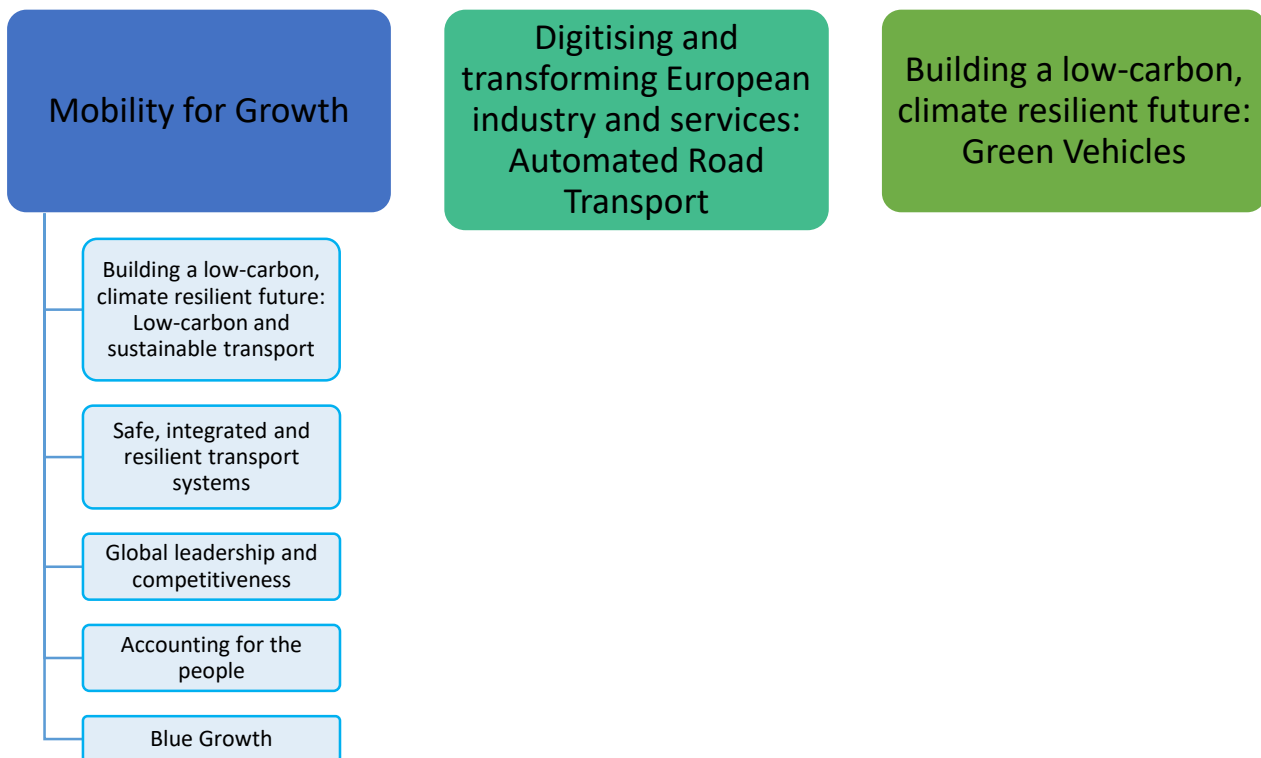# SC4 - Smart, green and integrated transport

The Specific Programme of SC4 "Smart, green and integrated transport" is structured in four broad lines of activities aiming at:

a) **Resource efficient transport that respects the environment**. The aim is to minimise transport's systems' impact on climate and the environment (including noise, air and water pollution) by improving its efficiency in the use of natural resources, and by reducing its dependence on fossil fuels and energy imports.

b) **Better mobility, less congestion, more safety and security**. The aim is to reconcile the growing mobility needs with improved transport fluidity, through innovative solutions for seamless, inclusive, affordable, safe, secure and robust transport systems that make full use of modern information and communication technologies (ICT) capabilities.

c) **Global leadership for the European transport industry**. The aim is to reinforce the competitiveness and performance of European transport manufacturing industries and related services on global markets including logistic processes and retain areas of European leadership (*e.g.* such as aeronautics).

d) **Socio-economic and behavioural research and forward looking activities for policy making**. The aim is to support improved policy making which is necessary to promote innovation and meet the challenges raised by transport, including the internalisation of external costs, and the societal needs related to it. Socio-economic research is also an important instrument for reaching the objectives under this programme.

The activities of this Work Programme will be implemented by three Calls for proposals:

Mobility for Growth	Digitising and transforming European industry and services: Automated Road Transport	Building a low-carbon, climate resilient future: Green Vehicles

Mobility for Growth
- Building a low-carbon, climate resilient future: Low-carbon and sustainable transport
- Safe, integrated and resilient transport systems
- Global leadership and competitiveness
- Accounting for the people
- Blue Growth

Mobility for Growth

Transport is changing at an accelerating pace as a result of several factors in many diverse but interconnected fields: cutting edge technological innovations; major socio-economic trends; global targets such as those on the fight against climate change; increased international competition; new operations and business models.

*In order to address these new challenges, targeted efforts are needed to develop and validate new solutions that can be rapidly deployed. They will address in a systemic way **transport means**, **infrastructure** and **operation models** and integrate them into a user friendly European transport system of **smart connected mobility for passengers and freight** and with significantly reduced impact on climate and environment. A **user-centred approach** taking into account the evolving needs of transport users is necessary in order to assess the impact of transport solutions on society and economy, while it will also contribute to the competitiveness of European transport industry. Simultaneously a perspective is needed that acknowledges the broader **impact of the transport system**, not only **on its users**, but also **on non-users in cities and regions**.*

	Building a low-carbon, climate resilient future: Low-carbon and sustainable transport		
\multicolumn{4}{c}{*Research and innovation activities will support the **transition towards zero-emission and quieter mobility** across all transport modes. Grounded on a people's perspective, it will lead to **improved tools and mechanisms for monitoring and detection of emissions and noise in road vehicles, ships and aircrafts** and will provide cities, regional and national authorities and spatial planners with evidence of long term impacts of the current developments in transport technologies and business models on spatial planning to **support decision making processes in policy and planning**.*}		
Action	**Topic**	**Opening date**	**Deadline(s)**
RIA	InCo flagship on reduction of transport impact on air quality[1]	31/10/2017	31/01/2018 19/09/2018
RIA	Sustainable multi-modal inter-urban transport, regional mobility and spatial planning[2]	31/10/2017	31/01/2018 19/09/2018
RIA	Harnessing and understanding the impacts of changes in urban mobility on policy making by city-led innovation for sustainable urban mobility[3]	31/10/2017	31/01/2018 19/09/2018
CSA		31/10/2017	04/04/2018
RIA	Hardening vehicle environmental protection systems against tampering	31/10/2017	31/01/2018 19/09/2018
RIA	Advancements in aerodynamics and innovative propulsion systems for quieter and greener aircrafts	05/09/2018	16/01/2019 12/09/2019
RIA	Aviation operations impact on climate change (InCo flagship)[4]	04/12/2018	24/04/2019
RIA	Future propulsion and integration: towards a hybrid/electric aircraft (InCo flagship)[5]	04/12/2018	24/04/2019
RIA or IA	Retrofit Solutions and Next Generation Propulsion for Waterborne Transport	05/09/2018	16/01/2019 12/09/2019
RIA	Upgrading transport infrastructure in order to monitor noise and emissions[2]	05/09/2018	16/01/2019 12/09/2019
RIA	Logistics solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations	05/09/2018	16/01/2019 12/09/2019

1 *International cooperation with China, other Asian countries and CELAC (Latin America and Caribbean Countries).*
2 *Cooperation with US DOT (Department of Transport) projects.*
3 *International cooperation with USA, China and India.*
4 *International cooperation with China.*
5 *International cooperation with Japan and Canada.*

RIA: Research and Innovation Action
IA: Innovation Action
CSA: Coordination and Support Action
COFUND: Co-funding of regional, national and international programmes

Safe, integrated and resilient transport systems

*Research under this section is expected to contribute significantly to **transport safety** across transport modes. It is also expected to contribute to the **decongestion of road/city infrastructure** by modernising and increasing the reliability and competitiveness of Intra-European Waterborne transport, as well as to the **integration of the European network for logistics into the global one** by supporting the sustainable development of new logistics routes and their links with national/regional markets.*

Action	Topic	Opening date	Deadline(s)
RIA	Human Factors in Transport Safety	31/10/2017	31/01/2018 19/09/2018
RIA or IA	Marine Accident Response	31/10/2017	31/01/2018 19/09/2018
CSA	Airworthiness of mass-market drones	31/10/2017	04/04/2018
CSA	Coordinating national efforts in modernizing transport infrastructure and provide innovative mobility services	31/10/2017	04/04/2018
RIA	Innovative technologies for improving aviation safety and certification in icing conditions (InCo flagship)[1]	31/10/2017	04/04/2018
RIA	Moving freight by Water: Sustainable Infrastructure and Innovative Vessels	05/09/2018	16/01/2019 12/09/2019
RIA	Safety in an evolving road mobility environment	05/09/2018	16/01/2019 12/09/2019
RIA	Innovative applications of drones for ensuring safety in transport	05/09/2018	16/01/2019 12/09/2019
RIA	InCo Flagship on Integrated multimodal, low-emission freight transport systems and logistics[2]	05/09/2018	16/01/2019 12/09/2019

Global leadership and competitiveness

*Actions under these topics will contribute to the development of **advanced technological capabilities in transport exploiting both evolutionary and disruptive technologies** which will result in strengthened global leadership, environmental protection and enhanced travel comfort and safety.*

Action	Topic	Opening date	Deadline(s)
RIA	Multidisciplinary and collaborative aircraft design tools and processes	31/10/2017	31/01/2018 19/09/2018
IA	The Autonomous Ship		
RIA	Driver behaviour and acceptance of connected, cooperative and automated transport		

Accounting for the people

*The overall objectives are to create an innovative and inclusive digital travel environment that improves accessibility and social inclusion, travel experience and citizen well-being. In doing so, the research topics will contribute to a **smooth adoption of new and emerging transport mobility solutions, ensuring equity and societal acceptance**.*

Action	Topic	Opening date	Deadline(s)
CSA	New regulatory frameworks to enable effective deployment of emerging technologies and business/operating models for all transport modes	31/10/2017	04/04/2018
CSA	Building Open Science platforms in transport research	31/10/2017	04/04/2018
RIA	Demographic change and participation of women in transport	31/10/2017	04/04/2018
CSA	Support for dissemination events in the field of Transport Research: a) Innovation awards at TRA2020; b) support for aviation event	31/10/2017	04/04/2018
CSA	Support for dissemination events in the field of Transport Research: support for TRA 2022	04/12/2018	24/04/2019
RIA	An inclusive digitally interconnected transport system meeting citizens' needs	04/12/2018	24/04/2019
ERA-NET COFUND	Supporting Joint Actions on sustainable urban accessibility and connectivity	04/12/2018	24/04/2019

Blue Growth

*The following two topics belong to "Blue Growth", the long term EU strategy **to support sustainable growth in the marine and maritime sectors** as a whole.*

Action	Topic	Opening date	Deadline(s)
RIA	Unmanned and autonomous survey activities at sea	31/10/2017	04/04/2018
RIA	Ship emission control scenarios, marine environmental impact and mitigation	04/12/2018	24/04/2019

1 international cooperation with USA, Canada, Japan, Brasil and Australia.
2 Cooperation with US DOT (Department of Transport) projects and international cooperation with Japan, China, CELAC.

RIA: Research and Innovation Action
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COFUND: Co-funding of regional, national and international programmes

Digitising and transforming European industry and services: Automated Road Transport

*By supporting innovative connected and automated driving technologies and mobility solutions, the call will help to create new global market opportunities for European industry and strengthen the position of Europe as a world leader in innovative mobility. Actions under this call are expected to contribute to **more road safety** as well as to **better traffic flow, less congestion, fuel efficiency and reduce carbon emissions**. **New shared and fully automated mobility services** can help decrease the total number of cars on the road, alleviating the overall traffic.*

Action	Topic	Opening date	Deadline(s)
RIA	Testing, validation and certification procedures for highly automated driving functions under various traffic scenarios based on pilot test data	31/10/2017	04/04/2018
RIA or CSA	Support for networking activities and impact assessment for road automation	31/10/2017	04/04/2018
RIA	Human centred design for the new driver role in highly automated vehicles	04/12/2018	24/04/2019
IA	Developing and testing shared, connected and cooperative automated vehicle fleets in urban areas for the mobility of all	04/12/2018	24/04/2019

⚠️ In all these topics, international cooperation with the following countries is strongly encouraged: USA (US Department Of Transport – DOT projects), Japan, South Korea, Singapore, Australia.

Building a low-carbon, climate resilient future: Green Vehicles

*By supporting innovative connected and automated driving technologies and mobility solutions, the call will help to create new global market opportunities for European industry and strengthen the position of Europe as a world leader in innovative mobility. Actions under this call are expected to contribute to **more road safety** as well as to **better traffic flow, less congestion, fuel efficiency and reduce carbon emissions**. **New shared and fully automated mobility services** can help decrease the total number of cars on the road, alleviating the overall traffic.*

Action	Topic	Opening date	Deadline(s)
IA	Integrated, brand-independent architectures, components and systems for next generation electrified vehicles optimised for the infrastructure	31/10/2017	04/04/2018
RIA	Virtual product development and production of all types of electrified vehicles and components	31/10/2017	04/04/2018
IA	User centric charging infrastructure	04/12/2018	24/04/2019
IA	Low-emissions propulsion for long-distance trucks and coaches	04/12/2018	24/04/2019
IA	InCo flagship on "Urban mobility and sustainable electrification in large urban areas in developing and emerging economies"[1]	04/12/2018	24/04/2019

1 international cooperation with Asia (China, India, etc.), CELAC, Africa.

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CSA: Coordination and Support Action
COFUND: Co-funding of regional, national and international programmes

Other opportunities for Transport research and innovation across Horizon 2020

Prizes and specific topics in other parts of H2020

- LEIT ICT WP: 5G for cooperative, connected and automated mobility (CCAM)
- EIT KIC: Urban Mobility: a cross-cutting challenge
- Horizon prize for Cleanest engine of the future

Bottom-up activities

- European Research Council
- European Innovation Council (SME Instrument, Fast-Track-to-Innovation, FET, Prizes)
- Marie Sklodowska-Curie Actions

Joint Undertakings

- Clean Sky 2 (Deadline of 2017 call: **29/02/2018**)
- Shift2Rail (Deadline of 2018 call: **24/04/2018**)
- Fuel Cells and Hydrogen 2 (Deadline of 2018 call: **24/04/2018**)
- SESAR (No open calls at the moment)

Societal Challenges and LEIT

- SC2: Blue Growth Call
- SC3: Secure, clean and efficient energy
- SC5: Climate action, environment, resource efficiency and raw materials
- SC7: Secure Societies
- LEIT: Nanotechnologies, advanced materials, biotechnology and advanced manufacturing and processing
- LEIT: Information and Communication Technologies
- LEIT: Space

The policy context

GLOBAL COMMITTMENTS:

http://www.un.org/sustainabledevelopment/sustainable-development-goals/

https://ec.europa.eu/clima/policies/international/negotiations/paris_en#tab-0-0

http://unfccc.int/paris_agreement/items/9485.php

EUROPEAN POLICIES:

Energy Union
https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union

Transport White Paper
https://ec.europa.eu/transport/sites/transport/files/themes/strategies/doc/2011_white_paper/white-paper-illustrated-brochure_en.pdf

Clean Energy for All Europeans
https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans

Accelerating Clean Energy Innovation
https://ec.europa.eu/energy/sites/ener/files/documents/1_en_act_part1_v6_0.pdf

Communication on "a European Strategy for Low-Emission Mobility"
http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016SC0244&from=EN

Circular economy
http://ec.europa.eu/environment/circular-economy/index_en.htm

Digital single market
https://ec.europa.eu/digital-single-market/