The EU Framework Programme for Research and Innovation

HORIZON 2020

Smart, green and integrated Transport

Work Programme 2016-2017

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Innovative Automotive Systems
Journée info transport, Ifsttar,
28/09/2015
EU Framework Programme for Research and Innovation

- € 79 billion from 2014 to 2020
- Biggest multinational research programme in the world

- Covers the full innovation chain

- Funds research in all areas of science and innovation
  - Excellent Science
  - Competitive Industries
  - Tackling global societal challenges

- 1st WP 2014 2015
- 2nd WP 2016 2017
- 3rd WP 2018 2019 2020
7 Societal Challenges (38.5% of H2020 funding)

- Health: 9.7%
- Food: 5%
- Energy: 7.7%
- Transport: 8.2%
- Climate: 4%
- Changing world: 1.7%
- Security: 2.2%
Transport is a main priority
- Budget: 6,339 b€

4 broad lines of activities
- Resource efficient transport
- Better mobility, less congestion, more safety and security
- Global leadership for the European transport industry
- Socio-economic and behavioural research and forward looking activities for policy making

Implemented by
- Long-term Public-Private Partnerships
- Collaborative Research Projects following Open Calls for Proposals (annually)
### Specific Programme 4 priorities

<table>
<thead>
<tr>
<th>'Resource efficient transport that respects the environment'</th>
<th>SUSTAINABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaner and quieter aircraft, vehicles and vessels</td>
<td></td>
</tr>
<tr>
<td>Smart equipments, infrastructures and services</td>
<td></td>
</tr>
<tr>
<td>Improved transport and mobility in urban areas</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>'Better mobility, less congestion, more safety and security'</th>
<th>SEAMLESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial reduction of traffic congestion</td>
<td></td>
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<tr>
<td>Improved mobility of people and freight</td>
<td></td>
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<tr>
<td>New concepts of freight transport and logistics</td>
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<tr>
<td>Reducing accidents and casualties, improving security</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>'Global leadership for the European transport industry'</th>
<th>COMPETITIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next generation of transport means</td>
<td></td>
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<tr>
<td>On board, smart control systems</td>
<td></td>
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<td>Advanced production processes</td>
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<tr>
<td>New transport concepts</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>'Socio-economic and behavioural research and forward-looking activities for policy-making'</th>
<th>RESPONSIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data, models and scenarios</td>
<td></td>
</tr>
<tr>
<td>User needs and behaviour</td>
<td></td>
</tr>
<tr>
<td>Transport economics</td>
<td></td>
</tr>
<tr>
<td>Policy support</td>
<td></td>
</tr>
<tr>
<td>Actions</td>
<td>Participants</td>
</tr>
<tr>
<td>----------------------------------------------</td>
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</tr>
<tr>
<td><strong>Research and Innovation Actions (RIAs)</strong></td>
<td><strong>Consortia</strong> of min. 3 partners from 3 different countries</td>
</tr>
<tr>
<td>Main focus on research</td>
<td></td>
</tr>
<tr>
<td><strong>Innovation Actions (IAs)</strong></td>
<td></td>
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<tr>
<td>Main focus on close-to-market activities</td>
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</tr>
<tr>
<td><strong>Coordination and Support Actions (CSAs)</strong></td>
<td><strong>Single entities</strong> or <strong>consortia</strong></td>
</tr>
<tr>
<td>Focus on coordination and networking of R&amp;I projects, programmes and policies</td>
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</table>
Transport Work Programme

Calls for proposals:
1) Mobility for Growth
2) Automated Road Transport  **New**
3) European Green Vehicles Initiative

Other activities
- Blue Growth (SC2/Food)
- ELENA Facility (SC3/Energy)
- SME Instrument
- Fast Track to Innovation
- LEIT/NMBP, ICT, Space; SC/Energy, Security, Climate; Smart Cities

Plus other actions (public procurements, ...)

Complementarities with
Clean Sky 2, SESAR, Shift2Rail, FCH2
What's new?

2016-2017 WP: continuity...
- Competitiveness + sustainability
- Systemic approach + modal specificities
- Research + Innovation = greater impact

...and novelties
- New Call: Automation in Road Transport
- New area: safety
- An inducement prize for the cleanest engine
- Better embedding of user needs, SSH, gender...
- International cooperation in many selected topics
International cooperation [1/4]

Global challenges call for global solutions

- Emissions, pollution, climate impact
- Oil dependency, energy efficiency
- Transport safety and security
- Standardisation of services, products and procedures

Local issues benefit from exchange of best practices

- Traffic congestion
- Land use planning
- Behavioural issues

...
Targeted Countries in WP 2016-17

US: Road transport automation, ITS, Green Vehicles, Safety, Infrastructure, Climate Change
China, Brazil and others: Green Vehicles, Safety
Africa: Road Safety and Traffic Management
+ many topics encouraging international cooperation
International cooperation [3/4]

28 Member States

12+1 Associated Countries
- Iceland
- Norway
- Albania
- Bosnia and Herzegovina
- FYROM
- Montenegro
- Serbia
- Turkey
- Israel
- Moldova
- Faroe Islands
- Ukraine (excl. Crimea)
- Switzerland (partial: not for transport)

Participants from any other Country can participate Those from developing Countries can also get funded
Twinning

- In some topics, proposals should foresee twinning with entities participating in projects funded by US DOT
- EC funds European projects, DOT funds the US ones
- DOT (or its Funding Agencies) identify US projects for twinning
- Projects on both sides agree on twinning activities and respective efforts
- Freedom to choose forms of collaboration (examples: exchange of information, data, visits, methodologies, researchers, results; joint workshops, publications etc.)
Objectives

- **Reconcile competitiveness and sustainability, improved mobility and economic impact**

  - Boost interconnection of infrastructure, transport means, travellers, goods
  - Optimise door-to-door mobility, increase safety and resilience, reduce environmental impact and operational costs
  - Make equipments and systems smarter, cleaner, quieter, more efficient, less dependent on fossil fuels
  - Focus on aviation, waterborne, cross-modal aspects
Contents and structure

A) Mode-specific challenges
   1) Aviation
   2) Waterborne

B) Cross-modal / transport integration challenges
   3) Safety
   4) Urban
   5) Logistics
   6) Intelligent Transport Systems
   7) Infrastructure

C) Cross-cutting issues
   8) Socio-economic and behavioural research and forward-looking activities for policymaking
Aviation

2016–2017: 5 topics open
EUR 146 Mio EU budget
Complements Clean Sky 2 and SESAR

Context

• Market growth: new opportunities for Europe
• Europe's leadership in products and services, but challenges arising from international competition
• Keyword: sustainability of growth (safety, security, environmental concerns)
• Rising expectations from users – integration with other transport modes needed
Aviation

Contents and structure

• WP complements Clean Sky 2 and SESAR
• It addresses medium to long-term R&I
• Topics in line with H2020 Specific Programme, ACARE challenges (Flightpath 2050) and SRIA
• Focus on:
  • Reducing energy consumption, environmental impact and noise
  • Industrial leadership and breakthrough technologies
• International cooperation encouraged in certain topics
• Relevant actions also financed under other challenges
## Aviation: topics and budget

*Total EU contribution: EUR 146 Mio*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
<th>Stages</th>
<th>Budget (EUR Mio)</th>
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</thead>
<tbody>
<tr>
<td>MG-1.1</td>
<td>Reducing energy consumption and environmental impact of aviation</td>
<td>RIA</td>
<td>2</td>
<td>40</td>
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<tr>
<td>MG-1.2</td>
<td>Reducing aviation noise</td>
<td>RIA</td>
<td>2</td>
<td>20</td>
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<tr>
<td>MG-1.3</td>
<td>Maintaining industrial leadership in aeronautics</td>
<td>RIA</td>
<td>2</td>
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<tr>
<td>MG-1.4</td>
<td>Breakthrough innovation</td>
<td>RIA</td>
<td>2</td>
<td>15 15</td>
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<tr>
<td>MG-1.5</td>
<td>Identification of gaps, barriers and needs in aviation research</td>
<td>CSA</td>
<td>1</td>
<td>4 7</td>
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*CSA = Coordination and Support Action  
RIA = Research and Innovation Action*
Reducing energy consumption and environmental impact of aviation

Challenge
- Reducing energy consumption to improve sustainability
- Increasing resource efficiency, reducing CO₂ and NOₓ emissions

Scope
- New technologies contributing to electric aircraft
- Improving thermal efficiency
- Reducing weight, improving aerodynamics
- Assessing the impacts of alternative fuels

Expected impact
- Contribution to long-term environmental goals

Estimated EC contrib. per proposal: EUR 5-9 Mio
Reducing aviation noise

Challenge
• Systematic approach to aviation noise management
• Coordination between national, EU and international research activities

Scope
• Development of new technologies for 24/7 operations
• Noise reduction at the source
• Assessing, managing and monitoring aviation noise
• Common roadmap for noise reduction

Expected impact
• Reduce aviation noise nuisance

Estimated EC contrib. per proposal: EUR 5-9 Mio
Maintaining industrial leadership in aeronautics

Challenge

• Seize new opportunities for further growth of European aeronautics
• Further develop low maturity level technologies

Scope

• Moving from scheduled to condition-based inspections
• Advancements in low TRL technologies
• Addressing electromagnetic immunity

Expected impact

• Help maintain the leadership of the European industry

*Estimated EC contrib. per proposal: EUR 5-9 Mio*

*Topic particularly relevant to SMEs*
Breakthrough innovation

**Challenge**

- Explore breakthrough technologies as evolutionary ones come close to their maximum potential

**Scope**

- Currently-not-in-use concepts for the medium run
- Technologies up to TRL 3 with a potential to TRL 6
- Innovative configurations and propulsion systems

**Expected impact**

- Develop innovative and exploitable technologies that address environmental impact, competitiveness, safety in the medium term

*Estimated EC contrib. per proposal: EUR 2-4 Mio*
Identification of gaps, barriers and needs in aviation research

**Challenge**
- Facilitating achievement of Flightpath 2050 goals

**Scope**
- 2016: identifying barriers to collaboration in aviation research; stimulating cooperation
- 2017: reviewing R&I state of the art; international benchmarking, identifying gaps in research landscape

**Expected impact**
- Assess progress towards Flightpath 2050
- Identify future needs, gaps, barriers and formulate recommendations to address them

*Estimated EC contrib. per proposal: EUR 1-2 Mio*
Waterborne

2016-2017: 4 topics open
EUR 78 Mio EU budget

Context

- Economic, environmental and social sustainability are challenges for waterborne transport
- Need for a modern, resource-efficient, interconnected, safe, secure and resilient system
- Efficiency gains, improved use of energy sources, minimisation of environmental impacts desirable
- Competitors challenging Europe's leadership in design, production and operation of waterborne assets
### Waterborne: topics and budget

*Total EU contribution: EUR 78 Mio*

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>MG-2.1</td>
<td>Innovations for energy efficiency and emission control in waterborne transport</td>
<td>IA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MG-2.2</td>
<td>Development, production and use of high performance and lightweight materials for vessels and equipment</td>
<td>IA</td>
<td>2</td>
<td>38</td>
</tr>
<tr>
<td>MG-2.3</td>
<td>New and improved transport concepts in waterborne transport</td>
<td>RIA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MG-2.4</td>
<td>Complex and value-added specialised vessels</td>
<td>IA</td>
<td>2</td>
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</tbody>
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**IA = Innovation Action; RIA = Research and Innovation Action**
Innovations for energy efficiency and emission control in waterborne transport

**Challenge**

- Keep Europe's lead in world markets, introduce a step-change in energy efficiency and emission reduction
- Explore alternative fuels, prepare for electrification

**Scope**

- Alternative fuels, in particular LNG and methanol
- Energy storage, hybridisation, electrification
- Pollution reduction and control technologies
- Reduction of frictional resistance

**Expected impact**

- Energy efficient, less polluting waterborne transport

*Estimated EC contrib. per proposal: EUR 5-9 Mio*
Development, production and use of high performance and lightweight materials for vessels and equipment

**Challenge**
- Exploring new lightweight materials for waterborne
- Developing design, construction & production principles

**Scope**
- Conception, production, use and performance analysis of advanced composites

**Expected impact**
- Introduce new lightweight materials
- Decrease maintenance and life cycle costs
- Inputs to relevant regulatory regimes as appropriate

*Estimated EC contrib. per proposal: EUR 7-9 Mio*
New and improved transport concepts in waterborne transport

**Challenge**
- Overcoming barriers between transport modes
- Greening and optimising the transport chain
- Contributing to EU "Energy Union" goals

**Scope**
- Improving systems for waterborne operations
- New cost-efficient vessel concepts for gas transport
- Automation in waterborne operations

**Expected impact**
- Technical and operational validation of a concept leading to substantial improvement of safety, sustainability performance
- Concepts for the automation of waterborne transport

*Estimated EC contrib. per proposal: EUR 6-12 Mio*
Complex and value-added specialised vessels

**Challenge**
- Exploring best design, construction and production principles for both small series and standard vessels

**Scope**
- Developing and validating advanced ferry concepts, low-impact ship design and operations, standardised workboat concepts, design for new support operations

**Expected impact**
- Technical and operational validation of a concept leading to substantial improvement of safety, sustainability performance
- Proof of concept up to the demonstration level
- Development of standardised approaches

*Estimated EC contrib. per proposal: EUR 8-12 Mio*
Safety

2016-2017: 6 topics open
EUR 66 Mio EU budget

Context

• Safety improved across all modes over last 10 years
• EU targets for transport safety: halving road casualties by 2020, towards zero fatalities by 2050
• Aim: reducing accident rates, fatalities and injuries in each mode
• Increasing knowledge and awareness, developing technologies, products, services, solutions
## Safety: topics and budget

**Total EU contribution: EUR 66 Mio**

<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>MG-3.1</td>
<td>Addressing aviation safety challenges</td>
<td>RIA</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>MG-3.2</td>
<td>Protection of all road users in crashes</td>
<td>RIA</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>MG-3.3</td>
<td>Safer waterborne transport and maritime operations</td>
<td>RIA</td>
<td>2</td>
<td>22</td>
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<tr>
<td>MG-3.5</td>
<td>Behavioural aspects for safer transport</td>
<td>RIA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MG-3.4</td>
<td>Transport infrastructure innovation to increase the transport system safety at modal and intermodal level</td>
<td>RIA</td>
<td>2</td>
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<tr>
<td>MG-3.6</td>
<td>Euro-African initiative on road safety and traffic management</td>
<td>CSA</td>
<td>1</td>
<td>3</td>
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*RIA = Research and Innovation Action; CSA = Coordination and Support Action*
Challenge
• Identifying and mitigating new risks
• Keeping Europe's excellent record in aviation safety

Scope
• More robust and cost-efficient solutions
• Novel identification of hazards and handling of data
• Improve understanding of environmental phenomena

Expected impact
• Enhance safety levels, increase public trust
• Improve safety performance, lower complexity

Estimated EC contrib. per proposal: EUR 5-9 Mio
Protection of all road users in crashes

**Challenge**

- Improving crash safety in case of accidents
- Developing fully integrated safety systems
- Transport user protection: keeping Europe's leadership

**Scope**

- Vehicle based systems
- Personal protection equipments
- Crash simulation tools, human body models

**Expected impact**

- Contribute to reducing fatalities and injuries

*Estimated EC contrib. per proposal: EUR 4-9 Mio
SMEs participation & Int. Cooperation encouraged
Twinning with projects funded by US DOT foreseen*
Challenge

• Improving technologies and procedures for safe and environmentally sound waterborne operations

Scope

• Waterborne transport operations in complex traffic situations and extreme environments; modelling
• New vessel and equipment design concepts
• Safety assessment for flash point and volatile fuels

Expected impact

• Proof of concepts for improving waterborne safety

Estimated EC contrib. per proposal: EUR 5-7 Mio
International Cooperation encouraged
Transport infrastructure innovation to increase the transport system safety at modal and intermodal level

**Challenge**

- Improving transport safety through better infrastructure design and maintenance and its adaptation to connectivity

**Scope**

- Efficient design, planning and maintenance methods for longer life-cycles
- Predictive maintenance methods
- Adapting infrastructure to new vehicles and needs

**Expected impact**

- Eradicate infrastructure-caused accidents

*Estimated budget per proposal: EUR 5-7 Mio*

*SMEs participation & Int. Cooperation encouraged*

*Twinning with projects funded by US DOT foreseen*

*Twinning with projects funded by CEDR foreseen*
Behavioural aspects for safer transport

Challenge
- Increasing understanding of user behaviour
- Factoring-in societal aspects (age, gender, etc.)

Scope
- Distraction and health-related factors
- Societal and demographic factors
- Risk appraisal
- Measures to act on transport users' behaviour

Expected impact
- Contribute to the Transport White Paper targets

Estimated EC contrib. per proposal: EUR 4-9 Mio
SMEs participation & Int. Cooperation encouraged
Twinning with projects funded by US DOT foreseen
Euro-African initiative on road safety and traffic management

**Challenge**

- Addressing Africa's poor record on road safety

**Scope**

- Setting up a Euro-African dialogue platform
- Analysing risk factors, apprising problems at stake, mapping critical areas and challenges

**Expected impact**

- Help improve road safety in Africa
- Reinforce local African capabilities
- Disseminate EU know-how and deploy sound solutions

*Estimated EC contrib. per proposal: EUR 2,5-3 Mio*

*Balanced participation of European and African partners expected*
Urban mobility

2016-2017: 5 topics open
EUR 36 Mio EU budget
Expanding the CIVITAS initiative; links with Connecting Europe and ELENA Facilities

Context

• Transport White Paper targets:
  • By 2030: CO$_2$-free city logistics in major centers
  • By 2050: Phasing out of conventionally fuelled cars in cities
• Efficiency of urban transport, mitigation of its negative effects: crucial for performance of cities
• Need for change in use of vehicles patterns, more efficiency, less impacting city logistics
### Urban mobility: topics and budget

*Total EU contribution: EUR 36 Mio*

<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>MG-4.1</td>
<td>Increasing the take up and scale-up of innovative solutions to achieve sustainable urban mobility</td>
<td>IA</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td>MG-4.2</td>
<td>Supporting &quot;smart electric mobility&quot; in cities</td>
<td>IA</td>
<td>2</td>
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<tr>
<td>MG-4.3</td>
<td>Innovative approaches for integrating urban nodes in the TEN-T core network corridors</td>
<td>CSA</td>
<td>1</td>
<td>2</td>
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<tr>
<td>MG-4.4</td>
<td>Facilitating public procurement of innovative sustainable transport and urban mobility solutions</td>
<td>CSA</td>
<td>1</td>
<td>2</td>
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<tr>
<td>MG-4.5</td>
<td>New ways of supporting development and implementation of neighbourhood-level and urban-district-level transport innovations</td>
<td>RIA</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

*CSA = Coordination and Support Action  
RIA = Research and Innovation Action;  IA = Innovation Action*
Increasing the take up and scale-up of innovative solutions to achieve sustainable mobility in urban areas

**Topic MG-4.1-2017 (IA)**

**Challenge**
- Transferring and taking up of knowledge and solutions

**Scope**
- Solutions enabling traffic and travel avoidance
- Optimal use of existing infrastructure and vehicles
- Design and use of multi-modal hubs and terminals
- Supporting modal shift

**Expected impact**
- Demonstrate transfer of solutions across urban areas in Europe
- Large-scale deployment of innovative solutions

*Estimated EC contrib. per proposal: EUR 2-5 Mio*
Supporting "smart electric mobility" in cities

**Challenge**

- Electric cars vs. charging spots: first-mover dilemma

**Scope**

- Developing integrated approaches and testing of business models for deployment of charging stations
- Pilots on integrating solutions into transport systems
- Investigation on gender differences (if relevant)

**Expected impact**

- Validate business models for electromobility solutions

*Estimated EC contrib. per proposal: EUR 4-5 Mio*
Challenge
• Integrating urban nodes into TEN-T corridors
• Increasing 'last mile' efficiency and sustainability

Scope
• Producing recommendations on combining existing technologies / services and involving new combinations of stakeholder groupings

Expected impact
• Recommendations for wide-scale deployment of R&I solutions in urban nodes along TEN-T corridors

*Estimated EC contrib. per proposal: EUR 1-2 Mio*

Complements MG-5.1 (Networked & efficient logistics clusters)
Facilitating public procurement of innovative sustainable transport and mobility solutions in urban areas

**Challenge**
- Boosting market demand for sustainable urban mobility solutions
- Increasing purchaser awareness about technologies used in implementing sustainable urban solutions

**Scope**
- Establishing cross-border activities on PPI / PCP
- Complementarity with the ELENA instrument
- Activities driven by procurers' needs

**Expected impact**
- Build knowledge and establishing practices in PP

*Estimated EC contrib. per proposal: EUR 0,6-1 Mio*

*Consortia expected to consist of public procurers*
New ways of supporting development and implementation of neighbourhood-level and urban-district-level transport innovations

**Challenge**

- Neighbourhoods and districts as testing grounds for mobility innovations addressing urban mobility issues

**Scope**

- Min. 5 European neighbourhoods / districts involved
- End-users to validate needs & assess solutions

**Expected impact**

- New innovation processes and organisational concepts
- Strategy to measure impacts of innovative approaches

*Estimated EC contrib. per proposal: EUR 2-4 Mio*

*Topic MG-4.5-2016 (RIA)*
2016-2017: 4 topics open
EUR 27 Mio EU budget
Complements relevant topics under Urban Mobility and Intelligent Transport Systems

Context

- In 2012, 45% of freight transport (tkm) on the road, 40% by sea, 9% by rail, 3% by inland waterways

- One in four trucks in the EU runs empty, overall efficiency (weight-based) as low as 43%

- Need for an increase in efficiency and sustainability

- Opportunities provided by digitalisation

- Need to remove bottlenecks
## Logistics: topics and budget

*Total EU contribution: EUR 27 Mio*

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
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<tbody>
<tr>
<td>MG-5.1</td>
<td>Networked and efficient logistics clusters</td>
<td>RIA</td>
<td>2</td>
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<tr>
<td>MG-5.2</td>
<td>Innovative ICT solutions for future logistics operations</td>
<td>RIA</td>
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<td>MG-5.4</td>
<td>Potential of the physical internet</td>
<td>RIA + CSA</td>
<td>2 + 1</td>
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<td>MG-5.3</td>
<td>Promoting the deployment of green transport, towards Eco-labels for logistics</td>
<td>CSA</td>
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*CSA = Coordination and Support Action  
RIA = Research and Innovation Action*
Networked and efficient logistics clusters

**Challenge**
- Shift towards low-emission transport modes: Better integration needed across transport subsystems and hubs, TEN-T network, last mile delivery services
- Long distance and local areas: dedicated vehicles

**Scope**
- Extending hubs' role beyond transshipment, including sharing of resources and new value-added services
- Introducing smart specialised logistics clusters
- Developing prototype Modular Load Units and loading/unloading systems

**Expected impact**
- Contribute to more sustainable freight transport
- Increase the value of hubs, intermodality and resilience of the system

*Estimated budget per proposal: EUR 4-6 Mio*
Innovative ICT solutions for future logistics operations

Topic MG-5.2-2017 (RIA)

Challenge

• Need to exploit advanced ICT solutions (Internet-of-Things, big data, new satellite navigation infrastructure, ITS)

Scope (at least 2 out of the following 3 issues)

a) Optimize delivery planning and increase availability of data
b) Dynamic routing and business models
c) Harmonize interoperability between supply chain partners

Expected impact

• Better integration of ICT solutions to link digital and physical flows; seamless freight transport across modes and MSs; reliability & reduced transit times; viable dynamic transport services

Estimated budget per proposal: EUR 3-5 Mio
Promoting the deployment of green transport, towards Eco-labels for logistics

Topic MG-5.3-2016 (CSA)

Challenge

• Need for harmonised carbon footprint measurement along the transport supply chain

Scope

• Establishing guidelines / methodologies for measuring emissions from freight transport services
• Facilitating and standardising data collection, handling, reporting and monitoring
• Measuring real world carbon footprint

Expected impact

• Lower the carbon footprint of transport and logistics services

Estimated EC contrib. per proposal: EUR 1-2 Mio
**Challenge**

- Ensure the seamless routing of freight in open networks: the 'Physical Internet'

**Scope (RIA+CSA)**

- Identifying position, size and minimum number of hubs to ensure viability of the concept
- Developing simulation and model tools
- Developing a roadmap towards the Physical Internet; monitoring contributions by other projects to PI

**Expected impact**

- Kick-start the development of the Physical Internet

*Estimated EC contrib. per proposal: EUR 2-3 Mio (RIA), EUR 0,5-1 Mio (CSA)*
Intelligent Transport Systems

2016-2017: 3 topics open
EUR 30 Mio EU budget
Complements topics under the Call on Automated Road Transport

Context

• By connecting all elements of the transport system, ITS are key to achieving seamless passengers and goods transport
• ITS enable better use of existing infrastructure
• Need for Europe-wide real-time transport information data combining information from all transport modes
## ITS: topics and budget

*Total EU contribution: EUR 30 Mio*

<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>MG-6.1</td>
<td>Innovative concepts, systems and services towards 'mobility as a service'</td>
<td>RIA</td>
<td>2</td>
<td>25</td>
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<tr>
<td>MG-6.2</td>
<td>Large-scale demonstration(s) of cooperative ITS</td>
<td>IA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MG-6.3</td>
<td>Roadmap, new business models, awareness raising, support and incentives for the roll-out of ITS</td>
<td>CSA</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

*CSA = Coordination and Support Action*

*RIA = Research and Innovation Action*

*IA = Innovation Action*
Innovative concepts, systems and services towards 'mobility as a service'

**Challenge**

- Analysis and development of coherent concepts, encompassing all elements, systems and services to bring Europe's transport system towards a more user-centric, digital and intelligent mobility model (ie. mobility as a service) to make advanced travel planning a reality

**Scope**

- Multi-modal, cross-border traffic management, information and planning systems
- Analysis of range of services
- Identification of success and failure factors of new concepts; framework conditions and development of viable business models for market take-up
- Identification & validation of measures apt to induce socially-responsible travel behaviours

**Expected impact**

- Advanced, cross-border, multi-modal travel planning and ticketing; proof of concepts and demonstrations; novel business models for deployment

*Estimated budget per proposal: EUR 3-5 Mio*

*Participation of experienced SMEs encouraged*
Large-scale demonstration(s) of cooperative ITS

**Challenge**

- Leverage the achievements of past and current pilots and perform large-scale, real-life demonstration in specific environment(s) to showcase the status of deployment of C-ITS

**Scope**

- Integral element is to demonstrate functioning partnerships of multiple stakeholders and thorough post-demonstration impact and cost-benefit assessment and evaluation of C-ITS concepts and technologies, including implementation issues
- Enable services based on appropriate access and sharing of data, interoperability across systems, testing and validating standards

**Expected impact**

- Improve the transport system performance level
- Demonstrate fully integrated C-ITS concepts in practical, real-life and complex environments; and greater collaboration amongst stakeholders

*Estimated budget per proposal: EUR 11-13 Mio*

*Participation of experienced SMEs encouraged*

*Twinning with US funded projects foreseen*
Challenge

• Tackle the 'last mover advantage' in ITS
• Implement Key Performance Indicators (KPIs), building on ongoing activities, for the assessment and measurement of ITS deployment

Scope

• Raising awareness of the benefits of Cooperative ITS through knowledge-enhancing and training practices
• Financing measures to support the development, purchase and maintenance of new ITS systems

Expected impact

• Understand status and dynamics of current ITS (incl. C-ITS) implementation across Europe and propose solutions
• Concretely support the development of C-ITS deployment across EU
• New business models and incentives to accelerate deployment

Estimated budget per proposal: EUR 1-2 Mio

Participation of experienced SMEs encouraged

Twinning with US funded projects foreseen
Infrastructure

2016-2017: **3 topics open**  
**EUR 38 Mio** EU budget

Proposals addressing Rail (in a multimodal approach) and Aviation infrastructure: **ensure complementarity** with activities in 'Shift to Rail' and 'SESAR' respectively

**Context**

- Growing need to make infrastructure more resilient, to keep pace with growing mobility needs and extreme events
- Coping with declining resources to maintain and upgrade transport infrastructure
- Challenge: identify innovative solutions to increase efficiency and robustness of transport infrastructure
## Infrastructure: topics and budget

**Total EU contribution: EUR 38 Mio**

<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>MG-7.1</td>
<td>Resilience to extreme (natural and man-made) events</td>
<td>RIA</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>MG-7.2</td>
<td>Optimisation of transport infrastructure including terminals</td>
<td>RIA</td>
<td>2</td>
<td></td>
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<tr>
<td>MG-7.3</td>
<td>The Port of the future</td>
<td>RIA, CSA</td>
<td>2, 1</td>
<td>1</td>
</tr>
</tbody>
</table>

*CSA = Coordination and Support Action  
RIA = Research and Innovation Action*
Resilience to extreme (natural and man-made) events

**Challenge**

- Mobility affected by damages to infrastructure
- Risk analysis and mitigation measures needed to minimise impacts of extreme events

**Scope**

- Identifying risk factors and 'hot spots'; determining appropriate mitigation measures
- Risk analysis, cross-modal and operational startegies to optimise cost-performance-risk
- Strategic application of techniques and systems to ensure reliable network availability in unfavourable conditions

**Expected impact**

- Improve seamless mobility of people and freight in case of serious disruptions; reliable modal interchanges

*Estimated budget per proposal: EUR 3-5 Mio*
*Participation of experienced SMEs encouraged*
*Twinning with US DOT-funded projects foreseen*
Challenge
• Missing links to complete TEN-T connections
• On other corridors, congestion and undercapacity

Scope
• Adapting networks to new needs; higher efficiency
• Innovative, fast, cost-effective, environmentally-friendly design and construction methods

Expected impact
• Optimise the use of multimodal transport systems

*Estimated EC contrib. per proposal: EUR 2-6 Mio*

*Participation of experienced SMEs and of Neighbouring Partner Countries encouraged*
Challenge

• Ports face specific challenges (emissions reduction, smart grids, use of renewables, etc.) as well as challenges common to all multi-modal terminals

Scope (RIA + CSA)

• Re-engineering of operational processes inside and around terminals
• Better capacity management and integration in the socio-economic surrounding environment
• Efficient connections with hinterland transport network
• Developing appropriate Key Performance Indicators

Expected impact

• Reduce impacts and costs related to port activities; integration of the port in the surrounding socio-economic area.

*Estimated budget per proposal: EUR 3-5 Mio (RIA); EUR 1 Mio (CSA)*

Participation of Mediterranean and Neighbouring Partner Countries encouraged
Context

- Address emerging societal challenges: the sharing economy; big data; accessibility issues
- Explore the techno-economic prospects and skills requirements of a fast evolving sector
### Socio-economic: topics and budget

**[1/2]** - Total EU contribution: EUR 13,6 Mio

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
<th>Stages</th>
<th>Budget (EUR Mio)</th>
<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td>MG-8.1</td>
<td>Research, technology, development and market trends for the European transport manufacturing industries</td>
<td>CSA</td>
<td>1</td>
<td>1,5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MG-8.2</td>
<td>Big data in Transport: Research opportunities, challenges and limitations</td>
<td>CSA</td>
<td>1</td>
<td>2</td>
<td></td>
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</tr>
<tr>
<td>MG-8.3</td>
<td>Assessing future requirements for skills and jobs across transport modes and systems</td>
<td>RIA</td>
<td>1</td>
<td>3</td>
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<td></td>
</tr>
</tbody>
</table>

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*CSA = Coordination and Support Action
RIA = Research and Innovation Action*
### Socio-economic: topics and budget

Total EU contribution: EUR 13.6 Mio

<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>MG-8.4</td>
<td>Improving accessibility, inclusive mobility and equity: new tools and business models for public transport in prioritised areas</td>
<td>RIA</td>
<td>1</td>
<td>7.5</td>
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<tr>
<td>MG-8.5</td>
<td>Shifting paradigms: Exploring the dynamics of individual preferences, behaviours and lifestyles influencing travel and mobility choices</td>
<td>RIA</td>
<td>1</td>
<td></td>
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<tr>
<td>MG-8.6</td>
<td>Innovation awards for students and researchers in the context of the Transport Research Arena conference – TRA 2018</td>
<td>CSA</td>
<td>1</td>
<td>0.6</td>
</tr>
</tbody>
</table>

**CSA = Coordination and Support Action**

**RIA = Research and Innovation Action**
Challenge
• Exploit fully the knowledge and know-how assets of the European transport manufacturing industries to boost their competitive stance in the global market

Scope
• Analysing investments, productivity, strategies, competitive advantages of transport manufacturers

Expected impact
• Provide a picture of development capabilities, innovation challenges and market prospects of the European transport industry

Estimated EC contrib. per proposal: EUR 0,5-1,5 Mio
Challenge

• Exploring collection and exploitation of big data

Scope

• Identifying where to implement ICT investments
• Developing tools for data mining and exploitation
• Identifying barriers to exploitation of big data

Expected impact

• Support authorities and industry in understanding travellers and consumers behaviour
• Contribute to identification of critical issues (privacy, data security, legal, institutional aspects)

Estimated EC contrib. per proposal: EUR 0,5-1,5 Mio
Assessing future requirements for skills and jobs across transport modes and systems

**Challenge**
- Avoiding future gaps between supply and demand of skills and competences in the transport sector
- Improving workforce potential and gender balance

**Scope**
- Exploring factors influencing employment profiles
- Reviewing existing training & learning methods / tools
- Identifying subjects to be trained to meet future needs

**Expected impact**
- Identify new skills, requirements and training needs

*Estimated EC contrib. per proposal: EUR 2-3 Mio*

*Coordination with EU and national activities (such as Erasmus+) expected where appropriate*
Improving accessibility, inclusive mobility and equity: new tools and business models for public transport in prioritised areas

Challenge
• Examining the impact of innovations on accessibility

Scope
• Factors influencing mobility in prioritised areas
• Addressing mobility needs of vulnerable population groups (elderly, children, youth, disabled, ...)
• Assessing solutions for inclusive mobility and equity

Expected impact
• Identify sustainable and inclusive mobility options responding to needs of particular population groups
• Elaborate new business models for public transport

Estimated EC contrib. per proposal: EUR 1-3 Mio
Shifting paradigms: Exploring the dynamics of individual preferences, behaviours and lifestyles influencing travel and mobility choices

Challenge

• Analysing new preferences, behaviours and concepts influencing future transport models and management

Scope (proposals should address one of the following)

1. Shifting from car ownership to sharing: comparing existing trends, forecasts, business models; assessing implications for the European car industry
2. Changing value of time: assessing perceived cost of travel time and of time savings in selected cases

Expected impact

• Assess the development of new business models and social innovations, and their impact on car industry

Estimated EC contrib. per proposal: EUR 1-2 Mio
Innovation awards for students and researchers in the context of the Transport Research Arena conference - TRA 2018

Challenge
• Rewarding best innovative ideas on R&I in transport

Scope
• Organising two competitions for 2018 TRA, targeting:
  1. Students and young researchers
  2. Senior researchers in the field of innovative transport concepts, based on results from EU-funded projects

Expected impact
• Increase the attractiveness of transport related studies
• Reinforce excellence in European transport R&I

Estimated EC contrib. per proposal: EUR 0,4-0,6 Mio
Objectives

• Increase safety, efficiency, user convenience, livability of cities
• Meet the next competitiveness challenge: new frontier for industrial leadership, growth and jobs
<table>
<thead>
<tr>
<th>Topic</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ART-01</td>
<td>ICT infrastructure to enable the transition towards road transport automation</td>
<td>IA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ART-03</td>
<td>Multi-Brand platooning in real traffic conditions</td>
<td>IA</td>
<td>2</td>
<td>50</td>
</tr>
<tr>
<td>ART-07</td>
<td>Full-scale demonstration of urban road transport automation</td>
<td>IA</td>
<td>2</td>
<td></td>
</tr>
<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>
<td>2</td>
<td></td>
</tr>
<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>
<td>RIA</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>ART-06</td>
<td>Coordination of activities in support of road automation</td>
<td>CSA</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

CSA = Coordination and Support Action  
IA = Innovation Action;  RIA = Research and Innovation Action
ICT infrastructure to enable the transition towards road transport automation

**Challenge**

- Addressing the issue of connectivity required for advanced level of automation and the architecture of ICT-Infrastructure

**Scope**

- Development, testing and real-life validation of ICT infrastructure architectures
- Integrating ICT technologies, systems and functions to enable the transition towards road vehicle automation

**Expected impact**

- Contribute to knowledge of required ICT-infrastructure architectures
- Provide input feeding into standardisation

*Estimated EC contrib. per proposal: EUR 5-15 Mio*
Automation pilots for passenger cars

Challenge

• Addressing issues on the path to Europe-wide deployment of automated vehicles with large scale pilots

Scope

• Test technologies for Conditional Automation (level 3) for passenger cars
• Field Operational Tests in at least 3 countries for all driving conditions

Expected impact

• Demonstrate readiness, reliability and safety of automated driving functions on a large scale in Europe

Estimated EC contrib. per proposal: EUR 18-36 Mio
Multi-Brand platooning in real traffic conditions

Challenge
• Foster Europe-wide deployment of platooning in real-life, mixed-traffic conditions of heavy duty vehicles

Scope
• Develop, test and validate platooning concepts, technologies and functionalities on a real (preferably cross-country) corridor

Expected impact
• Demonstrate feasibility and reliability of multi-brand platooning systems
• Contribute to increase sustainability of transport system

Estimated EC contrib. per proposal: EUR 15-20 Mio
Safety and end-user acceptance aspects of road automation in the transition period

Challenge

• Addressing user acceptance of automated vehicles
• Ensuring safe vehicles handling with reduced driver attention

Scope

• Analyse user requirements, expectations, concerns
• Address safety of automated driving in mixed traffic
• Design safe human-machine interface

Expected impact

• Help develop safe, resilient, easy-to-use automated driving systems in line with user expectations

Estimated EC contrib. per proposal: EUR 3-6 Mio

International Cooperation encouraged

Twinning with projects funded by US DOT foreseen
Road infrastructure to support the transition to automation and the coexistence of conventional and automated vehicles on the same network

**Challenge**

- From conventional to automated vehicles: manage transition period with coexistence of both systems; role of road infrastructure

**Scope**

- Traffic flow modelling considering automated vehicles
- Designing "hybrid" infrastructure and signalling catering for the needs of both conventional and automated vehicles
- Defining new safety performance criteria

**Expected impact**

- Facilitate the introduction of ART through innovative modelling, design and engineering of road infrastructure

*Estimated budget per proposal: EUR 2-5 Mio*

*International Cooperation encouraged*

*Due consideration of CEDR-funded projects expected*

*Twinning with projects funded by US DOT foreseen*
Coordination of activities in support of road automation

**Challenge**

- Consolidating knowledge and harmonising approach to tests of automation solutions in different Countries
- More efficient sharing of data and experience of Field Operational Tests

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

1. Monitor ongoing research & demonstration activities; create a forum for National & European stakeholders; support international cooperation (USA, Japan)
2. Establish a platform of data exchange on Field Operational Tests

**Expected impact**

- Foster complementarity of R&D&D in EU and beyond

*Estimated EC contrib. per proposal: EUR 0,5-3 Mio*

*International Cooperation encouraged*

*Twinning with projects funded by US DOT foreseen*
Full-scale demonstration of urban road transport automation

**Challenge**
- Proving reliability, safety, robustness of fully automated road transport through full-scale demonstrations

**Scope**
- Implement fleet of automated vehicles in urban areas
- Integration into existing public transport systems

**Expected impact**
- Contribute to integration of automated transport into existing transport systems in urban areas

*Estimated EC contrib. per proposal: EUR 10-15 Mio
SMEs participation & Int. Cooperation encouraged
Twinning with projects funded by US DOT foreseen*
Objectives

- **Boost competitiveness and growth**
- **Clean transport, de-carbonise society**

  - Promote energy efficiency, use of non conventional energies (electricity, CNG, LNG, renewables), alternative fuels
  - Reduce pollution, noise, impacts on health
  - Improve engines, power-trains, vehicle architecture, manufacturing processes
### Green Vehicles [1/2]

**Total EU contribution: EUR 206,5 Mio**

<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>GV-02</td>
<td>Technologies for low emission light duty powertrain</td>
<td>RIA</td>
<td>1</td>
<td>65</td>
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<tr>
<td>GV-03</td>
<td>System and cost optimised hybridisation of road vehicles</td>
<td>IA</td>
<td>1</td>
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<tr>
<td>GV-11</td>
<td>Stimulating European research and development for the implementation of future road transport technologies</td>
<td>CSA</td>
<td>1</td>
<td>3,5</td>
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<tr>
<td>GV-12</td>
<td>ERA-NET Co-fund on electromobility</td>
<td>ERA-NET</td>
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</tbody>
</table>

**CSA = Coordination and Support Action**

**RIA = Research and Innovation Action**

**IA = Innovation Action**

**ERA-NET = ERA-NET Cofund Action**
## Green Vehicles [2/2]

Total EU contribution: EUR 206.5 Mio

<table>
<thead>
<tr>
<th>Topic</th>
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</tr>
</thead>
<tbody>
<tr>
<td>GV-01</td>
<td>Optimisation of heavy duty vehicles for alternative fuels use</td>
<td>IA</td>
<td>1</td>
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<tr>
<td>GV-04</td>
<td>Next generation electric drivetrains for fully electric vehicles, focussing on high efficiency and low cost</td>
<td>RIA</td>
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<tr>
<td>GV-05</td>
<td>Electric vehicle user-centric design for optimised energy efficiency</td>
<td>RIA</td>
<td>1</td>
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<tr>
<td>GV-06</td>
<td>Physical integration of hybrid and electric vehicles batteries at pack level aiming at increased energy density and efficiency</td>
<td>IA</td>
<td>1</td>
<td>128</td>
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<tr>
<td>GV-07</td>
<td>Multi-level modelling and testing of electric vehicles and their components</td>
<td>RIA</td>
<td>1</td>
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<tr>
<td>GV-08</td>
<td>Electrified urban commercial vehicles integration with fast charging infrastructure</td>
<td>IA</td>
<td>1</td>
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<tr>
<td>GV-09</td>
<td>Aerodynamic and flexible trucks</td>
<td>IA</td>
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<tr>
<td>GV-10</td>
<td>Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system</td>
<td>IA</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*IA = Innovation Action; RIA = Research and Innovation Action*
Optimisation of heavy duty vehicles for alternative fuels use

Challenge

• Optimising powertrains for Heavy Duty Vehicles (HDV) running on alternative fuels to achieve higher efficiency and decrease emissions

Scope

• Evaluating energy efficiency, costs vs benefits, performance of alternative fuels-powered HDVs
• Prototype demonstration & validation of new vehicles

Expected impact

• Contribute to climate action and sustainable development objectives

Estimated EC contrib. per proposal: EUR 5-10 Mio
Challenge
• Increasingly stringent emission standards, but real driving emissions not sufficiently reduced

Scope
• Addressing optimal combination of innovative engine and after-treatment technologies
• Future combustion engines for electrified powertrains
• Support for improved regulation of nanoparticles below 23 nm

Expected impact
• Reduce CO$_2$ and polluting emissions in real driving conditions

*Estimated EC contrib. per proposal: EUR 5-10 Mio*

*International Cooperation (Japan, US) encouraged*
System and cost optimised hybridisation of road vehicles

**Challenge**
- Reducing cost and complexity of pure hybrid, plug-in hybrid and range extended electric vehicles

**Scope**
- Identify potential for cost reduction by technical simplification of powertrain for light-duty and / or heavy-duty vehicles

**Expected impact**
- Cost reduction allowing for higher market penetration of hybrid vehicles

*Estimated EC contrib. per proposal: EUR 7-10 Mio*
Next generation electric drivetrains for fully electric vehicles, focusing on high efficiency and low cost

**Challenge**

- Factor-in manufacturing, low weight and cost of materials for the next generation of electric drivetrains

**Scope**

- Functional system integration of electric machines with transmission, optimisation of energy recovery with the integration of braking systems
- Lower cost electric machines

**Expected impact**

- Contribute to climate action and sustainable development objectives by leading to the next generation of electric drives, with reduced costs.

*Estimated EC contrib. per proposal: EUR 5-10 Mio*
Electric vehicle user-centric design for optimised energy efficiency

Challenge
• Developing solutions to combine increase of range with safety and user requirements (thermal comfort and well-being of occupants) in electric vehicles

Scope
• Analyse aspects of user-centric design of vehicles impacting on energy consumption
• Improve thermal insulation of vehicles
• Integrate advanced systems and components

Expected impact
• Increase drive range of electric vehicles by 25%

Estimated EC contrib. per proposal: EUR 7-10 Mio
Challenge
• Increase energy density and efficiency of battery packs

Scope
• Thermal, electrical and mechanical design of battery systems based on existing lithium and post-lithium cells
• Design for manufacturing, recycling and second use
• Demonstration, prototyping and mass-production technologies for battery systems

Expected impact
• Energy density improvement of batteries, cost reduction, strengthening the EU value chain

Estimated EC contrib. per proposal: EUR 5-7 Mio
Multi-level modelling and testing of electric vehicles and their components

Challenge

• Need for advanced testing methods and tools to ensure safety and improve efficiency of future EVs

Scope

• Development of testing facilities for electric traction drive and storage system; and of methods to assess reliability and energy content of battery systems
• Tools and methods integrated with control development for improving safety and reducing costs

Expected impact

• Improved efficiency of e-drivetrains and of powertrain safety for all types of electrified vehicles
• Improved design capability and shortened time to market

*Estimated EC contrib. per proposal: EUR 4-10 Mio*
Electrified urban commercial vehicles integration with fast charging infrastructure

**Challenge**

- Assessing and comparing different options for range extension of heavy electric commercial vehicles

**Scope**

- Development of vehicle drive-train concepts, rapid charging and energy storage delivering the required performances

**Expected impact**

- Vehicles: energy efficiency improvements, low noise operation, reducing polluting emissions and costs
- Infrastructure: transfer efficiencies above 90% for static contactless systems

*Estimated EC contrib. per proposal: EUR 5-15 Mio*

*Cooperation with Japan/US-funded projects suggested*
Challenge

- Designing adaptable and configurable truck concepts to improve energy efficiency of logistics

Scope

- Define potential solutions for configurable trucks
- Develop new concepts and technologies for more efficient and safer truck cabins

Expected impact

- Improvements in energy efficiency
- Standardisation of components, economies of scale

*Estimated EC contrib. per proposal: EUR 7-10 Mio*
Demonstration (pilots) for integration of electrified L-category vehicles in the urban transport system

Challenge
- Widespreading use of L-category vehicles for individual passenger transport and for small logistics

Scope
- Demonstration of potential market penetration of EL-Vs in European cities
- Compatibility with other vehicles' charging stations
- Deployment of ICT tools for driver support

Expected impact
- Speed up penetration of EL-Vs in cities
- Help develop successful business models

Estimated EC contrib. per proposal: EUR 7-10 Mio
At least two cities as beneficiaries in the consortium
Stimulating European research and development for the implementation of future road transport technologies

**Challenge**

- Assist ERTRAC, EGVI, Commission and MSs in defining research needs and priorities for sustainable road transport in Europe

**Scope**

- Comprehensive approach ranging from components to system integration, enabling technologies and other transport modes

**Expected impact**

- Bring together leading European stakeholders; help bring about a European Research Area in Transport

*Estimated EC contrib. per proposal: EUR 2-3,5 Mio
Int. cooperation (China, Brazil) encouraged*
Challenge

• Promote the integration of new EV technologies in the existing transport system (mainly in urban areas)

Scope

• Aim at innovation and deployment needs for 2020

Expected impact

• Impacts on: electro-mobility, European industrial technology base, climate action

Estimated EC contrib.: EUR 10 Mio (top up)

International cooperation encouraged

Aim: national and regional programmes pooling resources for a joint call for proposals. Inclusion of other joint activities encouraged
Horizon prize for the cleanest engine

Challenge

• Helping the development of technologies to reduce emissions of pollutants in real driving conditions

Scope

• Two prizes addressing (A) the existing fleet (retrofittable technology) and (B) future vehicles

Expected impact

• Reduce noxious emissions

Indicative budget: EUR 1,5 (A) + 3,5 (B) Mio

Target audience: individuals, SMEs, research centres, universities, suppliers of components, car manufacturers
Measures to promote close-to-market innovation:

- **SME instrument**
  Small business innovation research for transport and smart cities mobility

- **Fast track to innovation (FTI)**
  Pilot action to:
  - Reduce time from idea to market
  - Stimulate the participation of first-time applicants to EU research funding
  - Increase private sector investment in R&I
Specific features

• Open to all types of innovative SMEs in the transport sector and its value chain - market-oriented SMEs with strong potential to develop, grow and internationalise

• Company-focused: only SMEs allowed to apply for funding; single company support possible

• 3 phases:
  • Proof of concept (€ 50 000 lump sum EU funding; Feasibility study; Initial 10-page business proposal)
  • Innovation Projects (€0.5 to €2.5 million EU funding; Develop an innovation strategy; 30-page business plan)
  • Market launch (No direct funding; Extensive support – coaching – networking opportunity; Facilitate access to risk finance)
Specific features

• Bottom-up logic covering all priorities of H2020 Industrial Leadership and Societal Challenges

• Fast development & market take-up / wide deployment no more than 3 years after the beginning of the FTI project, business development, growth and job creation

• Open to all types of participants: consortia of 3 – 5 partners. Industry involvement in the consortium is mandatory

• SMEs and first-time industrial applicants particularly welcome

• Proposals shall include a business plan (market development strategy)
<table>
<thead>
<tr>
<th>Title</th>
<th>Budget (EUR Mio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable infrastructure charging</td>
<td>1</td>
</tr>
<tr>
<td>ELTIS: supporting exchange of knowledge, information and experiences in the field of urban mobility</td>
<td>2</td>
</tr>
<tr>
<td>The role of urban mobility in supporting the 2011 White Paper objectives – data collection</td>
<td>1,9</td>
</tr>
<tr>
<td>Establishment of Transport Research and Innovation Monitoring and Information System</td>
<td>1,5</td>
</tr>
<tr>
<td>Dissemination and exploitation of results</td>
<td>0,2</td>
</tr>
<tr>
<td>Support to the development, implementation, monitoring and evaluation of transport research and innovation policy activities</td>
<td>1</td>
</tr>
</tbody>
</table>
• **One project = One funding rate** for all beneficiaries / activities in the grant

• Funding **up to 100% of eligible costs** for 'Research and Innovation Actions' (RIA) and for 'Coordination and Support Actions' (CSA)

• Funding **up to 70%** for 'Innovation Actions' (IA), except non-profit organisations (up to 100%)

• **Indirect costs** (overheads): 25% flat rate

• **Minimum conditions**
  • **IAs, RIAs**: minimum three legal entities each established in a different Member State or an Associated Country
  • **CSAs**: one legal entity established in a Member State or in an Associated Country
  • Plus **additional conditions** as indicated in the WP

• **Time to Grant** (from call closure date) maximum **eight months**
  • Proposers to be informed within **five months**
# 2016-17 calls: key dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Calls / topics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2015</strong></td>
<td></td>
</tr>
<tr>
<td>15 October</td>
<td>Opening of 2016 calls</td>
</tr>
<tr>
<td>20 January</td>
<td>Closing</td>
</tr>
<tr>
<td>26 January</td>
<td>Two-stage topics: 1st stage proposals</td>
</tr>
<tr>
<td>29 September</td>
<td>Single-stage topics</td>
</tr>
<tr>
<td></td>
<td>Two-stage topics: 2nd stage proposals</td>
</tr>
<tr>
<td><strong>2016</strong></td>
<td></td>
</tr>
<tr>
<td>20 September</td>
<td>Opening of 2017 calls</td>
</tr>
<tr>
<td>4 October</td>
<td>Calls Mobility for Growth &amp; Autom. Road Transport</td>
</tr>
<tr>
<td></td>
<td>Call Green Vehicles</td>
</tr>
<tr>
<td><strong>2017</strong></td>
<td></td>
</tr>
<tr>
<td>26 January</td>
<td>Closing</td>
</tr>
<tr>
<td>1 February</td>
<td>Two-stage topics: 1st stage proposals</td>
</tr>
<tr>
<td>27 September</td>
<td>Single-stage topics</td>
</tr>
<tr>
<td>19 October</td>
<td>Two-stage topics: 2nd stage proposals - call ART</td>
</tr>
<tr>
<td></td>
<td>Two-stage topics: 2nd stage proposals - call MG</td>
</tr>
</tbody>
</table>
Upcoming events

- **Aerodays 2015**
  London, 20-23 October 2015

- **Transport WP 2016-17 Info Day**
  Brussels, 5 November 2015

- **Transport SME Innovation Day**
  Brussels, 23 November 2015

- **TRA 2016**
  Warsaw, 18-21 April 2016
Thank you for your attention

Find out more:
www.ec.europa.eu/research/horizon2020
www.ec.europa.eu/research/participants/portal/page/home
Contribute to EU Transport Policy goals and other priorities: Growth and Jobs, Energy Union, Digital Single Market, ...

- Fit expected growth largely into existing infrastructure (accommodating up to 80% growth in freight traffic and 50% passengers by 2050)
- Reduce dependence on oil for strategic and climate-related reasons (minus 60% by 2050)
- Ensure effective integration of all modes, optimise transport and logistics through modern ICT and automation, enable smarter urban mobility
- Produce greater efficiency, innovative products and protect the long term prospects of European transport industry and our economy at large
- Cannot be met by incremental improvement or regulatory action alone, but requires long term commitment to paradigm changing innovation, from fundamental research to large scale deployment (bridging the "valley of death"!)
The EU Framework Programme for Research and Innovation

HORIZON 2020

Background material
---
From submission to Grant Agreement preparation
Simplification in H2020

A single set of rules

- Covering all H2020 research and innovation actions
- Keeping flexibility where needed

EU Financial Regulation
Specific rules for participation

etc.
A single funding rate

<table>
<thead>
<tr>
<th></th>
<th>FP7</th>
<th>HORIZON 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum reimbursement rate</td>
<td>For all beneficiaries and all activities in the grant</td>
</tr>
<tr>
<td>Network of excellence</td>
<td>Research and technological development activities (*) 50%</td>
<td>Defined in the Work Programme</td>
</tr>
<tr>
<td></td>
<td>Demonstration activities</td>
<td>Up to 100% of the eligible costs, but limited to a maximum of 70% for innovation projects</td>
</tr>
<tr>
<td></td>
<td>Other activities</td>
<td>(except non-profit organisations - maximum 100%)</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Collaborative project</td>
<td>50% 75% (*)</td>
<td></td>
</tr>
<tr>
<td>Coordination and support action</td>
<td>100% (*** )</td>
<td></td>
</tr>
</tbody>
</table>

(*) Research and technological development includes scientific coordination.
(**) For beneficiaries that are non-profit public bodies, secondary and higher education establishments, research organisations and SMEs.
(***) The reimbursement of indirect eligible costs, in the case of coordination and support actions, may reach a maximum 7% of the direct eligible costs, excluding the direct eligible costs for subcontracting and the costs of resources made available by third parties which are not used on the premises of the beneficiary.
(****) Including research for the benefit of specific groups (in particular SMEs)
Simplification in H2020

A single indirect cost model

FP7

HORIZON 2020

Single model: 25% Flat Rate

60% ?

20% ?

Real ?

Simplified?
**Simplification in H2020**

**New funding model: impact on the EU contribution (example)**

<table>
<thead>
<tr>
<th>FP7</th>
<th>Direct costs</th>
<th>Indirect costs</th>
<th>Total costs</th>
<th>% EU contribution</th>
<th>EU contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Majority of HES &amp; RTOs</td>
<td>100</td>
<td>60</td>
<td>160</td>
<td>75%</td>
<td>€120</td>
</tr>
<tr>
<td>Flat-rate (60%)</td>
<td>100</td>
<td>60</td>
<td>160</td>
<td>75%</td>
<td>€120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HORIZON 2020</th>
<th>Direct costs</th>
<th>Indirect costs</th>
<th>Total costs</th>
<th>% EU contribution</th>
<th>EU contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>100/25 Funding</td>
<td>100</td>
<td>25</td>
<td>125</td>
<td>100%</td>
<td>€125</td>
</tr>
</tbody>
</table>
Other simplification measures

✓ **Novelties in Personnel costs**
  e.g. less requirements for time records, etc.

✓ **Simplified Financial viability check requirements**
  systematic check for coordinators when requested EU funding for the action is ≥ EUR 500 000

✓ **Certificate on the financial statements**
  only for final payments when total EU contribution claimed by the beneficiary on the basis of actual costs + unit costs for average personnel ≥ EUR 325.000 (excluding e.g. flat rates)

✓ **Etc.**
Time-bound process

- Maximum **five months** from call closure date - until the date of informing applicants about the outcome of proposal evaluation
- Maximum **eight months** from call closure - until the signature of the grant agreement
Conditions for participation

**Minimum conditions**

- **Standard collaborative actions (IA and RIA)**
  At least three legal entities each established in a different Member State or an Associated Country

- **ERC, SME instrument, programme co-fund, coordination and support, training and mobility actions**
  One legal entity established in a Member State or in an Associated Country

**Additional Conditions**

- **Indicated in the work programme or work plan**
Evaluation of proposals

STANDARD AWARD CRITERIA

- EXCELLENCE
- IMPACT
- QUALITY & EFFICIENCY OF THE ACTION

✓ ERC frontier Research actions ➤ only EXCELLENCE

✓ Innovation actions ➤ higher weighting for "IMPACT"
Grant preparation

Sending of the invitation letter and ESR

- Sets deadlines for beneficiaries: submission of the first drafts and signature of declarations
- The precise moment when the invitations and ESR will be sent to coordinators is configurable at the level of the call, always within the 5 months. All coordinators notified at the same time.

Interaction with coordinator

- Sending of the first set of GPFs and technical annex by the coordinator by the given deadline.
- Monitoring of the signature of declarations by the beneficiaries in the background.
The coordinator is asked to sign in parallel with other processes, selection decision and budgetary commitment.

The Authorising Officer\(^1\) will only be invited to sign once all the conditions are met.

The Accession of the other beneficiaries will be automatically monitored by the system, sending reminders when applicable.

\(^1\) The fact that the signature is electronic and there is 100% guarantee that the document signed by the Coordinator is exactly the one submitted and fully consistent with all relevant data there is no need to carry out the checks currently taking place before the signature by the Authorising Officer.
Time to grant: speeding up the process

- No more negotiations
  each proposal evaluated 'as it is', not as 'what could be'

- Legal entity validated in parallel

- No more paper
  e-communication & e-signature of grants
**GAP key issues**

*Ex-ante Financial capacity check*

- For private coordinators if total project funding $\geq$ EUR 500 000
- Other beneficiaries only if they are justified grounds to doubt their financial viability
- Bank guarantees no longer allowed but a general guarantee by another legal entity possible (mainly between daughter/parent companies)
- Latest financial data must be provided to REA (REA will send automatic email requests)
Linked Third Parties

- Beneficiary
  - Affiliated entities
  - Third parties with a legal link
  - Subcontractors

GAP key issues

THIRD PARTIES: carrying out the work in action

- Similar to FP7 Special Clause 10
- Must be identified in the GA
- Same cost eligibility criteria than beneficiaries
  - **NEW**: COM or Agency may request them to accept joint and several liability for their EU contribution
  - **Article 14** MGA
**Beneficiary**

- **Affiliated entities**
- **Third parties with a legal link**
- **Subcontractors**

**Linked Third Parties**

- Ensure best value for money and avoid any conflict of interests
- Estimated costs and tasks must be identified in the budget and Annex 1
- **NEW**: if not identified in Annex 1, Commission may still approve them (beneficiary bears the risk of rejection)

**Article 13 MGA**
GAP key issues

THIRD PARTIES: others

- For the purchase of goods, works or services
- Ensure best value for money and avoid any conflict of interests
- **Article 10 MGA**
  - Free of charge or against payment are eligible costs if they meet the eligibility conditions
  - Must be set out in Annex 1
  - **NEW**: if not identified in Annex 1, Commission may still approve them (beneficiary bears the risk of rejection)
- **Articles 11 & 12 MGA**
**Description Of The Action (DoA), Annex I**

- **The DoA is structured in the same way as the proposal**, comprising Parts A and B.
- **Part A** is based mostly on structured information. Part A shall **not** include contractual obligations (e.g. financial report, interim and final reports, etc.) as project deliverables.
- **Part B (the narrative part)**: is based on Part B of the proposal and must be uploaded as a PDF.

---

**PART A**

For information only.

**NOTE**: Part A will be generated by the IT system once you have filled in the mandatory grant preparation data in the Participant Portal.

**Cover Page**

**Table of contents:**

1.1. The project summary (Extracted - Based on proposal table A.1)
1.2. The list of beneficiaries (Extracted - Based on proposal table A.2)
1.3. Work plan tables (Please fill in the data in the Participant Portal based on the tables in your proposal)
  1.3.1. WT1 list of work packages (based on Proposal table 3.1a)
  1.3.2. WT1 list of deliverables (based on Proposal table 3.1a)
  1.3.3. WT1 Work package descriptions (based on Proposal tables 3.1a, 3.2a, 3.2b)
  1.3.4. WT1 list of milestones (based on Proposal table 3.2a)
  1.3.5. WT1 Description of implementing tools and mitigation actions (based on Proposal table 3.2a)
  1.3.6. WT1 Summary of project efforts in person months (based on Proposal table 3.4)
  1.3.7. WT1 timeline schedule of project review (may by Commission/Agency)
  1.3.8. WT1 timetable (research infrastructures)/ WT1 Summary of transnational/ supranational provision per institution
1.4. (required) Ethics requirements (may by Commission/Agency)

---

**PART B**

**This is the resulting structure of Part B of Annex I.**

**History of changes**

**Table of Contents:**

1. Excellence
   1.1. Objectives
     1.1.1. Relation to the work programme
     1.1.2. Concept and approach
     1.1.3. Ambition (applicable if CSA type of action)
2. Impact
   2.1. Explored impacts
     2.2. Measures to mitigate impact
3. Implementation
   3.1. Work plan (proposed section 3.1 without table 3.1a, 3.1b)
   3.2. Implementation of management structure and governance (proposed sections 3.2 without tables 3.2a, 3.2b)
   3.3. Communication on a whole
   3.4. Resources to be mobilised (proposed sections 3.4 without table 3.4a, but with table 3.4b)
4. Members of the consortium
   4.1. Proposed
     4.1.1. List of parties involved in the project (including use of third-party resources)
     4.2. List of applicable financial support to third parties
5. Ethics and Security
   5.1. Ethics
     5.1.1. Security (Cells under the constraint “Anmerkung” may use a different structure with sections 4.1.1.1, “Group impact” and “Security” Please follow the structure and mentioning in the proposal template)
Consortium agreement

✓ The beneficiaries must have internal arrangements regarding their operation and coordination to ensure that the action is implemented properly (Article 41.3, Annotated Model GA)

✓ In line with the Rules for Participation and the Model Grant Agreement, participants in research and Innovation Actions or Innovation Actions are required to conclude a consortium agreement prior to grant agreement

✓ The consortium agreement must not contain any provision contrary to the Agreement

✓ The consortium agreement may cover:
  • internal organisation of the consortium
  • management of access to the electronic exchange system
  • distribution of EU funding
  • additional rules on rights and obligations related to background and results (including whether access rights remain or not, if a beneficiary is in breach of its obligations)
  • settlement of internal disputes
  • liability, indemnification and confidentiality arrangements between the beneficiaries
For beneficiaries, documentation available on-line on the Participants Portal and external Wiki:

1. Process description
2. "How to" guidance
3. Reference documents
4. "Annotated" grant agreement