Horizon 2020
Work Programme for Research & Innovation 2018-2020

H2020 Transport
Virtual info day – 23/10/2018

We start at 09:30

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#H2020Transport
Horizon 2020 Work Programme for Research & Innovation 2018-2020

H2020 Transport Virtual info day – 23/10/2018

Welcome and opening

Clara de la Torre
Director Transport
DG RTD

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#H2020Transport
“Research and Innovation will play a crucial role in our efforts to tackle climate change and the EU will continue to lead in that domain. We must raise our ambitions in combating climate change in line with the outcome of this report (IPCC), and turn today's challenges into opportunities.”

Carlos Moedas
Commissioner for Research, Science & Innovation
Transport R&I policy orientations (1)

1. **DECARBONISATION**

   • An “immediate and ambitious greenhouse gas reduction action that leads to net zero emissions by 2050” is needed more than ever - Paris Agreement, recent IPCC Special Report and SDGs

   • Increased focus in the Transport WP 2019

     ➢ #EUBatteryAlliance: new cross-cutting call “Building a Low-Carbon, Climate Resilient Future: Next-Generation Batteries” - EUR 114 Mio total budget / EUR 70 Mio for transport-related topics;

     ➢ Green Vehicle call: 3 topics in 2019 => preparing the ground for the massive increase of electrified vehicles on our roads

     ➢ MG call: 7 topics on low carbon transport solutions in aviation, waterborne and logistics

**Horizon 2020 investment targets:**

- ✓ 35% climate actions
- ✓ 60% sustainable development

**Transport Challenge total budget 2019**

- ✓ EUR 386 M
2. DIGITISATION

• Connected and automated driving continues to play a major role and to contribute to road safety, better traffic flow, less congestion, fuel efficiency and ultimately to reduce carbon emissions

• Focus on the socio-economic dimension of the ART call: user behaviour and acceptance, users’ mobility needs, innovative door-to-door solutions in urban areas

3. SAFETY in all transport modes

• Waterborne freight, road mobility, drones and logistics

4. INTERNATIONAL COOPERATION

• Three Flagships topics in 2019 addressing global challenges in aviation, logistics and urban mobility and 4 more topics open to InCo
The Future of Transport R&I

• The Transport WP 2020: in preparation – adoption expected in June 2019

• Horizon Europe: in preparation - EC proposal adopted on 7 June 2018 – ongoing negotiations with Council and EP

• Transport R&I in Cluster 4 on «Climate, Energy and Mobility» - main features:
  - more than the sum of the respective H2020 parts;
  - more impact-focused R&I – supporting the implementation of EU policy goals and links between fuels/electricity (supply-side) and transport (demand-side)
  - new holistic / system-wide / integrated view – e.g. focus on citizens, industry and user needs
  - more synergies across R&I areas, along the full innovation cycle, within the FP and with other EU funding instruments (CEF, Life)
  - mainstreaming and thus more impact of Social Sciences & Humanities, citizen & consumer empowerment, economic & behavioural aspects, standardisation and innovation-friendly frameworks
Thank you!

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Funding & tender opportunities
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home
Welcome and opening

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Welcome and opening

Herald Ruijters
Director Investment, Innovative and Sustainable Transport
DG MOVE

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Dirk Beckers
Director
INEA

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Welcome and opening

Dirk Beckers
Director
INEA

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Mobility for Growth (MG) Calls

Low carbon & sustainable transport

#H2020Transport
Advancements in aerodynamics and innovative propulsion systems for quieter and greener aircrafts

**Specific Challenge:**
Contribute to further reducing emissions and noise.

**Scope: Address at least two of the following areas:**

- Compatibility between thrust effectors and higher degree of integration in new configurations.
- Noise source mechanisms for high bypass ratio turbofan.
- Noise source mechanisms associated with laminar-to-turbulent flow transitions and fully turbulent flow engines.
- Leading/trailing edge noise generated at landing by high-lift devices and undercarriage.
- Innovative propulsion technologies to address topics related to further increase of overall pressure ratio and gas temperatures.
- Develop further multi-physics modelling, numerical simulation and optimisation using HPC capabilities.
Aviation operations impact on climate change (InCo flagship)

**Specific Challenge:**
Mitigation strategies that will minimise adverse environment and climate effects of aviation.

**Scope: Address one or more of the following areas:**
- Advance further the international state-of-the-art through better understanding of aviation emissions.
- Propose and evaluate mitigation strategies towards operational improvements.
- Propose and evaluate mitigation strategies towards greener flight trajectories.
- Propose and evaluate mitigation strategies based on the use of alternative fuels (ASTM D7566 approval standard). The proposal has to include a detailed Life Cycle Analysis (LCA).

International cooperation is encouraged. In particular bilateral international cooperation with China is encouraged for C & D.
Future propulsion and integration towards a hybrid/electric aircraft (InCo flagship)

**Specific Challenge:**
Develop further aviation propulsion and integration technologies with emphasis on hybrid-electric and full-electric propulsion.

**Scope: address one or several of the following areas:**
- Development of tools for tightly coupled inter-disciplinary new architectural feasibility assessment
- Explore concepts of energy harvesting technologies
- Explore emerging storage technologies
- Advance further Electro-Magnetic Interference solutions as well as thermal management trade-offs at system level.

EASA may be involved. Multilateral international cooperation in particular with Japan, Russia, USA and Canada is encouraged.
Challenge:

Retrofit solutions and next generation new builds (including fuel cells) to substantially reduce air pollution from shipping.

Scope (one of the following sub topics):

RIA:
- Concept passenger ship primarily powered by fuel cells of at least 5MW.
- Combined cycle OK for improved efficiency, using LNG, LBG, CPG or synthetic fuels with additional consideration of full H2.

Indicative cost per proposal:
- Topic A €4-8M
- Topic B €3-5M

Budget:
- Topic A: €8M
- Topic B: €15m
Retrofit Solutions and Next Generation Propulsion for Waterborne Transport - 2

IA - One or more of:

• To TRL 5 Highly efficient next gen electrified, clean fuel, or renewable energy propulsion system

• To TRL 5 very innovative large area high efficiency or renewable energy assisted propulsion such as novel wind power, whale tale, bio mimic, considering all aspects.

• To TRL6 Cost effective retrofits for marine shipping that substantially reduce emissions and exceed current legislative requirements.

• As above for inland shipping

Expected impact:

Reduce air pollution from shipping, for retrofits particularly in coastal and port areas. Increase take up. Next gen solutions >10% reduction in CO2 emissions.
Upgrading Transport Infrastructure in order to monitor noise and emissions - 1

**Challenge:**

- Noise and emissions effect on people's health and environment
- Current applications and methodologies do not allow for comparison of data.
- Harmonised measurement methodologies, systems embedded within the transport infrastructure can help to identify environmental deficiencies of vehicle and can help authorities to identify and mitigate their effects.

**Estimated EC Contribution per proposal:**
€4-7M

**InCo-related:**
Encouraged.

Twinning with US DoT funded projects should be foreseen.
Upgrading Transport Infrastructure in order to monitor noise and emissions

**Scope:** proposals should address all of the following:

- Develop equipment to integrate into infrastructure that is able to detect and identify in real-time vehicles exceeding the limits of noise (Db(A)) and emissions (CO2, Nox, PM)
- Develop related I2V systems to inform transgressor of limits exceeded and preventing access to low-emission zones
- Develop automated tolling systems that take into account level of emissions from individual vehicles
- Develop new materials & negative-emissions solutions for infrastructure, apt to mitigate noise and emissions

Road and rail networks are primary focus. Potential negative effects of sensors on health to be considered.

**Expected impact:**

Develop measures, technologies, solutions to bring a reduction of at least 30% in emissions and 20% in noise in targeted zones on measured level at the beginning of project.
Logistics solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations - 1

**Challenge:**

- Urban, metropolitan and peri-urban areas are experiencing a huge increase in demand for new logistics solutions that deal with the requirements of the 'on demand economy' and incorporate opportunities for shared, connected and low-emission logistics operations.

- Research needed on how to prioritise and combine competing interests from private and public (policy) side.

**Scope:** proposals should address all of the following:

- Develop value cases for integrated systems of logistics/freight operations in urban, metropolitan and peri-urban areas - such as TEN-T urban nodes and consolidation centres in urban areas.

- Address (and plan for) the integration of low-emission, and possibly connected (automated) delivery vehicles (eg. cargobikes, drones) in urban logistics.
Logistics solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations - 2

**Expected impact:**

- Clear understanding of cost effective (non-vehicle technology-based) strategies, measures and tools to achieve essentially zero emission city logistics in major urban centres by 2030.

- Delivery of new tested, demonstrated practices and solutions for better cooperation between suppliers, shippers and urban/regions policy makers (planners).

- Inputs to preparation of SULPs and/or SUMP and other planning tools, such as big data and real-time traffic management.
**Structuring R&I towards zero emission waterborne transport - 1**

**Challenge:**

- Need a structured approach towards R&I to decarbonise waterborne transports as well as reducing other pollutants such as SOX, NOX and PMs.

- All stakeholders need to be engaged.

- Priorities need to be established and widely communicated so that they can become a focus for the greening of waterborne transport as a whole.
Structuring R&I towards zero emission waterborne transport - 2

Proposals should address:

• Establish a comprehensive “green shipping stake holder group which should cooperate with waterborne TP and take into account other activities such as ESSF, STRIA, CEF TEN-T.
• Establish a quantified vision considering all pollutants and a strategic research agenda with the steps to achieve it.
• Support take up, including the establishment and implementation of a strong communications strategy.
• Some related activities concerning digitalisation, safety and competitiveness may also be included.

Expected impact:

• Towards zero-emission goal
• Increase competitiveness
• Better targeting and synergies
• Wider awareness and "buy in" to a European zero emission strategy
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Mobility for Growth (MG) Calls

Safe, integrated & resilient transport systems

#H2020Transport
Challenge:
Find innovative solutions to move more European freight by water using inland waterways or short sea shipping.

Scope
Proposals should focus on either (a) Inland waterways, or (b) maritime transport. Proposals should indicate which is being addressed.

Those projects addressing:
a) Inland Waterways must address solutions for infrastructure maintenance and operations (4th bullet), plus at least 4 of the other bullets.

b) Marine Transport must address the development of innovative vessel(s) for more effective intermodal integration and with a focus of the TEN-T network, plus at least 4 of the other bullets.
Moving freight by Water: Sustainable Infrastructure and Innovative Vessels - 2

**Expected impact:**

- Decongest land transport.
- Reduce CO2 and air pollution from intra-European freight transport.
- Improve performance of TEN-T network.
- Substantially increase waterborne freight fed from intercontinental ports.
- Modernise and increase reliability.
- Demonstrate that the proposed solution increases the quantity of waterborne freight carried.

Indicative cost per proposal: €5M to €10M

Topic Budget: €30M

To ensure balance, at least the highest ranked proposal addressing (a) and (b) will be selected.
Safety in an Evolving Road Mobility Environment - 1

Challenge:

• Evolving traffic environment: conventional, automated, new vehicle types & users
• Additional "vulnerability" (non-connected & IT averse road users)
• Safety systems must be adapted to future collision types

Scope:

• Develop robust solutions with drastic improvement in users' & workers' safety
• Define safety characteristics for road system with increasing automation
• Update accident risk assessment: consider long term disability
Safety in an Evolving Road Mobility Environment - 2

And at least one of the following sub topics:

• Tools & models simulating changing environment
• Human Body Models for future collision scenarios.
• Protection systems for future collisions: new interiors ➔ new postures: new body types
• Infrastructure/safety solutions & education/training for new environment

Expected impact:

• At least 10% reduction in injuries and fatalities contributing to UN Sustainable Development goals
• Innovative protection systems for new seating positions
• Harmonised safety assessment methods for real world & future mobility scenarios

Estimated EC contribution per proposal: €4M to €8M

InCo-related: Yes
**Specific Challenge:**
- Drones, fastest growing market in aerospace.
- Potential threat but also enabler of transport safety.
- Beyond safe & secure integration of drones in airspace (SESAR).

**Scope - address both of the following areas:**
- Develop and test technologies, operational and business models for the application of drones or drone swarms and other emerging technologies. Objective: to increase the safety, security, public acceptance and overall efficiency of air, waterborne and surface transport, both passenger and cargo, including search and rescue applications.
- Explore and develop innovative technologies and sustainable business models for pilot services, such as large vehicles/vessels/aircraft inspections, transport management (including emergencies), transport infrastructure condition monitoring and maintenance, logistics, on-demand cargo and/or personal mobility using drones and other emerging technologies safely.

TRL 3 to 5
RIA
EU contribution: € 3-5 million
Innovative applications of drones for ensuring safety in transport - 2

Including: cybersecurity, privacy rights/personal data, law enforcement agencies and insurance.

**Synergies with other EU actors:**

- Satellite-based systems as EGNOS/Galileo and Copernicus.
- Transport Safety Agencies e.g. EASA can be involved.

**Expected impact:**

- Contribute to increase safety and security of the overall civil transport system.
- Contribute to enhance safe and seamless mobility.
- Contribute to economic growth.
- Building knowledge and acceptance within society.
InCO Flagship on Integrated multimodal, low-emission freight transport systems and logistics

**Challenge:**

- New players, new logistics concepts and disruptive technologies, new business models, new trade routes to and from Europe
- Sustainable development of least developed / landlocked countries / islands and outermost regions = International cooperation

**Scope** - proposals should address one or more of the following:

- Understand how new concepts in logistics impact global freight transport.
- Speed up process & transition towards the Physical Internet paradigm.
- Research new issues and questions emerging with the new trade routes to and from Europe.
- Understand new disruptive trends (e.g. on-demand logistics solutions).

Estimated EC contribution per proposal: €3M to €7M

InCo-related: Encouraged. Proposals should consider cooperation with entities from US, Japan, Canada, China, Latin America. Twinning with US DoT funded projects to be foreseen.
InCO Flagship on Integrated multimodal, low-emission freight transport systems and logistics - 2

- Assess impact of emerging technologies in other sectors than freight.
- Collect best case models and develop decision support systems.
- Consider aspects of governance, privacy and cybersecurity of cargo.

**Expected impact:**
- Improved integration of the European transport network with global network.
- Better understanding of impact of emerging technologies and subsequent guidelines.
- Facilitate development of disadvantaged regions and their inclusion into the international trading system.
- Better understanding of links between technological development, trade and geopolitics.
- Validation of research in a selected number of case studies through pilot demonstrations, trials and testing involving service providers and end-users.

Estimated EC contribution per proposal:
€3M to €7M

InCo-related: Encouraged. Proposals should consider cooperation with entities from US, Japan, Canada, China, Latin America. Twinning with US DoT funded projects to be foreseen.
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H2020 Transport - Virtual info day

Mobility for Growth (MG) Calls

Accounting for the people

#H2020Transport
An inclusive digitally interconnected transport system meeting citizens' needs

**Challenge:**
- Ensure that all members of society can benefit from digitisation in the transport system

**Scope:**
- Specific demands placed on the users, required passenger skills and strategies
- Needs and attitudes of various social strata, obstacles to the adoption
- Gender related differences
- Differences across member states, recommendations for policy making and practical applications

Estimated EC contribution per proposal: €1M to €3M

Expected impact: Creating conditions for an inclusive, user friendly digital transport system
Supporting Joint Actions on sustainable urban accessibility and connectivity - 1

**Challenge:**
Sustainable urban accessibility and connectivity is defined as the ease with which activities and opportunities may be reached in an urban transport system, with lower negative environmental impacts.

**Scope:**
Address the potential impact and possibilities for deployment of new mobility services and initiatives by analysing behavioural responses and estimating effects on the various aspects of sustainability for both passenger and freight transport.
Supporting Joint Actions on sustainable urban accessibility and connectivity - 2

**Expected impact:**

- Trans-national, pan-EU research networking and synergies among national/regional and EU research programmes in sustainable urban accessibility and connectivity
- Increasing the evidence base for urban mobility policies at local, regional, national and European level, as well as global level (Chinese organisations)
- Results of the funded projects are expected to make a clear contribution EU Transport Policy objectives (including TEN-T). This shall be achieved by delivering a set instruments, approaches and tools (e.g. SUMPAs and SULPs). Links will be made with existing initiatives (CIVITAS, EIP SCC, etc).

**Estimated EC contribution per proposal:**

€4M to €5M

InCo-related:
Link with Chinese actions.
Support for dissemination events in the field of Transport Research - 1

Challenge:
To organise events of major strategic nature with a European dimension (i.e. TRA) to help promoting and disseminating Transport Research activities in Europe

Scope: Support for the organisation of the Transport Research Arena 2022 conference

• Address latest developments in transport with a multi-modal and future-oriented perspective (policy, industry, research issues)
• High level of continuity with previous editions through cooperation with key transport stakeholders (ETPs) and previous organisers
• Define the planning of the conference, structure sessions, IT support, and support the organisation of demonstration activities
• Commitment of the national authorities via a written endorsement of the relevant Ministry of the proposed hosting country → eligibility criterion
• Overall financial plan to be included in the proposal

Estimated EC contribution per proposal:
€0,5M to €0,7M

InCo-related: No.
Support for dissemination events in the field of Transport Research - 2

Expected impact:

- Contributing to a **wide dissemination of the results** of European transport research
- Raising the visibility and weight of the EU policy in the field
- **Increasing the attractiveness of transport related studies** and reinforce the pursuit of excellence in European transport research and innovation, by giving recognition and visibility to the best achievements

Estimated EC contribution per proposal:
€0,5M to €0,7M

InCo-related: No.
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Blue Growth

#H2020Transport
Ship Emission Control scenarios, marine environmental impact and mitigation - 1

Challenge:

- Increasingly strict emission limits apply to ships around coastlines of most developed countries.
- Now focussed on SOX but a focus on NOX and PM may follow.
- Some compliant solutions impacts and new waste streams. The effects and scenarios in the short and long term are not well understood.

Proposals should address:

- Assessment of the range of emission reduction technologies, considering their costs benefits.
- Experimentally characterise waste streams,
- Considering several scenarios model discernment around the European coast, considering main ship routes and real data, hydrological and weather as well as the constituents discharged
Ship Emission Control scenarios, marine environmental impact and mitigation - 2

- Environmental impact in the medium and long term including bio accumulation.
- Propose sustainable cost effective solutions.
- Recommended to provide open source access to dispersion model data.

**Expected impact:**

- Comprehensive understanding of dispersion and any long term environmental impacts.
- Identify most affected regions.
- Provide sound basis for future policies.
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Automated Road Transport (ART) Calls

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### Automated Road Transport (ART)

#### 2019 Total EU contribution: EUR 38 Mio

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
<th>Stages</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT-ART-01 InCo flagship 4</td>
<td>Testing, validation and certification procedures for highly automated <strong>driving functions</strong> under various traffic scenarios based on pilot test data</td>
<td>RIA</td>
<td>1</td>
<td>6.00</td>
</tr>
<tr>
<td>DT-ART-02 InCo flagship 4</td>
<td>Support for <strong>networking activities</strong> and impact assessment for road automation</td>
<td>RIA</td>
<td>1</td>
<td>6.00</td>
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<tr>
<td></td>
<td></td>
<td>CSA</td>
<td>1</td>
<td>3.00</td>
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<tr>
<td>DT-ART-03 InCo flagship 4</td>
<td>Human centred design for the new <strong>driver role in highly automated vehicles</strong></td>
<td>RIA</td>
<td>1</td>
<td>8.00</td>
</tr>
<tr>
<td>DT-ART-04 InCo flagship 4</td>
<td>Developing and testing shared, <strong>connected and cooperative automated vehicles fleets in urban areas</strong> for the mobility of all</td>
<td>IA</td>
<td>1</td>
<td>30.00</td>
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<tr>
<td>DT-ART-05</td>
<td>Efficient and safe connected and automated <strong>heavy-duty vehicles</strong> in real logistics operations</td>
<td></td>
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<tr>
<td>DT-ART-06</td>
<td>Large-scale, cross-border demonstration of highly automated driving functions for <strong>passenger cars</strong></td>
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</table>
Human centred design for the new driver role in highly AV

**Challenge:**
- How to ensure a safe interaction between driver and the system in highly automated driving situations?

**Scope:**
- Research on driver behaviour and awareness, and monitoring of drivers while using highly AD functions
- Methods to assess the effectiveness and safety of different HMI solutions
- Design and demonstrate innovative HMI solutions for vehicles with highly automated driving functions

**Expected impact:**
- Reduction of risks for driver behaviour related incidents

Estimated EC contribution per proposal: €4M to €8M

InCo-related: Yes.
Shared, connected and cooperative AV fleets in urban areas

**Challenge:**
• How to develop shared automated vehicle fleets in urban areas which are widely accepted by all types of users?

**Scope:**
• Test shared highly automated fleets at larger scale in different environments and for different services, integrated into existing Public Transport systems
• Develop new business and operating models, addressing the needs of different users groups
• Use connectivity technologies to allow communication/ cooperation between vehicles, infrastructure and road users

**Expected impact:**
• Accelerate the uptake of high quality and user oriented mobility services, based on shared automated vehicles

Estimated EC contribution per proposal: €15M to €30M

InCo-related: Yes.
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Green Vehicles (GV) Calls

#H2020Transport
Transport Work Programme 2018-2020

Main features in 2019

• Contribution to 2 key Focus Areas addressing global challenges cutting across sectors and programmes:
  1. Building a low-carbon, climate resilient future (LC)
  2. Digitising and transforming European industry and services (DT)
• New call on Next-Generation Batteries (BAT) cutting across different WP parts
• 3 International Cooperation flagship initiatives of large scale and scope addressing global challenges in aviation and logistics and 4 more topics encouraging InCo
Transport Work Programme 2018-2020

Main features in 2019

• **Budget 2019:** € 386.01M out of a total of € 945M in 2018-2020

• **4 main calls for proposals** and 24 topics open in 2019 / **3 types of action:** RIA, IA, CSA/Era-Net

• **Other actions:** Prizes, SME Instrument, FTI, experts and procurements

• Transport relevant topics in **other parts of the H2020WP:** NMPB, ICT, ENERGY, SECURITY, CROSS-CUTTING ACTIVITIES

• **Complementarities** with CleanSky, SESAR, Shift2Rail, FCH2
Green Vehicles (GV)

Overall objectives:

• Bring forward the activities of the EU Green Vehicle Initiative and prepare the ground for a potential massive introduction of electrified vehicles

• Improve the charging experience from the view point of end-users (access, time, cost, payment systems, etc.)

• Develop new concepts to reduce energy consumption & emissions of long-distance vehicles

• Cooperate with developing and emerging economies for demonstration activities and pilots in large urban areas
User centric charging infrastructure

Challenge

The market share of full electric vehicles is still low in many European member states.

Innovative solutions need to be evaluated and developed to allow EV drivers to have better mobility experience.

The challenge is to support the accelerated deployment of recharging infrastructure – slow charging for cities and occasional ultrafast charging for long range travel.

Estimated EC contribution: €8M to €15M
User centric charging infrastructures

Scope – Proposals should address all the following activities:

All technical areas including demonstration of the final solutions and their interoperability in multiple cities and TEN-T:

• Analysis of subjective perception of charging options and identification of decision influences and concerns of users
• Attractive and convenient charging infrastructure access with connected vehicle systems avoiding waiting times
• Transparent, flexible and interconnected payment systems
• User survey about parking habits
• Improvement of the currently deployed or planned superfast charging systems
• Scalable charging infrastructure for ramp-up of expected needs – power levels and charging posts, managing the impact on the grid

Estimated EC contribution: €8M to €15M
User centric charging infrastructures

Scope – Specific references to e-roads

- Automated conductive or wireless solutions are expected with highly reliable and interoperable devices.
- Test methods need to be further optimised, for instance to assess interoperability.
- Optionally, further extension of the developed stationary wireless charging technology towards urban and periurban "electric road" applications, with the aim of creating an installed base of wireless-ready vehicles to provide the critical mass needed for the deployment of electrified roads at a later stage.

Estimated EC contribution: €8M to €15M
User centric charging infrastructures

Scope – Proposals should address all the following activities:

All technical areas including demonstration of the final solutions and their interoperability in multiple cities and TEN-T:

- Low power DC-charging for LEV’s in combination with theft-proof parking for two-wheelers
- Analysis of market models, regulatory and harmonisation recommendations
- Development of planning methods to optimise the location of charging sites, taking in consideration user needs, habits, time and costs
- Analysis and cost effective solutions for specific cases (e.g. isolated mountain or seaside locations), or special events

Estimated EC contribution: €8M to €15M
User centric charging infrastructures

**Expected Impact**

- Wide user acceptance beyond early adopters
- Foster investments in charging infrastructure
- Determine legal gaps and propose solutions
- Develop test methods and procedures to improve interoperability
- Facilitate grid integration of high-power chargers
- Improve and standardise charging solutions and payment systems.

Estimated EC contribution: €8M to €15M
Low-emissions propulsion for long-distance trucks and coaches

Challenge

- Heavy duty vehicles greatly contribute to CO2 and air pollutant emissions, while being more difficult to electrify, particularly over long distances.

- Technology needs to be developed to minimise these impacts through a mix of engine technology, renewable fuels as well as recuperated heat and regenerated and externally supplied electricity.
Low-emissions propulsion for long-distance trucks and coaches (2)

Scope - Proposals should address all the following technical areas:

• Sub-systems and component concepts including electro-hybrid drives, optimised ICEs and after-treatment systems for alternative and renewable fuels, electric motors, smart auxiliaries, renewable energy production and storage and power electronics, suitable for real life operation under different mission conditions.

• Concepts for connected and digitalised fleet management, predictive maintenance and operation in relation to electrification where appropriate to maximise the emissions reduction potential.

• Implementation of required adaptations in VECTO accordingly to facilitate early take-up of the innovations.
Low-emissions propulsion for long-distance trucks and coaches (3)

Expected Impact

- Minimum 50% combustion engine peak thermal efficiency
- Additional CO₂ emissions reductions by heat recuperation or plug-in hybrid for a total energy saving of at least 10% with respect to the best in class conventional vehicle of 2018, validated by propulsion system measurements
- Such improvement will exclude the effect of alternative fuels and plug-in electricity and will include other high GWP emissions
- 30% reduction of NOₓ, CO and hydrocarbons in an extended range of environmental conditions
- Reduction of unregulated components (NΟ₂, N₂Ο, NH₃, CH₄ for NG powertrains, PN measured with a lower threshold of 10nm
- Reduction of noise in environmental zones in electric modes
- Shorter time to market thanks to VECTO modelling availability

Estimated EC contribution: €20M - 25M
InCo Flagship on Urban mobility and sustainable electrification in large urban areas in developing and emerging economies (1)

Challenge

Climate change, energy security and local air pollution are some of the key questions for the 21st century. Urban areas are major driving factors in growing global energy demand and GHG emissions.

Urbanisation requires integrated mobility solutions that bring together technology opportunities with local and national policy, including land use and mobility planning.

Estimated EC contribution: €15M – €18M

Multi international cooperation encouraged, in particular Asia (e.g. China, India,...), CELAC (e.g. Brazil) and Africa
InCo Flagship on Urban mobility and sustainable electrification in large urban areas in developing and emerging economies (2)

**Scope – Proposals should address all the following activities:**

- Develop tool box for advanced management strategies towards private and public electric mobility to facilitate sustainable transport and mobility solutions in cities (management of vehicles, charging infrastructure, integration of operations)

- Comparative demonstration activities and pilots in the field of electro mobility in cities in Europe, Asia, Africa and CELAC (min. 4 demonstrators); road public transport for both passenger and freight

- Implementation concepts to scale up the demonstration activities (sustainable planning, financing plans, replication in other cities)

**Estimated EC contribution:**
€15M – €18M

Multi international cooperation encouraged, in particular **Asia** (e.g. China, India,...), **CELAC** (e.g. Brazil) and **Africa**
InCo Flagship on Urban mobility and sustainable electrification in large urban areas in developing and emerging economies (3)

Expected Impact

- Quantify the potential reduction of GHG and pollutant emissions as well as traffic congestion

- UN's Sustainable Development Goals 11 and 13

- Reference models of the mobility system for short and long term benefits contributing to EU policy goals (climate, competitiveness)

- A basis for strengthening the collaboration of the EU with Asia, CELAC and Africa.

Estimated EC contribution: €15M – €18M

Multi international cooperation encouraged, in particular **Asia** (e.g. China, India,...), **CELAC** (e.g. Brazil) and **Africa**
## GV: Topics and budget

Total EU contribution in 2018: € 78 million

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
<th>Action type</th>
<th>Stages</th>
<th>Budget (M€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-GV-03</td>
<td>User centric <strong>charging infrastructure</strong></td>
<td>IA</td>
<td>1</td>
<td>35.00</td>
</tr>
<tr>
<td>LC-GV-04</td>
<td>Low-emissions propulsion <strong>for long-distance trucks and coaches</strong></td>
<td>IA</td>
<td>1</td>
<td>25.00</td>
</tr>
<tr>
<td>LC-GV-05</td>
<td><strong>Urban mobility and sustainable electrification</strong> in large urban areas in developing and emerging economies</td>
<td>IA</td>
<td>1</td>
<td>18.00</td>
</tr>
</tbody>
</table>
Horizon 2020 Work Programme for Research & Innovation 2018-2020

H2020 Transport - Virtual info day

Break

We will be back at 11:40

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Horizon 2020
Work Programme
for Research & Innovation
2018-2020

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The Horizon 2020 Cross-cutting activities

The Next-Generation Batteries (BAT) Call

#H2020Transport
Cross-cutting activities:
Building a Low-Carbon, Climate Resilient Future: Next-Generation Batteries

- COP21 climate objectives
- EU2020 and EU2050 climate targets
- EU Batteries Alliance

Cross-cutting call on batteries
H2020-LC-BAT-2019-2020

- Materials
- Transport
- Energy
# Topic overview

### 2019

<table>
<thead>
<tr>
<th>Topic ID</th>
<th>Title</th>
<th>Domain</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-BAT-1-2019</td>
<td>Strongly improved, highly performant and safe all solid state batteries for electric vehicles (generation 4)</td>
<td>NMBP</td>
<td>€ 25 M</td>
</tr>
<tr>
<td>LC-BAT-2-2019</td>
<td>Strengthening EU materials technologies for non-automotive battery storage</td>
<td>NMBP</td>
<td>€ 24 M</td>
</tr>
<tr>
<td>LC-BAT-3-2019</td>
<td>Modelling and simulation for Redox Flow Battery development</td>
<td>Energy</td>
<td>€ 5 M</td>
</tr>
<tr>
<td>LC-BAT-4-2019</td>
<td>Advanced Redox Flow Batteries for stationary energy storage</td>
<td>Energy</td>
<td>€ 15 M</td>
</tr>
<tr>
<td>LC-BAT-5-2019</td>
<td>Research and innovation for advanced Li-ion cells (generation 3b)</td>
<td>Transport</td>
<td>€ 30 M</td>
</tr>
<tr>
<td>LC-BAT-6-2019</td>
<td>Li-ion Cell Materials &amp; Transport Modelling</td>
<td>Transport</td>
<td>€ 13 M</td>
</tr>
<tr>
<td>LC-BAT-7-2019</td>
<td>Network of Li-ion cell pilot lines (CSA)</td>
<td>Transport</td>
<td>€ 2 M</td>
</tr>
</tbody>
</table>

**In 2019 in total 7 topics, € 114 M, of which**

- Transport: 3 topics, € 45 M
- NMBP: 2 topics, € 49 M
- Energy: 2 topics, € 20 M

### 2020

<table>
<thead>
<tr>
<th>Topic ID</th>
<th>Title</th>
<th>Domain</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC-BAT-8-2020</td>
<td>Next-generation batteries for stationary energy storage</td>
<td>Energy</td>
<td>For both</td>
</tr>
<tr>
<td>LC-BAT-9-2020</td>
<td>Hybridisation of battery systems for stationary energy storage</td>
<td>Energy</td>
<td>€ 30 M</td>
</tr>
<tr>
<td>LC-BAT-10-2020</td>
<td>Next generation and realisation of battery packs for BEV and HEV</td>
<td>Transport</td>
<td>€ 40 M</td>
</tr>
</tbody>
</table>

**In 2020 in total 3 topics, € 70 M, of which**

- Transport: 1 topic, € 40 M
- Energy: 2 topics € 30 M

**In addition foreseen:**
- support battery **future emerging technologies** from Transport
- one topic to support batteries for **waterborne applications** in Transport
Strongly improved, highly performant and safe all solid state batteries for electric vehicles

**Challenge:**
New chemistries, materials and production technologies have to be developed to strengthen the European industrial base

**Scope:**
Further development of the current solid state battery technology and present solutions beyond the current state-of-the-art of solid state electrolytes

**Expected impact:**
Reaching ambitious cost and energy density targets, enabled fast charge rates, proven safety, guaranteed and demonstrated IPR protection, increased European materials modelling capacity and ecosystem, The European battery value chain towards cell production in Europe should be strengthened.

Estimated EC contribution per proposal: €6M – €8M

*LC-BAT-1-2019 (RIA)*
Research and innovation for advanced Li-ion cells (generation 3b)

**Challenge:**
To be competitive the European industry and researchers need to improve system knowledge in next generation lithium-ion battery technology covering the full value chain.

**Scope:**
Multidisciplinary activities shall include the whole system knowledge for the most promising electrochemistries to achieve possible production-readiness. Customer acceptance, environmental sustainability and aspects for large scale manufacturing solutions have to be considered.

**Expected impact:**
Cell-level energy densities >750 Wh/l, costs <90€/kWh at pack level, 2,5C fast charging capability while keeping a useful life of at least 2000 deep cycles (with 10% fast charging) to 80% residual capacity, > 20% reduction of CRM

**Estimated EC contribution per proposal:**
€5M – €12M
Li-ion Cell Materials & Transport Modelling

**Challenge:**
Advanced modelling and simulation tools are required that specifically target the electrode and cell level and addressing the fundamental understanding of materials and cell behavior.

**Scope:**
- Multidisciplinary approach for the development of advanced modelling methods based on different physical domains;
- systematic measuring of basic input parameters for modelling;
- manufacturing of prototype cells or cell components;
- demonstration of correlation between cell measurements and simulation.

**Expected impact:**
Reduce the development time and costs by 30%, better optimum for design, decrease the number of experiments by x3.
Reduce R&I costs by 20%
Challenge:
In order to maximise the benefits of the related investments of European pilot lines for cell manufacturing, mutual exchange of data, expertise, and access rights between pilot lines would be desirable in view of international competition and standardisation.

Scope:
• Make a repository of European battery cell pilot lines
• Analyse skill and equipment gaps
• Outline a standardised data exchange platform
• Develop models for shared access to the pilot lines
• Ensure cooperation and networking activities
• Prepare reports and roadmaps of joint strategies

Expected impact:
Advance European competences towards industrial scale cell manufacturing through utilisation of synergies and cooperation.
Topics foreseen for 2020

✓ LC-BAT-8-2020:
Next-generation batteries for stationary energy storage

✓ LC-BAT-9-2020:
Hybridisation of battery systems for stationary energy storage

✓ LC-BAT-10-2020:
Next generation and realisation of battery packs for BEV and HEV

✓ + topic on marine batteries

✓ + future emerging technologies on batteries
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The selection process

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All you need to know about the selection process

Anita Kucharska
Deputy Head of Unit
INEA R.1 - Programme Support, Coordination and Communication

#H2020Transport
5 steps of the selection process

1. Submission of proposals
2. Admissibility & eligibility check
3. Evaluation by external experts
4. Decision on funding
5. Signing a grant agreement

Call is open
## Calendar of the calls

<table>
<thead>
<tr>
<th>2019 activities</th>
<th>Budget</th>
<th>Opening</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility for Growth</td>
<td>€122 M</td>
<td>05/09/2018</td>
<td>16 Jan 2019 (1st stage) 12 Sept 2019 (2nd stage)</td>
</tr>
<tr>
<td><em>two-stage topics</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility for Growth</td>
<td>€46.7 M</td>
<td>04/12/2018</td>
<td>25/04/2019</td>
</tr>
<tr>
<td><em>single-stage topics</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Vehicles</td>
<td>€78 M</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>single-stage topics</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automated Road Transport</td>
<td>€38 M</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>single-stage topics</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batteries</td>
<td>€70 M</td>
<td>24/01/2019</td>
<td>25/04/2019</td>
</tr>
<tr>
<td><em>Single stage topics</em></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Still functional, but to be phased out by the end of 2018
Funding & Tender Opportunities portal

- Just released:
  - https://ec.europa.eu/info/funding-tenders/opportunities/portal/
- To replace the current Participant Portal
- Covering various EU funding programmes

"Search funding & tenders"
Where to look for partners?

1. 'How to participate' tab
2. Partner search tool
Where to look for partners?

Shows in every topic
Submission of proposals

• Submission via the Research & Innovation Participant Portal or the Funding & Tender Opportunities portal (electronic submission only)

• Registered user: Submit proposals, sign grant agreements, manage lifecycle etc.

• Very important: Start preparing the proposal as early as possible and submit on time
Admissibility & eligibility check

Are all forms submitted?

- **YES**
- **NO**

Are all call conditions met?

- **YES**
- **NO**

**ATTENTION!** Only admissible and eligible proposals will be evaluated
Admissibility & eligibility check

• **Specificity for the MG 4.4 2019 call:**

- In order to ensure the involvement of the hosting country, proposals must be accompanied by a written endorsement from the relevant ministry of the country where the conference will take place.

The General annexes of the Work Programme list all eligibility & admissibility criteria
External experts

EU database of over 80,000 evaluators

1. High-level expertise
2. Independence
3. Impartiality

Balanced composition

Regular rotations & new experts
Evaluation by external experts

Min. 3 experts, up to 5

Proposals evaluated as submitted

Lower score if shortcomings are identified

Rejecting proposal if weaknesses are identified
What do the external experts do?

Understand call text

Evaluate individually - remotely

Meet to reach consensus
Against what do they evaluate?

- Excellence
- Impact
- Quality & efficiency
We're looking for new experts!

Not applying?

Become an evaluator!

Sign up now
How to become an expert?

The Funding & Tenders Portal is the single entry point (the Single Electronic Data Interchange Area) for applicants, contractors and experts in funding programmes and procurements managed by the European Commission.

Find calls for proposals and tenders

Search for proposals and tenders by keywords, programmes...

What are calls for proposals?  What are calls for tenders?  How to participate in 5 steps

Calls for proposals by EU Programme

News

Other funding and data

Register
Outcome of evaluation

Ranked list of proposals

Main list
(top scores)

Reserve list

Rejection

Deadline to inform: 3 or 5 months
Grant agreement

Successful proposals invited to start a Grant Agreement Preparation

Very tight deadline: max. 8 months from call deadline to signing the contract

No negotiation phase = no substantial changes
Thank you!

#H2020Transport
@inea_eu
inea@ec.europa.eu
www.ec.europa.eu/inea

More info:
EU Funding & tender opportunities portal
https://ec.europa.eu/info/funding-tenders/opportunities/portal/
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How to prepare a good proposal

#H2020Transport

Marcel Rommerts
Head of Transport Research Unit
INEA

#InvestEUresearch
Tip 1: Have a strong concept

1. Calls are very competitive

2. Success rate for a first stage call is around 30% and 30% for a second stage call

3. Success rate for a single stage call is around 15%

4. Have a strong concept:
   - Be clear on what do you want to achieve
   - Explain well how will you meet the requirements of the topic
Tip 2: Understand call conditions and text

**Must & shall** = "have to"

**Should** = won't get good score if you don't

Check if need to address all issues in the call or not

Consult FAQ's in good time – or ask your own question!

European Commission
Tip 3: Impact

Identify and substantiate the impacts

Dissemination and exploitation plan
Tip 4: Sound budget construction & good project team*

- Budget is reasonable
- Resource allocation is balanced
- All partners have a clear and justified role in the project
- All partners are committed to implement the results

→ The team should share a common vision/ambition

*Only for single stage and second stage calls
Tip 5: Simple to digest

- Simple Language (majority of experts are non-native speakers)
- Make information easy to find
- Relevant summary tables, graphs & images
- Respect page limit
5 steps to success

- Strong concept
- Understand the call
- Impact
- Budget and team
- Simple to digest
Thank you!

#H2020Transport

@inea_eu

inea@ec.europa.eu

www.ec.europa.eu/inea

More info:

EU Funding & tender opportunities portal

https://ec.europa.eu/info/funding-tenders/opportunities/portal/
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Q&A session

Ask your question on sli.do

#H2020Transport

#InvestEUresearch
Thank you for following the H2020 transport virtual info day!

Please fill in the evaluation survey at ec.europa.eu/inea

#H2020Transport

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