Bavarian Research Alliance

EU-Funding for Robotics- Research and Innovation

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Main Robotics-Calls in H2020

Various types of calls/topics: **RIA, IA, CSA** (according to funding and thematical area)

1. **ICT-46-2020:**
   Robotics in Application Areas and Coordination & Support

   a) **Research and Innovation Actions (RIA): Robotics Core Technology**

   b) **Innovation Actions (IA): Robotics for Agri-Food and Agile Production**

   c) **Coordination and Support Actions (CSA): Robotics**

2. **ICT-47-2020:**
   Research and Innovation boosting promising robotics applications (RIA)

Focus on Robotics-ICT in Horizon 2020

Topic-ID	Budget [Mio. €]	Expected funding
ICT-46-2020: (RIA) Robotics in Application Areas and Coordination & Support	41.5	6 - 7 projects, at least one per core technology
ICT-46-2020: (IA) Robotics in Application Areas and Coordination & Support (IA)	41.5	6 - 7 projects, at least 3 per application area
ICT-46-2020: (CSA) Robotics in Application Areas and Coordination & Support	3	1 project
ICT-47-2020: (RIA) Research and Innovation boosting promising robotics applications	20	7 – 10 projects

ICT-46-2020: Robotics in Application Areas and Coordination & Support

- RIA, IA & CSA
  - RIA: 41.5 Mio € / 6 - 7 Mio € per project, presumably 6 - 7 financed projects, at least one per core technology
  - IA: 41.5 Mio € / 6 – 7 Mio € per project, presumably 6 – 7 financed projects, at least 3 per application area
  - CSA: 3 Mio € / 3 Mio € per project, 1 financed project

- Deadline: April 22nd, 2020

ICT46 Challenges

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- Address **technical and non-technical issues** in a **MODULAR** and **OPEN** way
  - „**open**“: not content, but **module interface**
  - **Proprietary components / software**, or connected to underlying proprietary software/hardware
  - **Interconnectable systems** deployed in demonstrators

- **Remove** (technical and non-technical) **barriers** that prevent a **widespread adoption of robots**:
  - safety, cybersecurity, privacy, ethical, legal, gender

- Consider user needs, societal and economic aspects

ICT46 Challenges

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- **Increase autonomous capabilities** beyond SoA

- Prove and test through **pilot demonstrators** embedded in real / near-real environments

- **4 priority areas**:
  - healthcare,
  - inspection and maintenance of infrastructure,
  - agri-food,
  - agile production

  - choose one of them

ICT46-RIA Scope

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- Improve autonomy in **ONE** core technology (specify!):
  - AI & Cognition
  - Cognitive Mechatronics
  - Socially cooperative human-robot interaction
  - Model-based design and configuration tools

- Develop **core technologies (modular, open and non-proprietary) / toolkits** for deployable system platforms in **ONE** priority application area
  - (healthcare, inspection & maintenance of infrastructure, agri-food, agile production)

- Connect to running **Robotics DIHs** (DT-ICT-02-2018)
  - DIH HERO, RIMA, agROBO Food, DIH^2, Trinity

ICT46-RIA „Instructions“

- **Step change novelty**, not incremental advance
- **TRL3** and above, to be accurately accounted
- **Real impact** of the proposed technical advance
- **Lowering technical barriers** in prioritized application area
- Ressources for linking with DIHs

ICT46-IA Scope

- Establish **large-scale pilots** to demonstrate the use of robotics in highly realistic environments
- Showcase advanced prototyping applications in **real or near-real environments**
- Demonstrate **high levels** of socio-economic impact
- **Two application areas** (choose one):
  - Agri-food from farming to processing and distribution
  - Agile production
- Define **platform interfaces** based on suitable reference architectures, to be rolled-out and evolve into **standards**

ICT46-IA Scope

Large-scale pilots shall:

- Use **existing infrastructures**
- Develop **scalable technical solutions**
- Establish **strong collaborations** for innovative robotics applications in industry
- Develop **metrics for performance**
- Address **technical and non-technical issues**: socio-economic impact, novel business models, legal and regulatory, ethical and cybersecurity

ICT46-IA „Instructions“

- Clear linkage to running **Robotics DIHs**
- Potential for **impact at scale** in the chosen application area
- Sufficient capacity to **construct, deploy and disseminate the pilot**
- **Sustainability beyond funding**

ICT46-CSA Scope

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- Support actions that develop **awarness and knowledge transfer**
- Address issues concerning the **entire robotics community**
- Develop **high-level stakeholder forum & communication strategy**
- **Legal and societal issues** with respect to **AI-based robotics technology**
- **Dissemination** of best practive to robotics stakeholders

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ICT46-CSA „Instructions“

- Strategic engagement with stakeholders
- **Robotics as mission critical part of the AI strategy**
- Explore economic and strategic impact of robotics in multiple sectors

ICT47-2020: Research and Innovation boosting promising robotics applications

- RIA: 20 Mio € / 2 - 3 Mio € per project, presumably 7 - 10 financed projects

- Deadline: April 22nd, 2020

ICT47 Challenge

- **Enhance capabilities of robots** by exploring and developing opportunities from **novel technical developments** with respect to **physical intelligence**

- **Physical intelligence** from **combinations of underlying functional capabilities** developed beyond state of the art

ICT47 Scope

- **Innovative approaches** to **hard research problems**
- **Substantially improved solutions** to **challenging technical issues**
- Open to **all application areas**
- Demonstation of potential for **take-up** in the selected application
- Applications with **high socio-economic impact and low environmental footprint**

ICT47 Scope

Research areas:

- Autonomous micro- or milimeter scale robots
- Novel materials for service robotics
- Beyond human manipulation of objects
- Non-visual sensing novel for service robotics
- Intrinsically safe physical powerful robotic systems
- Variable/shared autonomy systems

ICT47 Scope

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- **Step change improvements** in technical performance from novel approaches (driven by a clear understanding of the SoA)
- **Techncial developments** that open new markets or application opportunities
- Well established **demonstrators of the improved performance** within **sufficiently realistic operating environments**
- Link with **running robotics DIHs**
- **TRL4** demos

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ICT47 „Instructions“

- **Unique solutions** that may cross discipline boundaries
- Balance of **technology capability** and **application awareness**
- Clear plan to construct **application relevant demonstrators**
- Plan for **engagement with DIHs** and other platforms

THANK YOU FOR YOUR ATTENTION!

Bavarian Research Alliance GmbH @ Bavarian Research and Innovation Agency

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