24.4 B €)

European Research
Council
(13.1 B €)

Future and Emerging
Technologies
(2.7 B €)

Marie Skłodowska-Curie
Actions
(6.1 B €)

Research Infrastructures
(2.5 B €)

Industrial Leadership (17 B €)

LEIT = Leadership in
enabling and industrial
technologies

- ICT
- Nano, new materials
- Biotechnology
- Space

(13.5 B €)

Access to Risk Finance
(2.9 B €)

Innovation in SMEs
(0.6 B €)

Societal Challenges (29.7 B €)

Health
(7.5 B €)

Food
(3.9 B €)

Energy
(6 B €)

Transport
(6.3 B €)

Climate
(3 B €)

Inclusive Societies
(1.3 B €)

Security
(1.7 B €)

Science

Market

Spreading Excellence (0.8 B €)

Science for Society (0.5 B €)

EIT (2.7 B €)

JRC (1.9 B €)

Euratom (1.6 B €)

Types of projects

Research and Innovation actions

Grant – up to 100 % of eligible costs

Consortia of partner, industry and academia, from at least 3 different EU countries or associated partners

Funding for research projects tackling clearly defined challenges, which can lead to the development of new knowledge or a new technology, new products, services or solutions

May be included related to the main topic, but limited demonstration or pilot activities

Innovation actions

Grant – up to 70 % of eligible costs
(except for non-profit legal entities, where a rate of 100 % applies)

Consortia of partner, industry and academia, from at least 3 different EU countries or associated partners

Funding is more focused on closer-to-the-market activities. For example, prototyping, testing, demonstrating, piloting, scaling-up etc. if they aim at producing new or improved products or services.

Coordination & Support actions

Grant – up to 100 %

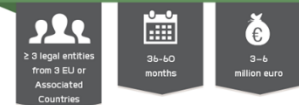
Single entities or consortia of partners from different countries, industry and academia.

Funding covers the coordination and networking of research and innovation projects, programs and policies. Funding for research and innovation per se is covered elsewhere (standards, result dissemination, awareness campaign, communication, research and experience exchange)

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The most common project types

RESEARCH & INNOVATION ACTION (RIA)



100% Funding Rate

- I) Joint research and development (R&D),
- II) Limited testing and demonstration of technologies / results,
- III) Usually more than two thirds of efforts dedicated to R&D.

INNOVATION ACTION (IA)



100% Funding Rate

- I) Joint development of new, adapted or improved products, processes or services.
- II) Extensive testing and demonstration of technologies / products.
- III) Usually more than two thirds of efforts and funding dedicated to demonstration activities and company partners.

COORDINATION & SUPPORT ACTION (CSA)



100% Funding Rate

- I) Accompanying measures to support & RD and innovation activities
- II) Contribution to standards, dissemination, policy and other areas
- III) No research activities.

SME INSTRUMENT (SME INSTRUMENT)

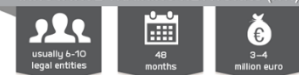


Phase 1: lump-sum funding
Phase 2: 100% (in selected cases)

100% Funding Rate

- I) Feasibility study in Phase 1.
- II) Validation (i.e. testing and demonstration) of technology / product.
- III) Commercialisation support.

MARIE SKŁODOWSKA CURIE ACTIONS (MSCA) INNOVATIVE TRAINING NETWORKS (ITN)

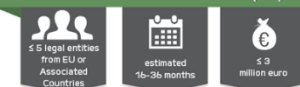


Funding Rate

Fixed allowances for salaries, consumables, training, management and overheads

- I) Training of early-stage researchers to provide enhanced career perspectives
- II) Raise excellence and structure research and doctoral training
- III) Foster international, interdisciplinary and intersectoral mobility

FAST TRACK TO INNOVATION (FTI)



70% Funding Rate

- I) Joint development of new, adapted or improved products, processes or services
- II) Testing and demonstration of technologies / products
- III) Product- / market-driven projects, led by companies.

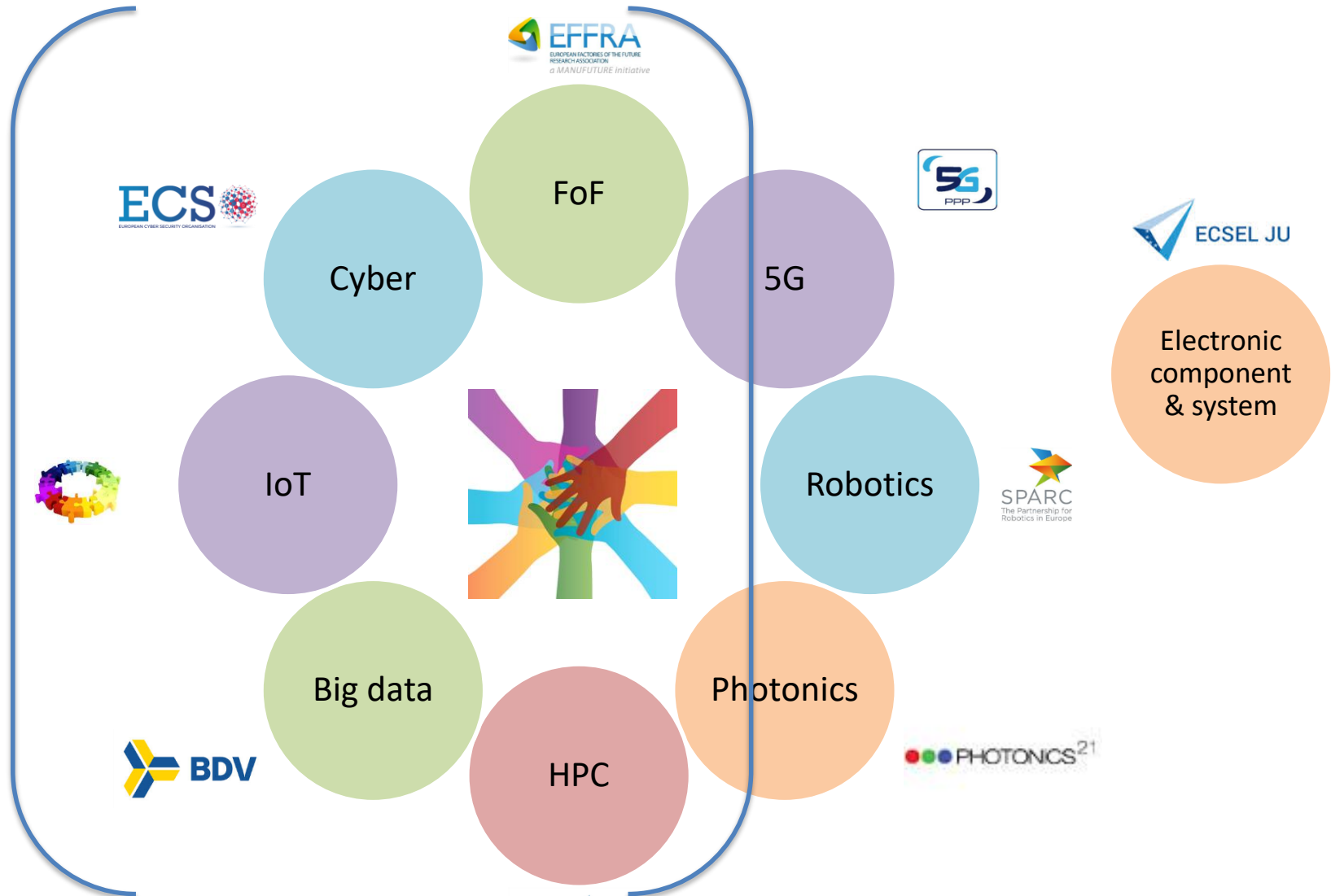
EUROPEAN RESEARCH COUNCIL GRANTS (ERC)



100% Funding Rate

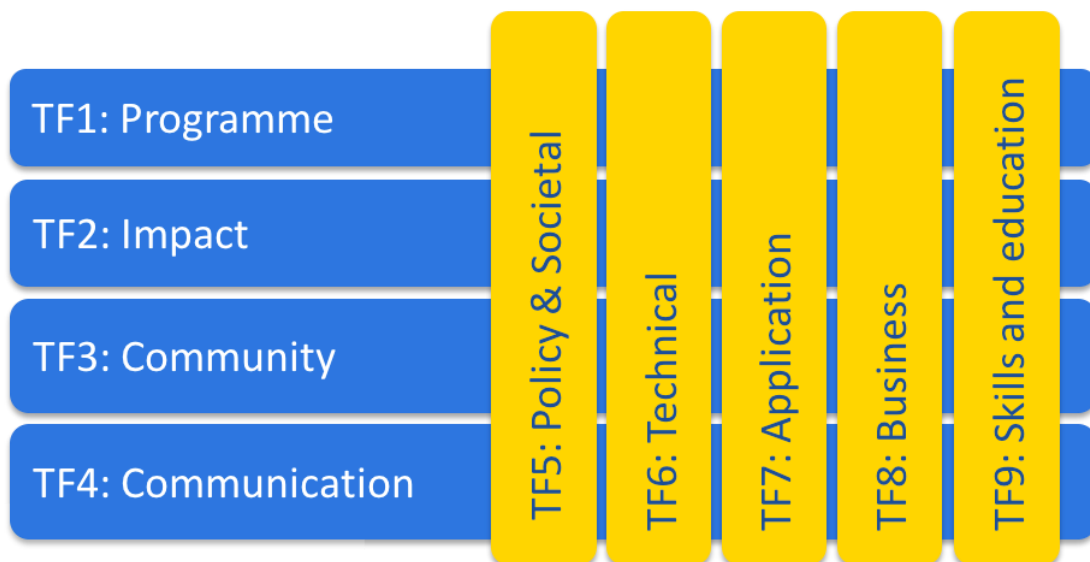
Support excellent researchers to perform ground-breaking, high-gain/high-risk research

Public Private Partnerships influencing ICT





BDVA operational structure: Task Forces and Subgroups



Big Data Value Multiple Dimensions of Big Data



BDV SRIA

Big Data Value Strategic Research and Innovation Agenda

VERSION 3.0 January 2017

BIG
DATA
VALUE

The New Economic Asset for Europe

www.bdva.eu

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Big Data in Excellence Science

- **Bottom-up individual projects**
 - *ERC*
 - *Marie Sadowska Curie Actions*
- **Bottom-up collaborative projects**
 - *FET Open*
- **FET collaborative project with focus on Big Data**
 - *FET proactive*
 - *PPP HPC*

FET Proactive

FETHPC-02-2019: Extreme scale computing technologies, methods and algorithms for key applications and support to the HPC ecosystem

- Convergence of HPC, Big Data and Cloud Computing technologies
→To create, a leading European High Performance Computing and Big Data research and industrial ecosystem
- **Research & Innovation Actions**
 - *Project funding: between EUR 5 and 10 million euros and a duration of 3 years*
- **Budget 64ME**
- **Deadline: Sept 24th, 2019**

5 sub-topics in FETHPC-02-2019

- a. **System software and management**, addressing adaptive and dynamic scheduling; heterogeneity of system components; efficient data access, transfers and communication, **novel execution models for emerging HPC and High Performance Data Analytics (HPDA) usages**, etc.
- b. **Programming environments**, reducing programming complexity and increasing scalability through advancements throughout the programming model and system software stack, and addressing code maintainability and functional portability across existing and future architectures and systems. Interoperability throughout the programming environment should be addressed.
- c. **I/O and storage environment for data-centric extreme scale computing** addressing overall system performance predictability, feature-rich and **flexible data access and storage system API's**, backup and retrieval of extreme volumes of data and systems operation in virtualised operating environment.
- d. **Data-intensive supercomputing** and emerging HPC use modes addressing **efficient implementation of established Big Data software frameworks and workloads on extreme-scale HPC systems**, including the integration of Big Data and HPC programming models; **algorithmic research addressing Machine Learning on HPC systems**; interactive use of HPC resources for real time data analysis.
- e. **Mathematical methods and algorithms for extreme scalability of computing and data with impact in system energy reduction and resilience**, and addressing the usability and the efficient implementation on different HPC architectures. Work should link to HPC and extreme scale data architectures and technologies as well as to relevant applications (e.g. challenges identified by the European Centres of Excellence on HPC).

Industrial leadership - ICT Programme (European Data Infrastructure: HPC, Big Data and Cloud technologies)

- **ICT-11-2018-2019: HPC and Big Data enabled Large-scale Test-beds and Applications**
- **Deadline November 14th, 2018**
 - ICT 11 (IA): 40ME
- **ICT-13-2018-2019: Supporting the emergence of data markets and the data economy**
- **Deadline March 18th, 2019**
 - ICT 13 (IA): 48ME

ICT-11-2018-2019: HPC and Big Data enabled Large-scale Test-beds and Applications

IA : Development of large-scale IoT/Cloud-enabled industrial pilot test-beds for big data applications by combining and taking advantage of relevant technologies (Big Data, IoT, cloud and edge computing)

- The aim is to develop industrial pilot test-beds addressing data flows from a very large number of distributed sources (such as sensors or IoT applications/infrastructures and/or involving remote data storage/processing locations)
- **Funding, between EUR 15 and 18 million**

Proposals should be led by and show strong industrial commitment. They should explain how the proposed activities will be industrialized and have impact on the competitiveness and leadership of European industry.

Stimulating additional private and public target investments in HPC and Big Data technologies from industry, Member States (smart specialisation) - Proposals combining different sources of financing should include a concrete financial plan

ICT-13-2018-2019: Supporting the emergence of data markets and the data economy

- ➔ **The lack of trusted and secure platforms and privacy-aware analytics methods** for secure sharing of personal data and proprietary/commercial/industrial data
- ➔ **The lack of ICT and Data skills** seriously limits the capacity of Europe to respond to the digitisation challenge of industry.
- ➔ Needs to be put in **involving SMEs and give them access to data**
- ➔ Needs for **standards and interoperability**.

3 types of projects and calls: IA, RIA, CSA

- IA for setting up and operating platforms for secure and controlled sharing of "closed data" (proprietary and/or personal data).**
- RIA: To advance the state of the art in the scalability and computational efficiency of methods for securing desired levels of privacy of personal data and/or confidentiality of commercial data**
- CSA: Support the emergence of a data economy by ensuring SME inclusion, entrepreneurial support and trust-building, address the data skills gap.**

DT-ICT-11-2019: Big data solutions for energy

➔ **Specific Challenge:** Tomorrow's energy grids consist of heterogeneous interconnected systems, of an increasing number of small-scale and of dispersed energy generation and consumption devices, generating huge amounts of data. **The electricity sector, in particular, needs big data tools and architectures for optimized energy system management** under these demanding conditions.

Scope: Innovation Actions : **large-scale pilot test-beds for big data application in the electricity sector. Develop/pilot and deploy a reference architecture for large-scale multi-party data exchange, management & governance and real-time processing** (including distributed/edge processing) **in the electricity sector** and to translate this reference architecture into an open, modular data analytics toolbox for the safe and effective operation of grids and provision of innovative energy services.

Proposers should demonstrate that they have access to appropriate large-scale datasets, and should involve the following types of participants: network operators, suppliers, independent aggregators, ESCO's, power exchanges, building management and renovation sectors, software integrators/developers.

Contribution from the EU of around 10 million EUR

Deadline: 02 April 2019

Budget: 30ME

Big Data in Societal Challenges

- Health
- Security
- Energy (see DT-ICT-11-2019: Big data solutions for energy)
- Humanities, economics
- Food
- Transport (no specific calls, but big data uses in some calls, example: Automated Road Transport)

SC1-BHC-13-2019: Mining big data for early detection of infectious disease threats driven by climate change and other factors

➔ The use of next generation sequencing combined with surveillance data and societal data from informal/non traditional sources (e.g. social media) holds promise for improving individual and population health. Current advanced IT technologies offer the opportunity to integrate such big data sets and could enable the rapid and personalised treatment of infected patients, and bolster the detection, tracking and control of infectious disease outbreaks.

- **Pooling, access, analysis and sharing of relevant data,**
- **Modelling methodologies that enable risk modelling and mapping**
- **Analytical tools for early warning, risk assessment and monitoring of (re-)emerging infectious disease threats.**

Solutions for interoperability between different data sources should be addressed
Appropriate regulatory and governance mechanisms need to be foreseen

Contribution from the EU of between EUR 12 and 15 million

RIA; Budget: 30 ME

Deadline: 16th April 2019

SC1-DTH-01-2019: Big data and Artificial Intelligence for monitoring health status and quality of life after the cancer treatment

➔ **Proposals** should focus and deliver on how to better acquire, manage, share, model, process and exploit big data to effectively monitor health status of individual patients, provide overall actionable insights at the point of care and improve quality of life after the cancer treatment.

Relevant solutions include for example systems for **determining and monitoring the combined effects of cancer treatment, environment, lifestyle and genetics on the quality of life, enabling early identification of effects that can cause development of new medical conditions and/or impair the quality of life.**

Information can be collected from traditional sources of health data (comprehensive electronic health records incl. genetic data, validated biomarkers for remission), from new sources of health data (mobile health apps and wearables) and from sources that are usually created for other purposes such as environmental data.

Contribution from the EU of between EUR 3 and 5 million

RIA, Budget: 35ME

Deadline: 24 April 2019

TRANSFORMATIONS-13-2019: Using big data approaches in research and innovation policy making

➔ **Specific Challenge:** To exploit the potential of big data approaches for research and innovation policy making by providing more timely and in depth information on the **performance of the research and innovation system and its links to productivity growth.**

RIA: Proposals should aim at exploiting the potential of big data to produce information on research and innovation activity, performance, output and/or impact which has the **potential to be available in real time, focusing notably on research and innovation investments in the private sector, public-private cooperation and technology diffusion between private actors.**

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 1.9 million

1 project will be funded – RIA; Budget: 1,9ME

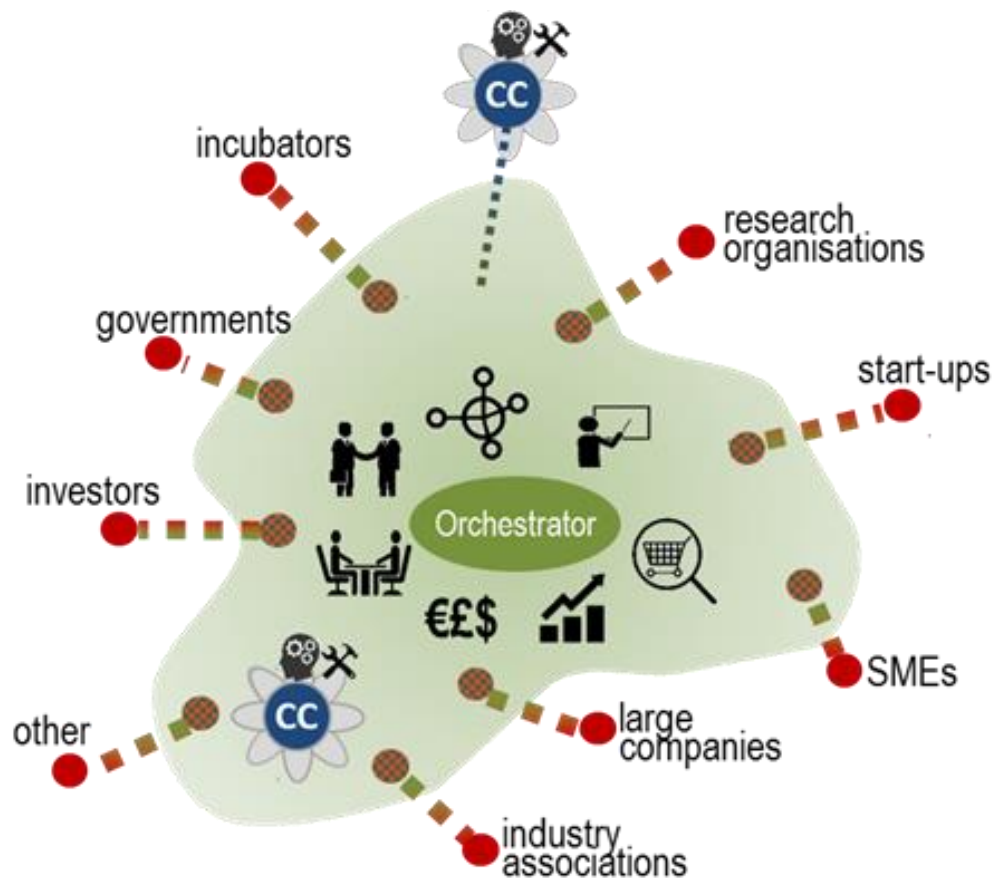
Deadline: 14 March 2019

DT-ICT-05-2020: Big Data Innovation Hub

★ To be defined, call in 2020

A one-stop-shop providing services to companies in the region through a multi-partner cooperation

- Awareness Creation around Digital Technologies
- Innovation Scouting
- Digital Maturity Assessment.
- Visioning and Strategy Development for Businesses:
- Brokering/matchmaking
- Access to Specialist Expertise and Infrastructure
- Mentoring
- Training
- Access to Funding and Investor
- Readiness Services
- Collaborative Research



EURO-HPC Joint Undertaking Initiative

En préparation!!

- ➔ The Joint Undertaking will support the **acquisition and interconnection of world-class supercomputers**, including two pre-exascale systems (capable of a hundred million billion or 10 puissance 17 calculations per second) in the global top 5 and at least two petascale systems (capable of a million billion or 10 puissance 15 calculations per second) in the global top 25.

The EuroHPC Joint Undertaking will be jointly funded by its public members with a budget of around **EUR 1 billion**. The EU's financial contribution is **EUR 486 million**, which will be matched by a similar amount from participating countries. The private members will also provide additional contributions in the form of resources to the value of over **EUR 400 million** through participation in the Joint Undertaking's activities.

EuroHPC Joint Undertaking will be established in October 2018 and remain operational until the end of 2026. By the end of 2018 or early 2019, its Governing Board, in cooperation with the Industrial and Scientific Advisory Board, will define its Work Programme for 2019-2020.

http://europa.eu/rapid/press-release_MEMO-18-5901_en.htm

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+ Collaborations avec la SATT Sud-Est

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<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html>

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