Horizon 2020 – Call "Automated Road Transport"

ERTRAC - Information Day
Brussels, 06 November 2015

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Automated Road Transport

R&I priorities

- Safe AD systems in complex traffic situations
- Detect vehicle location and environment
- Vehicle-driver interface
- User and social acceptance
- Connectivity for advanced level of automation
- Road infrastructure
- Automation Pilots

European Commission
Call on "Automated Road Transport"

- Key priority in the H2020 Transport Research programme
- Indicative budget: € 114 Mio
- Publication date: 14 October
- Priorities of this new call are fully in line with the Automated Driving Roadmap of ERTRAC

Focus of the Call

- Support the short term introduction of automated driving systems for passenger cars, trucks and urban transport
- "Large-scale Field Operational Tests" to test technologies in complex traffic and driving conditions
## Call "Automated Road Transport" topics and budget

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
<th>Stages</th>
<th>Budget (EUR Mio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART-02</td>
<td>Automation pilots for passenger cars</td>
<td>IA</td>
<td>2</td>
<td>48</td>
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<tr>
<td>ART-04</td>
<td>Safety and end-user acceptance aspects of road automation in the transition period</td>
<td>RIA</td>
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<tr>
<td>ART-05</td>
<td>Road infrastructure to support the transition to automation and the coexistence of conventional and automated vehicles on the same network</td>
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<tr>
<td>ART-06</td>
<td>Coordination of activities in support of road automation</td>
<td>CSA</td>
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<td>3</td>
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<tr>
<td>ART-01</td>
<td>ICT infrastructure to enable the transition towards road transport automation</td>
<td>IA</td>
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<tr>
<td>ART-03</td>
<td>Multi-Brand platooning in real traffic conditions</td>
<td>IA</td>
<td>2</td>
<td>50</td>
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<tr>
<td>ART-07</td>
<td>Full-scale demonstration of urban road transport automation</td>
<td>IA</td>
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</table>

*CSA = Coordination and Support Action  
IA = Innovation Action; RIA = Research and Innovation Action Action*
<table>
<thead>
<tr>
<th>Date</th>
<th>Call &quot;Automated Road Transport&quot; 2016-2017</th>
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</thead>
<tbody>
<tr>
<td><strong>2015</strong></td>
<td></td>
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<tr>
<td>14 October</td>
<td>Opening of 2016 call (ART-02, ART-04, ART-05, ART-06)</td>
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<td><strong>2016</strong></td>
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<tr>
<td>20 January</td>
<td>Deadline of 2016 call</td>
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<tr>
<td>26 January</td>
<td>Deadline for CSA (ART-06)</td>
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<tr>
<td>29 September</td>
<td>2nd stage deadline of 2016 call</td>
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<tr>
<td>20 September</td>
<td>Opening of 2017 call (ART-01, ART-03, ART-07)</td>
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Road vehicle automation - Funding opportunities in H2020

Call: Automated Road Transport

Call: Mobility for Growth
• Large-scale demonstration(s) on cooperative ITS (MG-6.2-2016)

Call "Internet of Things" (ICT Workprogramme)
• Large Scale Pilots (IoT-01-2016): Pilot on "Autonomous vehicles in a connected environment"

Call "Applications in Satellite Navigation – Galileo" (Space Workprogramme __)
• GALILEO-1-2017: EGNSS Transport applications

Calls of ECSEL Joint Undertaking
• Topic ECSEL-10-2015: Smart Mobility (on ICT components e.g. sensors, microsystems, data fusion)
Automation pilots for passenger cars

Challenge

- Test automated cars in mixed traffic situations on public roads

Scope

- Test readiness and reliability of automated driving technologies for passenger cars in Field Operational Tests (FOTs)
- Evaluate effects of AD systems in a mixed traffic environment and under different conditions
- FOTs are possible for all driving situations – Focus on Level 3!
- Testing in at least 3 countries
- Connectivity issues can be included in the FOTs
- Data collected should be made available through data sharing frameworks

Expected impact

- Demonstrate impacts in terms of road safety, transport management, energy use, etc.
- Better knowledge about user acceptance and behaviour

Estimated budget per proposal: EUR 18-36 Mio
Safety and end-user acceptance aspects

**Challenge**

- Develop automated driving technologies which are fully accepted by the users
- Ensure safety of automated driving systems (level 3) in all kinds of traffic situations.

**Scope**

- Analyse user requirements, expectations and concerns related to the use of automated driving systems.
- Design safe human-machine interface and driver monitoring strategies
- Develop fail-safe/fault tolerant systems and solutions for safe operations of AV in complex and mixed traffic situations.

**Expected Impact**

- AD systems which are fully safe, reliable and in line with user expectations
- Proper validation procedures for automated driving systems to test functional safety and performance

*Estimated budget per proposal: EUR 3-6 Mio*
Challenge

• Establish road infrastructure conditions to allow safe automated driving in the transition period

Scope

• New methods of traffic flow modelling
• Design, upgrading and adaptation of “hybrid” infrastructure.
• Required forms of visual and electronic signalling and optical guidance
• Best ways to enlarge the electronic road horizon for AVs
• New safety performance criteria for road infrastructure
• Due consideration of CEDR-funded projects expected

Expected impact

• Support stepwise introduction of automated driving by innovative modelling, design and engineering of road infrastructure

Estimated budget per proposal: EUR 2-5 Mio
Coordination of activities in support of road automation

**Challenge**

- More coordinated approach of Automated Vehicles testing
- More efficient sharing of data and experiences of different FOTs

**Scope** *(proposals should address area 1, area 2 or both areas)*

- **Area 1**
  - Solid knowledge base on all ongoing R&D;
  - Forum for National & European stakeholders;
  - Support international cooperation activities (USA, Japan)

- **Area 2**
  - Platform of data exchange of FOT
  - Strategy for sharing and exploiting collected data in National, European and international FOTs

**Expected impact**

- Provide comprehensive picture of the state of the art in terms of R&D in automated road transport
- Better visibility, comparability and transferability of available results and data from FOTs
- Foster better cooperation between researchers and other stakeholders in Europe and beyond

*Estimated budget per proposal: EUR 0,5-3 Mio*
ICT infrastructure for road transport automation

Challenge
• Improve connectivity required for advanced level of automation

Scope
• Development, testing and real-life validation of connected ICT infrastructure architectures
  • Functional & technical requirements for connectivity
  • Architecture, functional & technical requirements for data generation, processing, storage and retrieval
  • Tamper-proof in-vehicle platforms
  • Dynamic and accurate localisation and mapping

Expected impact
• Provide input for standardisation
• Demonstrate progress regarding real time control systems for automated driving and more reliable processing of information
• Opening up of services market

Estimated budget per proposal: EUR 5-15 Mio
Multi-Brand platooning in real traffic conditions

Challenge

- Foster Europe-wide deployment of platooning in real-life, mixed-traffic conditions.

Scope

- Develop, test and validate platooning concepts, technologies and functionalities
- Demonstrate feasibility and reliability of multi-brand platooning using C-ITS communication on a real corridor

Expected impact

- Increase energy efficiency of heavy duty traffic by about 15%
- Improve traffic management due to more efficient utilisation of road capacity
- Better safety of heavy duty vehicles in mixed traffic

Estimated budget per proposal: EUR 15-20 Mio
Full-scale demonstration of urban road transport automation

**Challenge**

- Proving reliability, safety, robustness of fully automated road transport in complex scenarios in urban areas

**Scope**

- Demonstrate fully automated vehicles in urban areas in full-scale tests at Pan-European level
- Fully integrated into existing public transport systems
- To be tested in urban/suburban areas in complex traffic scenarios
- Assess user acceptance and effects on transport demand and modal transfer

**Expected impact**

- Contribute to the development of modern, more efficient urban transport systems with reduced impacts on climate change, air pollution, noise, health, accidents.

*Estimated budget per proposal: EUR 10-15 Mio*

*SMEs participation encouraged*
EC and US DOT encourage twinning to exchange knowledge and experience and exploit synergies

Twinning activities are on voluntary basis

Full flexibility for defining twinning activities

Examples for twinning activities: exchanges of information, data, visits, methodologies, researchers, results, joint workshops, publications etc.

In the proposal phase:

1st stage proposal: broadly outline planned areas for twinning with US organisations

2nd stage proposal: specify the workpackages and tasks for "twinning" activities with US organisations

No need to specify US organisations in the proposal

FAQ will be available

Twinning is foreseen only for a selected number of topics
## Automation topics

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## ITS topics

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<th><strong>Innovative concepts, systems and services towards 'mobility as a service'</strong></th>
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<td><strong>Large-scale demonstration(s) of cooperative ITS</strong></td>
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<td>MG-6.3</td>
<td><strong>Roadmap, new business models, awareness raising, support and incentives for the roll-out of ITS</strong></td>
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Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020
www.ec.europa.eu/research/participants/portal/page/home