

Transport Research and Innovation in Horizon 2020

The New EU Framework Programme for R&I
2014-2020

European Commission
DG RTD – Transport
Ludger ROGGE

Info-Day
Brno, 12 December 2013



What is Horizon 2020

The new EU Framework Programme for Research and Innovation, 2014-2020

➔ **A budget of € 77 billion for 7 years**

➔ **A core part of Europe 2020, Innovation Union
and the European Research Area:**

- **Investing in future jobs and growth to overcome the economic crisis**
- **Addressing people's concerns about their livelihoods, safety, environment...**
- **Strengthening the EU's global position in research, innovation, technology**

What's new

- **Coupling research to innovation – from research to deployment**
- **Focus on societal challenges facing EU society, e.g. health, clean energy, transport,...**
- **Simplified access, for participants**
- **A single programme bringing together three previously separate programmes/activities***

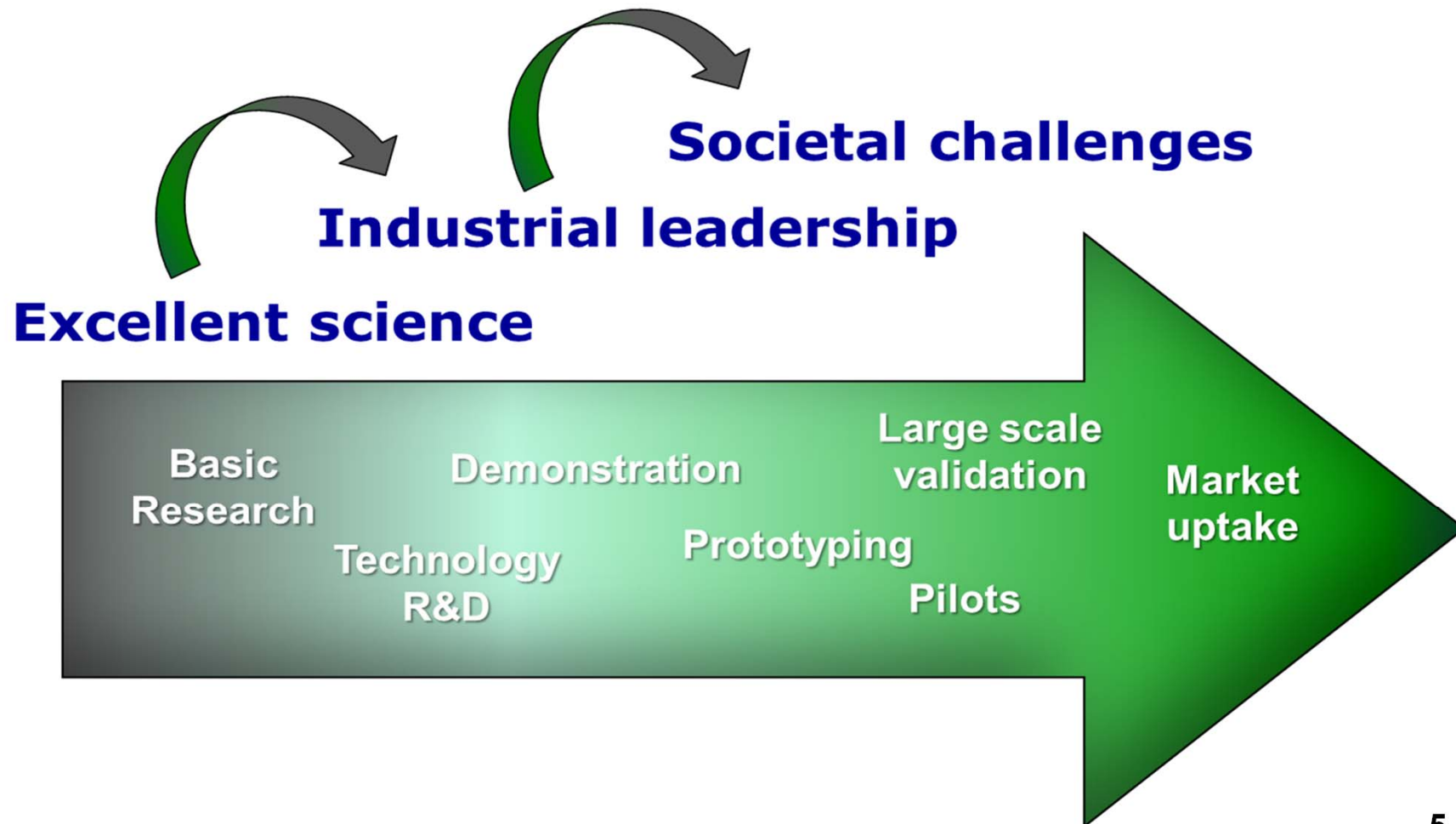
*the 7th Research Framework Programme (FP7), innovation aspects of Competitiveness and Innovation Framework Programme (CIP), EU contribution to the European Institute of Innovation and Technology (EIT)



Three main priorities

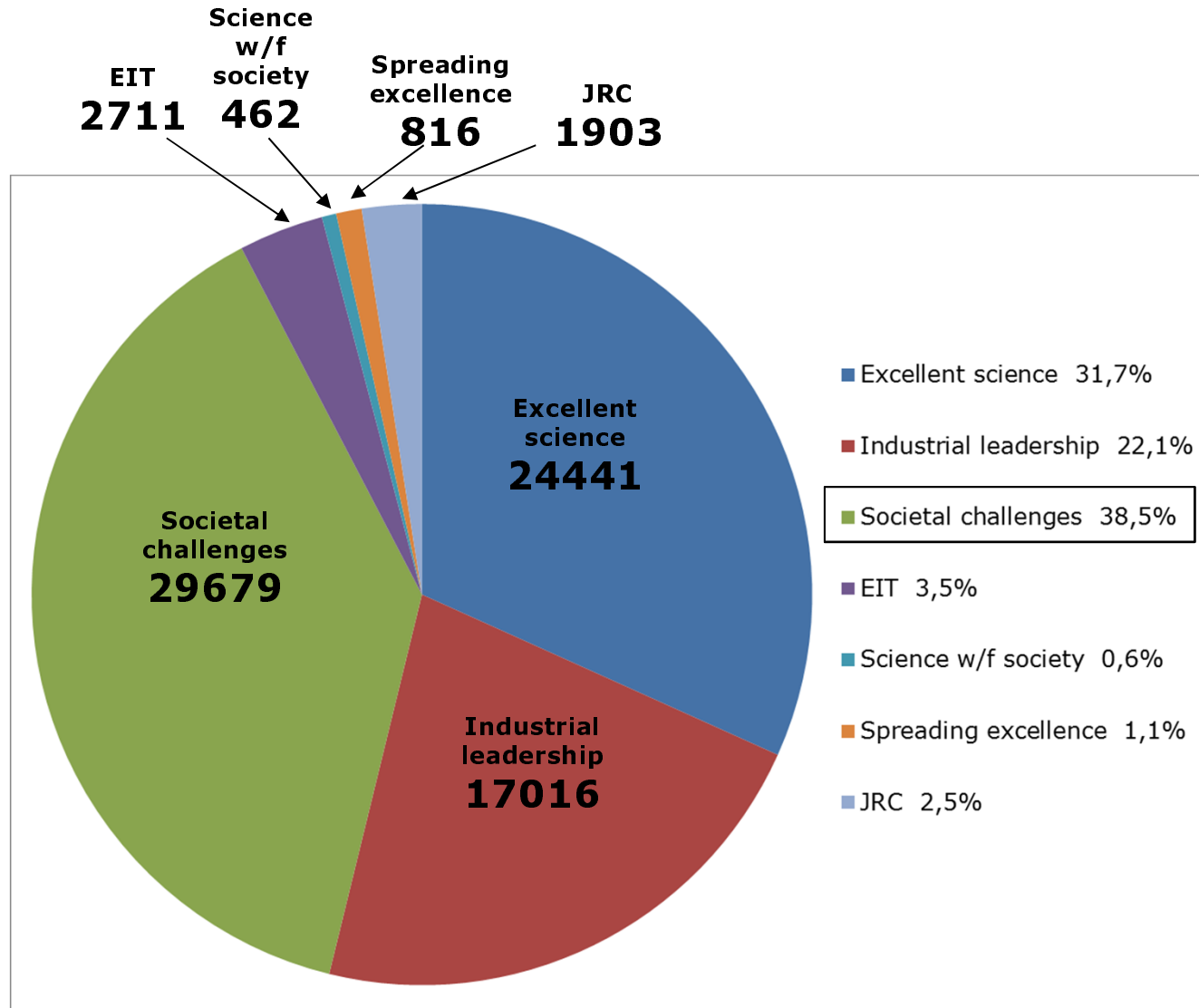


Coverage of the full innovation chain



Budget breakdown

77028 Million € (current prices)





I. Excellent science

Proposed funding: € 24 441 million

1. European Research Council (ERC) <i>Frontier research by the best individual teams</i>	13 095
2. Future & Emerging Technologies (FET) <i>Collaborative research to open new fields of innovation</i>	2 696
3. Marie Skłodowska-Curie actions <i>Opportunities for training & career development</i>	6 162
4. Research infrastructures <i>Ensuring access to world-class facilities</i>	2 488

II. Industrial leadership

Proposed funding: € 17 015 million

<p>1. Leadership in enabling & industrial technologies</p> <p><i>(ICT, nanotechnologies, materials, biotechnology, manufacturing, space)</i></p>	13 557
<p>2. Access to risk finance</p> <p><i>Leveraging private finance & venture capital for research & innovation</i></p>	2 842
<p>3. Innovation in SMEs</p> <p><i>Fostering all forms of innovation in all types of SMEs</i></p>	616

III. Societal challenges

Proposed funding: € 29 679 million

<i>1. Health, demographic change & wellbeing</i>	7 472
<i>2. Food security, sustainable agriculture & forestry, marine, maritime & inland water research & the bio-economy</i>	3 851
<i>3. Secure, clean & efficient energy</i>	5 931
<i>4. Smart, green & integrated transport</i>	6 339
<i>5. Climate action, environment, resource efficiency & raw materials</i>	3 081
<i>6. Europe in a changing world – Inclusive, innovative & reflective societies</i>	1 310
<i>7. Secure societies – Protecting freedom & security of Europe & its citizens</i>	1 695



Transport main policy goals: competitiveness and sustainability

- **Innovate to preserve/expand market-shares and jobs (fierce international competition)**
- **Resource efficiency vs. climate change and oil dependency (achieve the 20/20/20 energy-climate-environment targets)**
- **Curb noxious emissions, improve air quality (30% of all CO₂ comes from transport)**
- **Network capacity and modal shift vs. saturation and congestion (congestion costs: 1 to 2 % of GDP)**
- **Smart solutions for safety and security (28000 road fatalities/year in the EU)**

'Smart, green and integrated Transport'

The challenge: achieve a transport system that is...

- Resource efficient
- Environmentally friendly
- Safe and seamless
- Beneficial for the citizens, the economy and society

and promote globally competitive transport industries

The logic: a holistic approach which...

- Recognises modal specificities
- Responds to policy requirements
- Is focused on the societal challenges
- Reconciles competitiveness and sustainability

Implementing the programme: WP calls and large initiatives

➤ **Collaborative
calls for proposals**

➤ **Innovation
investment package**

- Clean Sky
- SESAR
- Fuel Cells & Hydrogen (contribution)
- [Shift2Rail]

budget





Work Programme: new features

- **challenge-based approach: broad latitude for applicants to devise innovative solutions**
- **broader topics, less prescription, focus on impact**
- **biennial WP, annual calls (in most cases)**
- **1 topic = various projects (in most cases)**
- **no 'ringfencing' of topic budget/ranking (in most cases)**
- **simplified list of actions/funding rates**
(research and innovation actions: 100%; innovation actions: 70%/100%;...)
- **2-stage evaluation for most topics**
- **facilitated access through keywords and tags**

Work programme cycle in H2020



- **Calls: annual, biennial or open**
- **Single stage or 2-stage evaluations**

* possible revision



WP 2014-15 Transport main calls

Call	Budget (€ Mio) 2014	Budget (€ Mio) 2015	Publication date
Call: Mobility for Growth	374,5	184	11 Dec
1. Aviation	70	36	
2. Rail	52		
3. Road	66	23	
4. Waterborne	56	18	
5. Urban	40	66,5	
6. Logistics	32	18	
7. ITS	31		
8. Infrastructure	19	17,5	
9. Socio-economic and behavioural research	8,5	5	
Call: Green Vehicles	129	30	11 Dec
Call: Small business and Fast Track	35,87	38,69	11 Dec

Mode-specific challenges

Transport integration specific challenges

Cross-cutting

Call 'Mobility for Growth'

AVIATION

EUROPE NEEDS:



- Medium to long-term Research and Innovation actions with a bottom-up approach for innovative technologies, complementing those carried out under Clean Sky and SESAR
- Actions to improve the skills and knowledge base of European aviation, to support its R&I policy and to create durable links with targeted international cooperation partners

AVIATION

TOPICS:



- Competitiveness of European aviation through cost efficiency and innovation - **MG1.1** - 2014 – 2 stages
- Enhancing resource efficiency of aviation – **MG1.2** - 2015 – 2 stages
- Seamless and customer oriented air mobility – **MG1.3** - 2014 – 2 stages
- Coordinated research and innovation actions targeting the highest levels of safety for European aviation - **MG1.4** - 2014 – 1 stage
- Breakthrough innovation for European aviation – **MG1.5** - 2014 – 2 stages
- Improving skills and knowledge base in European aviation – **MG1.6** - 2014 – 1 stage
- Support to European aviation R&I policy – **MG1.7** - 2014 – 1 stage
- International cooperation in aeronautics – **MG1.8** - 2014 – 1 stage; 2015 – 1 stage
- Developing a public European environmental modelling suite for aviation (under 'Other Actions' in WP) Tender – **OA1** – 2014

in red: topics open in 2014

RAIL



EUROPE NEEDS:

- R&I to help modernise Europe's railways, while also reducing operational and infrastructure costs and creating new business opportunities for the European rail supply industry.
- Innovative technologies and solutions for rolling stock, infrastructure, traffic management systems and customer-oriented services in all rail segments and better market uptake of these innovations
- Novel business, organizational and logistics solutions, new partnerships with service and technology providers from more advanced sectors

RAIL

TOPICS:

- Intelligent Infrastructure – **MG2.1**
- Smart Rail Services – **MG2.2**
- New generation of rail vehicles – **MG2.3**

All are 2 stages for 2014

Projects will contribute to the objectives of the envisaged 'Shift2Rail' initiative



in red: topics open in 2014

Call 'Mobility for Growth'

ROAD

EUROPE NEEDS:

- R&I for road transport in complement to the 'Green Vehicles' call
- Activities in the field of:

Internal combustion engines; support to air quality policy; safety of road transport; production technology; new vehicle concepts for road and urban transport



ROAD

TOPICS:



- Technologies for low emission powertrains – **MG3.1** - 2014 – 2 stages
- Advanced bus concepts for increased efficiency – **MG3.2** - 2014 – 2 stages
- Global competitiveness of the automotive supply chain management – **MG3.3** - 2014 – 2 stages
- Traffic safety analysis and integrated approach towards the safety of Vulnerable Road Users – **MG3.4** - 2014 – 2 stages
- Cooperative ITS for safe, congestion-free and sustainable mobility – **MG3.5** - 2014 – 2 stages
- Safe and connected automation in road transport – **MG3.6** - 2015 – 2 stages
- The cleanest engine (under 'Other Actions' in WP) – **OA4** - 2015 - Inducement prize

in red: topics open in 2014

WATERBORNE

EUROPE NEEDS:



- A modern, safe, secure and resource efficient waterborne transport system (incl. deep sea shipping, coastal shipping, inland waterways)
- Optimal use of energy sources, minimization of environmental impacts of waterborne transport
- R&I solutions for more efficient, low-emission vessels, waterborne operations; new cost-efficient design and production processes for waterborne assets

WATERBORNE

TOPICS:



- Towards the energy efficient and emission free vessel – **MG4.1** - 2014 – 2 stages
- Safer and more efficient waterborne operations through new technologies and smarter traffic management – **MG4.2** - 2014 – 2 stages
- System modelling and life-cycle cost and performance optimisation for waterborne assets – **MG4.3** - 2015 – 2 stages
- Advancing innovation in the Inland Waterways Transport (IWT) sector – **MG4.4** - 2014 – 2 stages

in red: topics open in 2014

URBAN MOBILITY

EUROPE NEEDS:

Innovation in resource-efficient and competitive urban mobility and transport ('CIVITAS 2020'):

- Broader take up of cleaner vehicles powered by alternative fuels and drive trains
- More efficient and lower impact city logistics
- Reduction in urban road congestions



URBAN MOBILITY

TOPICS:

- Transforming the use of conventionally fuelled vehicles in urban areas
– **MG5.1** - 2014 – 2 stages
- Reducing impacts and costs of freight and service trips in urban areas
– **MG5.2** - 2014 – 2 stages
- Tackling urban road congestion – **MG5.3** - 2014 – 2 stages
- Strengthening the knowledge and capacities of local authorities
– **MG5.4** - 2015 – 2 stages
- Demonstrating and testing innovative solutions for cleaner and better urban transport and mobility – **MG5.5** - 2015 – *Innovation actions: 2 stages; CSA: 1 stage*



in red: topics open in 2014

LOGISTICS

EUROPE NEEDS:

- To increase efficiency and sustainability in the EU logistics supply chain
- To remove the communication bottlenecks between stakeholders
- To improve the potential for collaboration, the utilization of equipment and connectivity across the transport modes



LOGISTICS

TOPICS:



- **Fostering synergies alongside the supply chain (including e-commerce)**
– **MG6.1** - 2014 – 2 stages
- **De-stressing the supply chain** – **MG6.2** - 2014 – 2 stages
- **Common communication and navigation platforms for pan-European logistics applications** – **MG6.3** - 2015 – 2 stages

in red: topics open in 2014

INTELLIGENT TRANSPORT SYSTEMS

EUROPE NEEDS:



- Intelligent Transport Systems
 - To develop seamless transport services across modes and across countries which better meet the mobility needs.
 - To contribute to decarbonise the transport sector
 - To materialise the "Zero" vision of road safety

INTELLIGENT TRANSPORT SYSTEMS



TOPICS:

- Connectivity and information sharing for intelligent mobility
– **MG7.1** - 2015 – 2 stages
- Towards seamless mobility addressing fragmentation in ITS deployment
in Europe – **MG7.2** - 2014 – R&I: 2 stages; CSA: 1 stage

in red: topics open in 2014

INFRASTRUCTURE

EUROPE NEEDS:

- To make infrastructure more resilient, including to climate change
- To keep pace with the growing mobility needs and aspirations of people and businesses
- To reduce the impact of infrastructure on the environment
- To maintain and upgrade deteriorating transport infrastructures
- To facilitate the uptake of innovation



INFRASTRUCTURE

TOPICS:

- Smarter design, construction and maintenance
– **MG8.1** - 2014 – *R&I: 2 stages; CSA: 1 stage*
- Next generation transport infrastructure: resource efficient, smarter and safer – **MG8.2** - 2014 – *R&I: 2 stages; CSA: 1 stage*
- Facilitating market take-up of innovative transport infrastructure solutions – **MG8.3** - 2015 – *Public procurement of innovative solutions*
- Smart governance, network resilience and streamlined delivery of infrastructure innovation – **MG8.4** - 2015 – *R&I: 2 stages; CSA: 1 stage*



in red: topics open in 2014

Call 'Mobility for Growth'

SOCIO-ECONOMIC and BEHAVIOURAL RESEARCH and FORWARD-LOOKING ACTIVITIES for POLICY- MAKING

EUROPE NEEDS:



- To address the specific needs in terms of socio-economic and behavioural research: data, models and scenarios; user needs and behaviour; transport economics and policy support

Call 'Mobility for Growth'

SOCIO-ECONOMIC and BEHAVIOURAL RESEARCH and FORWARD-LOOKING ACTIVITIES for POLICY- MAKING

TOPICS:

- Transport societal drivers – **MG9.1** - 2015 – 1 stage
- User behaviour and mobility patterns in the context of major societal trends – **MG9.2** - 2014 – 1 stage
- Analysis of funding schemes for transport and infrastructure – **MG9.3** – 2014 – 1 stage
- Research, technology development and market prospects for the European transport industries – **MG9.4** – 2014 – 1 stage
- Fostering transnational cooperation in European transport R&I – NCP network – **MG9.5** - 2015 – 1 stage
- Strengthening the R&I strategies of the transport industries in Europe – **MG9.6** - 2014 – 1 stage
- Innovation awards for students and researchers in the context of the Transport Research Arena conference – TRA 2016 – **MG9.7** - 2014 – 1 stage
- Europe wide open source transport models, data and scenarios (under 'Other Actions' in WP) – **OA2** - Tender 2015



in red: topics open in 2014

Call 'Green Vehicles'

EGVI PPP: 'EUROPEAN GREEN VEHICLES INITIATIVE'



The call on Green Vehicles is an essential component of road transport R&I, it supports:

- Improvement of energy efficiency of road transport vehicles
- Use of new types of non-conventional energies in road transport, such as electricity, CNG and LNG, bio-based fuels

Demonstration is essential to ensure timely deployment of the new technologies

Call 'Green Vehicles'

TOPICS:

They are all single stage



- Next generation of competitive Li-ion batteries to meet customer expectations – **GV1** - 2014
- Optimised and systematic energy management in electric vehicles – **GV2** - 2014
- Future natural gas powertrains and components for cars and vans – **GV3** - 2014
- Hybrid light and heavy duty vehicles – **GV4** - 2014
- Electric two-wheelers and new light vehicle concepts – **GV5** - 2014
- Powertrain control for heavy-duty vehicles with optimised emissions – **GV6** - 2015
- Future natural gas powertrains and components for heavy duty vehicles – **GV7** - 2014
- Electric vehicles' enhanced performance and integration into the transport system and the grid – **GV8** - 2015

in red: topics open in 2014

Call 'Small business and Fast track'

EUROPE NEEDS:



- The best products and services, in a time and cost efficient manner, in order to preserve transport sector's leadership and create new jobs
- The role of SMEs is critical in order to meet these challenges

Call 'Small business and Fast track'



TOPICS:

- Small business innovation research for Transport
– **IT1** – 2014-2015 – *SME instrument*
- Fast Track to Innovation – **IT2** - 2015

in red: topics open in 2014

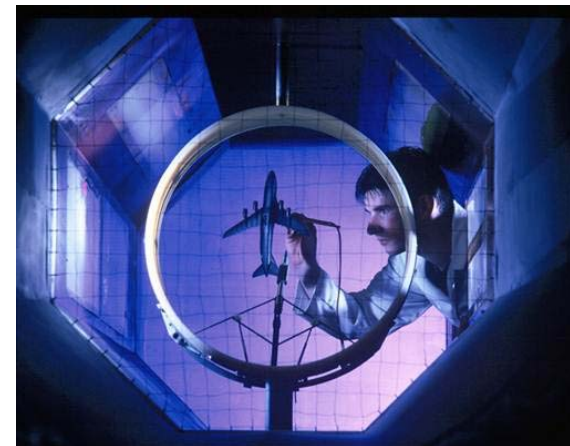
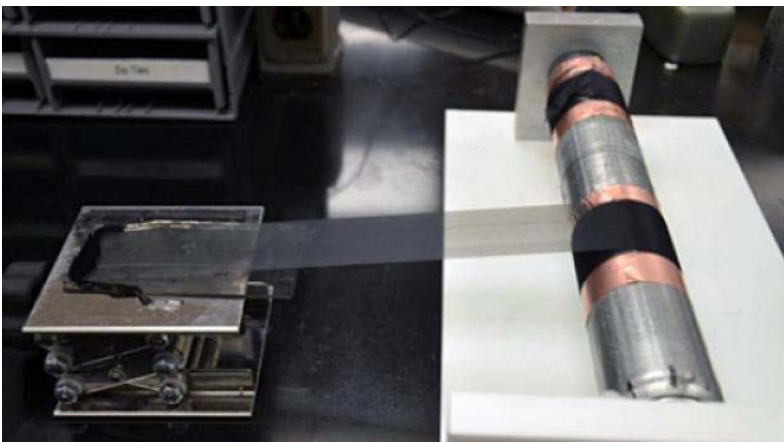
Transport related topics in WP 2014-15/ other challenges

- **Energy:**
 - biofuels and alternative fuels
 - bioenergy engines
 - energy storage
 - 'Smart Cities'
- **Climate/environment:**
 - urban air quality
- **Security:**
 - crisis and disaster resilience
 - critical infrastructure protection
 - freight inspection technologies
- **Food/'Blue growth':**
 - offshore economy
 - sub-sea technologies
 - response to oil spills and maritime pollution



Transport related topics in WP 2014-15/ other parts of H2020

- **Leadership in enabling and industrial technologies:**
 - ICT for Transport applications
 - Post lithium-ion batteries
 - Advanced functional materials
 - Fibre-based materials
- **Research infrastructures:**
 - includes Transport related infrastructures



Implementation principles

- **multi-partner transnational consortia (in most cases)**
- **public calls for proposals**
- **competitive selection**
- **evaluation by independent experts**
- **evaluation criteria:**
 - **excellence**
 - **impact**
 - **implementation quality**
- **funding rates:**
 - **direct costs = 100% or 70%**
 - **indirect costs = 25% of direct costs**



— **Research and innovation actions/RIA**

target: produce new knowledge, explore new technologies/solutions

features: min 3 participants; 100% funding rate

— **Innovation actions/IA**

target: deployment oriented: demonstration, pilot, prototype, testing, product validation, market replication

features: min. 3 participants; 70% funding (100 for non-profit)

— **Coordination and support actions/CSA**

target: accompanying measures: coordination, standardization, dissemination, awareness-raising, communication, networking, studies

features: 1 or more participants; 100% funding rate

– **PPI co-fund/public procurement of innovative solutions**

target: groups of public procurers, sharing innovation deployment risks

features: 20% funding rate; 2 phases: preparation+execution

– **Inducement prize**

target: result oriented cash incentive to induce cutting edge solutions

features: 2 types: 'first-past-the-post' contest, 'best-in-class' contest

– **SME instrument**

target: innovative SMEs; covers feasibility, R&D, demo, market take-up

features: 3 phases: 1. concept and feasibility (lump sum 50000€, ~6 months)

2. R&D, demo, market replication (1-5 M€, 12 to 24 months)

3. commercialisation (SME window in loan and equity schemes)

– **Fast track to innovation**

target: increase participation of industry, SMEs, first time applicants (LEIT+SC)

features: pilot in 2015; single applicant ok, no more than 5; grants up to 3 M€.

Single stage	<ul style="list-style-type: none">- all Coordination and Support Actions (CSAs: 12 topics)- 'Green Vehicles' call (RIAs: 4 topics, IAs: 4 topics)
Two stages	<p>'Mobility for Growth' call (RIAs: 20 topics, IAs: 4 topics)</p>

A two-stage procedure fits well with the H2020 character: topics with broad scope, bottom up approach, low prescriptiveness

Two-stage evaluation

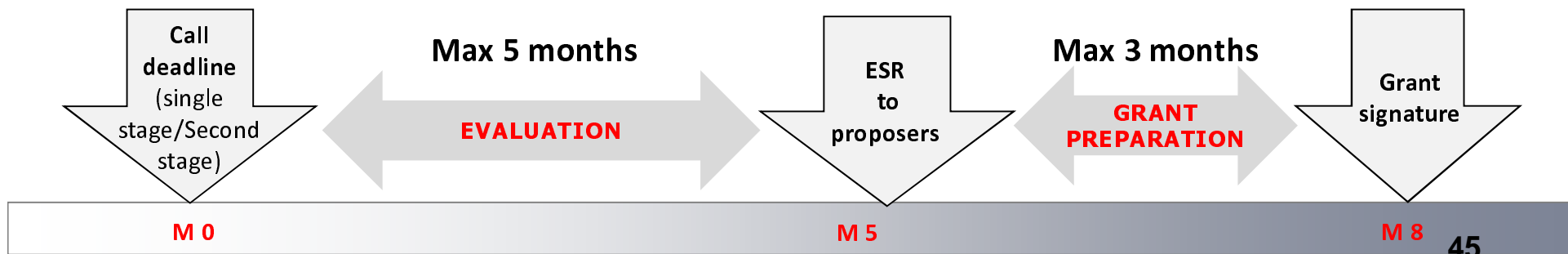
<p>Stage 1</p>	<ul style="list-style-type: none">• <u>proposal submission</u> max 15 pages; focus on content and results• <u>proposal evaluation</u> 2 criteria: excellence and impact outcome: 'GO' or 'NO GO'
<p>Stage 2</p>	<ul style="list-style-type: none">• <u>proposal submission</u> only stage 1 'GO' proposals admitted• <u>proposal evaluation</u> 3 criteria: excellence, impact, implementation

Evaluation timeline

EVALUATION PLANNING 2014

GV (1 stage)						Deadline 28/08 GV	Evaluation 15-26/09 + Consensus/Final Panel 06-24/10		ESR to proposers: Beginning December	
MfG CSA (1 stage)	Deadline 27/03 CSA	Evaluation 14/04 - 02/05 + Consensus/Final Panel 12-23/05		ESR to proposers: Beginning June	Deadline 28/08 CSA					
MfG RIAs and IAs (2 stages)	Deadline 18/03 Stage 1				Deadline 28/08 Stage 2					
	Mars	April	May	June	July	August	September	October	Nov.	December

TIME-TO-GRANT PROCESS



Calendar

- Pre-publication of draft Work Programme 2014-15 ***19 November 2013***
- Formal adoption of Horizon 2020 ***3 December 2013***
- Publication of Work Programme, first calls ***11 December 2013***
- Transport Info Day in Brussels ***18 December 2013***
- Transport Info Days in the Member States ***Nov 2013 - Feb 2014***





Thank you for your attention!

Find out more:

www.ec.europa.eu/research/horizon2020

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