



# Workshop on Hybrid Communication

Friday 19 May 2017 - Brussels - 10h - 16h



Day 1  
Cooperation starts

Day 2  
Automation starts

Day 3  
Coordination starts

Day 4  
Driverless world

"I share where I am  
and what I hear"

"I share my  
perception data"

"I share my  
intentions"

"We coordinate all  
manoeuvres"

Hybrid connectivity  
(3G/4G + ITS-G5)

Hybrid includes 5G

Hybrid 5G  
connectivity

Hybrid 6G  
connectivity

Advanced Driver  
Assistance Systems

Some Roads  
human backup

Most Roads  
NO human backup

Fully automated

2019

2021

2023

2025

2030

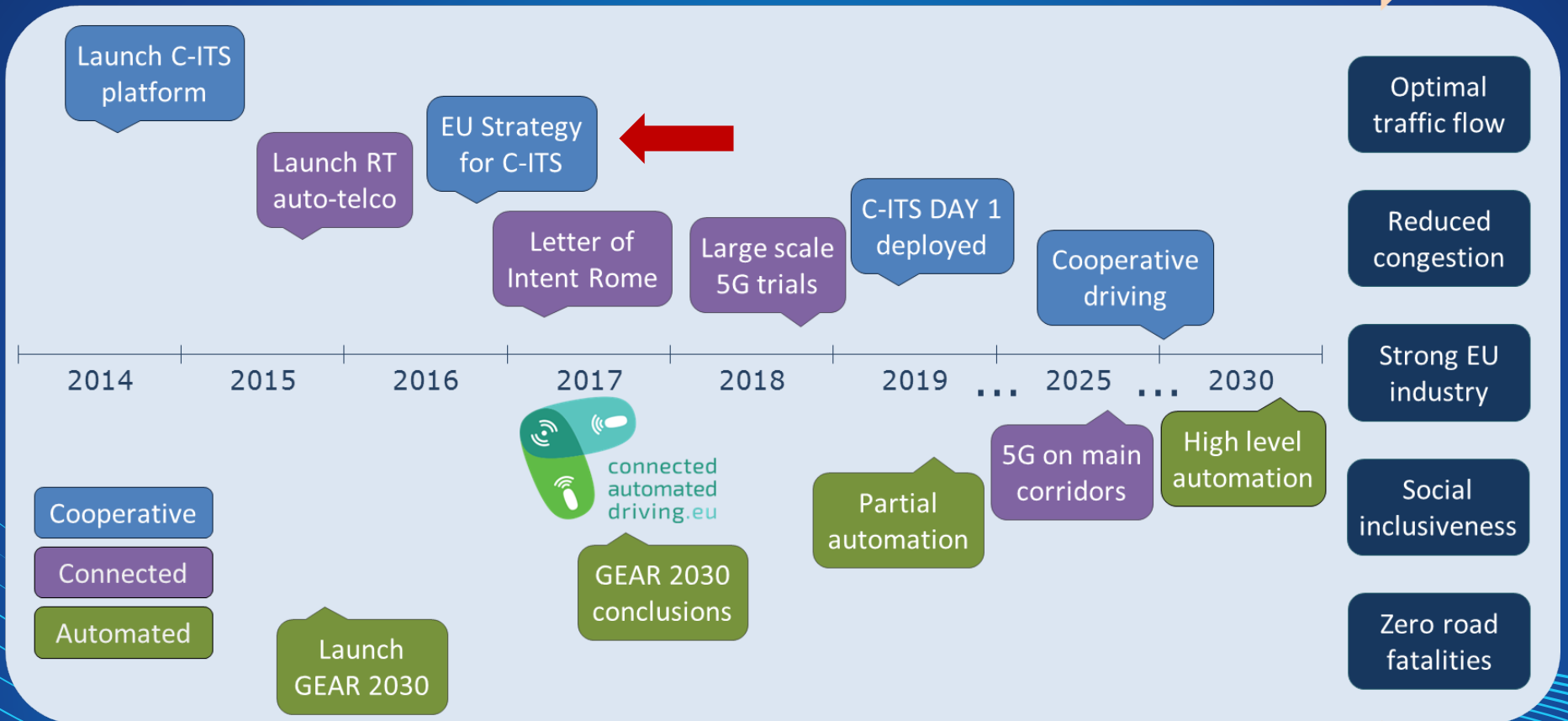
2035

2040

2045



## Connecting Europe Facility / C-ROADS Platform



## Transport Research & Innovation / Horizon 2020



# A European Strategy on C-ITS

- Adopted 30 November 2016
- Setting the scene for CCAM ⇒ three complementary developments
- Specific target and actions for C-ITS deployment of Day 1 & 1,5 services using **HYBRID communication** ⇒ 2019
- Considering Delegated Act in 2018
  - Continuity of C-ITS services
  - Ensuring a hybrid communication approach
  - Security of C-ITS communications
  - Practical implementation of the GDPR for data protection
  - Compliance assessment & interoperability

# Hybrid Communication

1. Complementary communication technologies
  2. Future-proof or communication layer agnostic
  3. Mature technologies are 3G/LTE and ITS-G5
- Complementary because 3G/LTE provides coverage from existing infrastructure and ITS-G5 provides low latency direct communication
  - Both are needed to adequately cover ALL DAY 1 services
  - This is what **C-ROADS** is deploying today



# Hybrid Communication

- Much of the discussion comes from two points:
    1. Maturity of technology
    2. Competitive versus complementary
  
  - Initial deployment will be 3G/LTE + ITS-G5
  - Development of LTE-V2X and 5G is advancing rapidly
- ⇒ This is not about picking a winner but about how to expand hybrid





# Hybrid Communication

- Fitting new technologies into the hybrid framework raises the following:
  1. Which technologies for which services  $\Rightarrow$  competitive / complementary
  2. Which technology in which frequency band?
  
- Let's remind ourselves of what we need to achieve here:
  1. Support for safety-related transport services
  2. Cross-brand cross-border interoperability
  3. Efficiently use the spectrum made available for C-ITS

# Hybrid Communication

1. Different technologies in 5,9GHz  $\Rightarrow$  backwards compatibility is needed

WHAT WOULD BE NEEDED TO MAKE THIS POSSIBLE?

2. Competitive technologies in different frequency bands  $\Rightarrow$  all vehicles would need all technologies for interoperability

NOT VERY REALISTIC

3. Complementary / redundant technologies in different frequency bands  $\Rightarrow$  only vehicles needing the complementary services would need all technologies

PROPOSED IN ACEA POSITION PAPER



## Conclusions

1. The stakes in terms of road safety, traffic efficiency and competitiveness are high  $\Rightarrow$  we need to find solutions!
2. Hybrid is future-proof, we only “defined” the technologies for Day 1
3. Future evolutions will require new capabilities (e.g. remote-controlled vehicles)
4. Will we continue adding complementary technologies or continue discussing the pros and cons of competing technologies?
5. Two possible solutions were identified, how realistic are they, what is needed to make them happen and how much support can they gather?



**Thank you for your attention**



@Transport\_EU

Mobility and  
Transport

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