

## Horizon 2020 EU Funding Programme Borough Briefing

### 1.0 Introduction

Horizon 2020 is the EU's Funding Framework for Research and Innovation. It is part of the EU's drive to create growth and new jobs in Europe. It will cover many policy areas, including providing €30 billion to help address major concerns shared by all Europeans such as climate change, developing sustainable transport and mobility, making renewable energy more affordable and coping with the challenge of an ageing population. Whilst pure research is not normally a priority of for Boroughs, the demonstration and pilot component actions will be of interest, as will the results and testing of the research.

### 2.0 Timescale for bidding

- 23 June 2015: Planned opening date of the call
- 15 October 2015: Deadline for submissions
- April-June 2016: Anticipated start date of projects

### 3.0 Funding and co-financing

Each funding area has an approximate budget foreseen by the EC (see individual calls below in section 7.0) which ranges from €2 to €8 million or more. Projects tend to last 3 years (although can be shorter or longer) and often involve from 6 to 15 partners from different countries and sectors. Horizon 2020 offers a funding rate of 100% on all costs for Research and Innovation projects and Coordination and Support projects or 70% for Innovation projects. In both cases an additional 25% is added to cover/ off-set partner overheads. This means that partners in some cases will not have to contribute match funding. See section 4.0 for further information on the project categories.

### 4.0 Types of action

There are three types of project (or "action") being funded based on different delivery priorities.

#### 1) **Research and Innovation Actions:** EU funding rate: 100% of costs, with additional 25% applied to cover partner overheads

Projects should focus on establishing new knowledge or explore the feasibility of a new/ improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale demonstrations or pilot activities aiming to show technical feasibility.

*These projects are about developing new approaches to common challenges in different cities, and testing them. Academic institutions might lead on the research and innovation, whereas Boroughs/ TfL would be given demonstration roles to do the piloting.*

**2) Innovation actions:** EU funding rate: 70% of costs, with additional 25% applied to cover partner overheads

Projects should focus on producing plans, arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

*Innovation actions are a lot more “hands on” with less emphasis on research and more on developing, delivery, testing and piloting innovative policies, approaches, technologies in the field of sustainable urban mobility.*

**3) Coordination and support actions:** EU funding rate: 100% of costs plus 25% applied to cover overheads

Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of networking and coordination between programmes in different countries.

*This type of action is primarily designed to share information and develop policy and infrastructure design. Two of the calls below are Coordination and Support Actions, which do not anticipate funding to be used for infrastructure or equipment. Calls in these areas with capital funding will follow in 2016/17.*

## 4.0 Forthcoming calls

Four calls opening on 23 June 2015 within the Mobility for Growth area may be of interest to boroughs. A summary of each call is provided in the table below, and a full description can be found in the annex to this briefing.

Call Name (reference)	Type of Action	Brief Description
<a href="#">Safe and connected automation in road transport (MG-3.6b-2015)</a>	Coordination and Support Actions	Specific challenge: Automated and progressively autonomous driving applications in road transport, actively interacting with their intelligent environment could provide an answer to the EU objective of reconciling growing mobility needs with more efficient transport operations, lower environmental impacts and increased road safety. Automation in road transport should make best use of the evolution of Cooperative ITS and the benefits made available by satellite navigation systems, such as the increased accuracy and robustness. Connectivity and cooperative mobility will be the key driving force for integrating automation into novel mobility concepts enabled by the European Wide Service Platforms (EWSP). Security and safety aspects of these systems are also crucial
<a href="#">Demonstrating and testing innovative solutions for cleaner and better urban transport and mobility (MG-5.5b-2015)</a>	Coordination and Support Actions	Specific challenge: Many of Europe's urban areas are struggling to address the transport-related challenges they are facing. New technologies and innovative measures are emerging, but they are not taken up at a scale that is necessary to meet the targets of the Transport White Paper. Cities are hesitating to implement innovative solutions because little information is available on their effectiveness and on how to overcome the barriers to successful implementation. Special attention should be paid to issues related to vulnerable groups of citizens and gender issues.

<p><a href="#">Smart governance, network resilience and streamlined delivery of infrastructure innovation (MG-8.4b-2015)</a></p>	<p>Research and Innovation Actions or Innovation Actions or Coordination and Support Actions.</p>	<p>Specific challenge: Infrastructure owners and operators need to ensure the best possible return from increasingly limited transport infrastructure investment funds. The main challenge is to overcome the lack of a common framework for governance, management and finance of transport infrastructure projects (including methodologies and modelling) with the aim to enable transparent, risk-based optimisation of investments within and across the modes. This includes issues such as resilience against climate change and other disturbances. Additionally, it is necessary to enhance the industry's practices and capacities in order to raise the productivity, quality and timeliness of infrastructure projects.</p>
<p><a href="#">Electric vehicles' enhanced performance and integration into the transport system and the grid (GV-8-2015)</a></p>	<p>Research and Innovation Actions</p>	<p>Specific challenge: The limited driving range of electric vehicles is one of the biggest deployment challenges for electromobility. A ground-up re-design is needed to fully take advantage of the design freedoms and the opportunities in defining and developing the electric and electronic architecture and components. This should result in increased efficiency and range and make a major contribution towards the transition to fully electric vehicles (FEV's).</p> <p>A particularly important element that needs to be addressed is the battery management system (BMS), which is fundamental for many aspects of electrified vehicle performance, from energy efficiency (and therefore range) to safety, battery life and reliability. Information and communication technologies (ICT) significantly contribute to enhancing the energy efficiency and thus the range of the vehicle by providing accurate prediction of the range and offering personalised options and services to the driver. Furthermore ICT supports recharging that is coordinated with the local electric grid capabilities. Such coordination must accommodate not only passenger EVs, but also meet the requirements of electric buses, vans or trucks, which are expected to require high-powered fast recharging.</p>

## 5.0 Next steps

Boroughs are encouraged to contact LEPT with any queries, expressions of interest or project ideas by **8 June 2015**. This is not a firm deadline, but will assist with approaching any developing consortia in the early stages of the call. LEPT will match boroughs to available bid consortia where possible, or may lead a bid depending on the call and circumstances.

**Alex Quayle**, Senior European Project Officer

Email: [alex.quayle@lept-eu.org](mailto:alex.quayle@lept-eu.org)

Telephone: +44 (0)20 7934 9583

Mobile: +44 (0)7939 584431

## Annex I

### Safe and connected automation in road transport

MG-3.6b-2015

Type of action: Coordination and Support Actions

Specific challenge: Automated and progressively autonomous driving applications in road transport, actively interacting with their intelligent environment could provide an answer to the EU objective of reconciling growing mobility needs with more efficient transport operations, lower environmental impacts and increased road safety.

Automation in road transport should make best use of the evolution of Cooperative ITS and the benefits made available by satellite navigation systems, such as the increased accuracy and robustness. Connectivity and cooperative mobility will be the key driving force for integrating automation into novel mobility concepts enabled by the European Wide Service Platforms (EWSP). Security and safety aspects of these systems are also crucial

Scope: Proposals could be Research and Innovation Actions or Coordination and Support Actions.

Research and Innovation Action proposals should address one or more of the following aspects to support gradual progress towards full automation:

- Dedicated supporting technologies for individual pre-emption or compensation of human errors, or even taking over the vehicle control in case of imminent collision. This could include: Advanced Driver Assistance Systems (ADAS) to support drivers in accident avoidance and to mitigate the consequences of collisions, including tools to detect and measure undesirable or unusual driver condition (such as drowsiness) and warn, control and correct that behaviour at different levels; better optimised Human Machine Interfaces (HMI), providing tailor-made information which the driver is capable of processing in continuously changing conditions.
- Novel transport, service and mobility concepts in real-life situations enabled by automated driving and connectivity. These services and concepts could benefit from cloud computing and data management and data aggregation techniques for road transport big data. They could also include automation specific to the road freight sector, including smart, secure on-board and infrastructure based-systems and seamless integration with other modes. In this context, particular attention could be given to demonstrating freight services/road trains. Attention should be paid to understanding and addressing the responses of users.

All proposals should include an assessment of the effectiveness of the relevant solutions in real life conditions based on a multi-stakeholder engagement process, in particular involving drivers. Ethical and gender issues in compensating for human errors should be duly taken into consideration.

Coordination and Support Action proposals should address one or more of the following aspects:

- Dissemination and take-up of results, including the development and consensus building on business models to progress towards full automation in road transport.
- Liability and standardisation policy and regulatory framework recommendations could be formulated as appropriate.

In line with the Union's strategy for international cooperation in research and innovation[1] international cooperation is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 5 to 10 million each for Research and Innovation Actions would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Projects should contribute to:

- Reduction of the automated driving systems' development costs, as well as raising competitiveness of the European industry in developing breakthrough technological solutions.
- Enhanced robustness and performance of sensor and data analysis systems and optimised HMI and advice strategies together with unobtrusive methods for measuring workload, distraction and fatigue.
- Improved efficiency, safety and traffic flow through better use of the existing infrastructure capacity, and reduction of emissions.

## Demonstrating and testing innovative solutions for cleaner and better urban transport and mobility

MG-5.5b-2015

Type of action: Coordination and Support Actions

Specific challenge: Many of Europe's urban areas are struggling to address the transport-related challenges they are facing. New technologies and innovative measures are emerging, but they are not taken up at a scale that is necessary to meet the targets of the Transport White Paper. Cities are hesitating to implement innovative solutions because little information is available on their effectiveness and on how to overcome the barriers to successful implementation. Special attention should be paid to issues related to vulnerable groups of citizens and gender issues.

Scope: The first part of the topic addresses Innovation Actions to be carried out by city-led consortia, composed of four to five cities, led by at least two advanced cities, which are committed to establish living laboratories where innovative solutions can be implemented. The participating cities should demonstrate their common interests and their vision on how they will ensure a meaningful and close cooperation. Proposals should outline how the work will support effectively the cities' efforts to follow a viable path towards sustainable mobility.

Each city should follow an integrated multimodal approach by demonstrating and testing under real life-conditions a set of complementary and reinforcing mobility solutions. The solutions should combine newly-emerging technologies, policy-based, and soft measures with a strong replication potential. They should cover an appropriate sub-set of the eight 'CIVITAS measure categories': collective passenger transport; demand management strategies; mobility management and travel awareness; safety and security; urban freight logistics; information systems and services; and clean fuels and low emission vehicles; car-independent lifestyles.

A thorough impact and process evaluation, on the basis of a common framework using a clear baseline in each city, will provide qualitative and quantitative information on the results of the local solutions implemented. The effectiveness of proposed measures in achieving local policy objectives should be evaluated and the barriers to broad deployment identified together with recommendations on how to overcome them. This should be accompanied by effective mechanisms for cross-fertilisation of knowledge and best-practises among the consortium members and beyond.

Proposals may include preparatory, take up and replication actions, research activities, as well as tools to support local planning and policy making. A demonstrated contribution to the development or revision of Sustainable Urban Mobility Plans as well as furthering the Union's strategy for international cooperation in research and innovation, especially with China[1], will be an advantage.

The Commission considers that proposals requesting a contribution from the EU of between EUR 12 to 18 million each for Innovation Actions would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Funding for major infrastructure works is not foreseen. The second part of the topic addresses a Support Action to facilitate cooperation between stakeholders involved in the projects under this topic, and from across CIVITAS 2020. It should further elaborate the common 'CIVITAS Process and Impact Evaluation Framework', support its implementation and contribute to local capacity building in deploying innovative mobility solutions. The action should include a clear communication and dissemination strategy to maximise impact and ensure the continuity of the 'CIVITAS Secretariat' as well as links with the CiVi-Net networks.

Expected impact: The Innovation Actions will produce added-value inputs to the development of European knowledge base on the effectiveness and impacts of innovative mobility solutions and approaches to their successful implementation. Clear commitments and contribution from participants to Europe-wide take up during and beyond the project are expected. The Support Action will help to promote take up of innovation by strengthening the mechanisms for urban transport policy making and planning as well as the technical capacity building in the participating cities. Dissemination, training and exchange activities will aim at a maximum reach of the target audience.

## Smart governance, network resilience and streamlined delivery of infrastructure innovation

MG-8.4b-2015

Type of action: 1) Research and Innovation Actions; 2) Innovation Actions; 3) Coordination and Support Actions.

Specific challenge: Infrastructure owners and operators need to ensure the best possible return from increasingly limited transport infrastructure investment funds. The main challenge is to overcome the lack of a common framework for governance, management and finance of transport infrastructure projects (including methodologies and modelling) with the aim to enable transparent, risk-based optimisation of investments within and across the modes. This includes issues such as resilience against climate change and other disturbances. Additionally, it is necessary to enhance the industry's practices and capacities in order to raise the productivity, quality and timeliness of infrastructure projects.

Scope: Proposals should address one or several of the following aspects:

- Development of whole system planning environments (based e.g. on virtual design concepts such as BIM - Building Information Modelling) to support the streamlined delivery of infrastructure projects from concept to deployment. In this respect, the rail sector deserves particular attention.
- Innovative, harmonised and lean procurement processes, accompanied by adequate monitoring systems, contracting and tendering methods; management tools to provide help in innovation delivery.
- Solutions for advanced infrastructure capacity planning and modelling for all transport modes.
- Solutions for optimal cost-effectiveness, including network resilience, mapping of climate risk hot-spots, reducing environmental impacts, including under climate change, together with appropriate adaptation measures and cross-modal implementation strategies.
- Solutions for advanced asset management, advanced investment strategies and innovation governance, including smart monitoring systems (such as Structural Health Monitoring) and adequate indicators for cost and quality.

SME active participation is strongly encouraged.

The work will focus either on further advancements in knowledge where technological progress is still needed (Research and Innovation Actions), or on implementing innovative technologies in real life conditions via large scale demonstration actions (Innovation Actions). The need for strengthening the network between infrastructure owners and operators in view of enhancing the effectiveness of the sector could be approached through appropriate coordination schemes (Coordination and Support Actions).

Expected impact:

- Accelerated delivery of transport infrastructure through improved, transparent and harmonised investment decision making at a European level, balancing performance with cost (in terms of Total Cost of Ownership) and risk.
- Improved predictive capacity and maintenance planning of the European transport infrastructure network, including determination of the optimal balance between long-term renewal and short-term maintenance.
- Improved assessment of risks related to impacts of climate change and evaluation of possible measures of adaption.
- Faster adoption of innovation as a result of reinforced coordinated public-private partnerships, for example through (pre-competitive) innovation procurement procedures.
- Competence building in the area of transport infrastructure management, resulting in strong (public-sector) capabilities across the value chain of planning, delivery and operations.

## Electric vehicles' enhanced performance and integration into the transport system and the grid

GV-8-2015

Type of action: Research and Innovation Actions

Specific challenge: The limited driving range of electric vehicles is one of the biggest deployment challenges for electromobility. A ground-up re-design is needed to fully take advantage of the design freedoms and the opportunities in defining and developing the electric and electronic architecture and components. This should result in increased efficiency and range and make a major contribution towards the transition to fully electric vehicles (FEV's).

A particularly important element that needs to be addressed is the battery management system (BMS), which is fundamental for many aspects of electrified vehicle performance, from energy efficiency (and therefore range) to safety, battery life and reliability.

Information and communication technologies (ICT) significantly contribute to enhancing the energy efficiency and thus the range of the vehicle by providing accurate prediction of the range and offering personalised options and services to the driver. Furthermore ICT supports recharging that is coordinated with the local electric grid capabilities. Such coordination must accommodate not only passenger EVs, but also meet the requirements of electric buses, vans or trucks, which are expected to require high-powered fast recharging.

Scope: Proposals should address one of the following complementing domains and could include interfaces between these domains:

- EV concepts featuring a complete revision of the electric and electronic architecture to reduce complexity and the number of components and interconnections, whilst improving energy efficiency, functionality and modularity. This may be supported by drive-by-wire or wireless communication, as well as advanced energy storage, transmission and conversion systems including miniaturisation. Challenges in safety, security, reliability and robustness, including electro-magnetic compatibility, are to be addressed. Work shall pursue a high degree of standardisation and cover the entire electric vehicle value chain.

The Commission considers that proposals requesting a contribution from the EU of between EUR 5 to 10 million each would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact: Proposals will have to contribute to the expected impacts listed below whenever relevant for the selected domain:

- Improvements in the cost-performance ratio of EV contributing to quicker market take-up.
- Enhancements to vehicle range and/or weight, battery life and reliability without compromising on safety - delivering a more robust and well managed battery system.
- Standardised BMS components and interfaces.
- Progress on ICT-based technologies for coordinated EV recharging.
- Improved attractiveness of EVs, achieved through a seamless and ergonomic energy management cycle (spanning the entire cycle from re-charging spot selection/reservation to plug-out after re-charging).
- Contributions to standardisation strengthening the competitiveness of the European industry.