Expected impacts of 5G on Connected, Cooperative and Automated Transport Systems

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"Towards 5G Enabled Gigabit Society"

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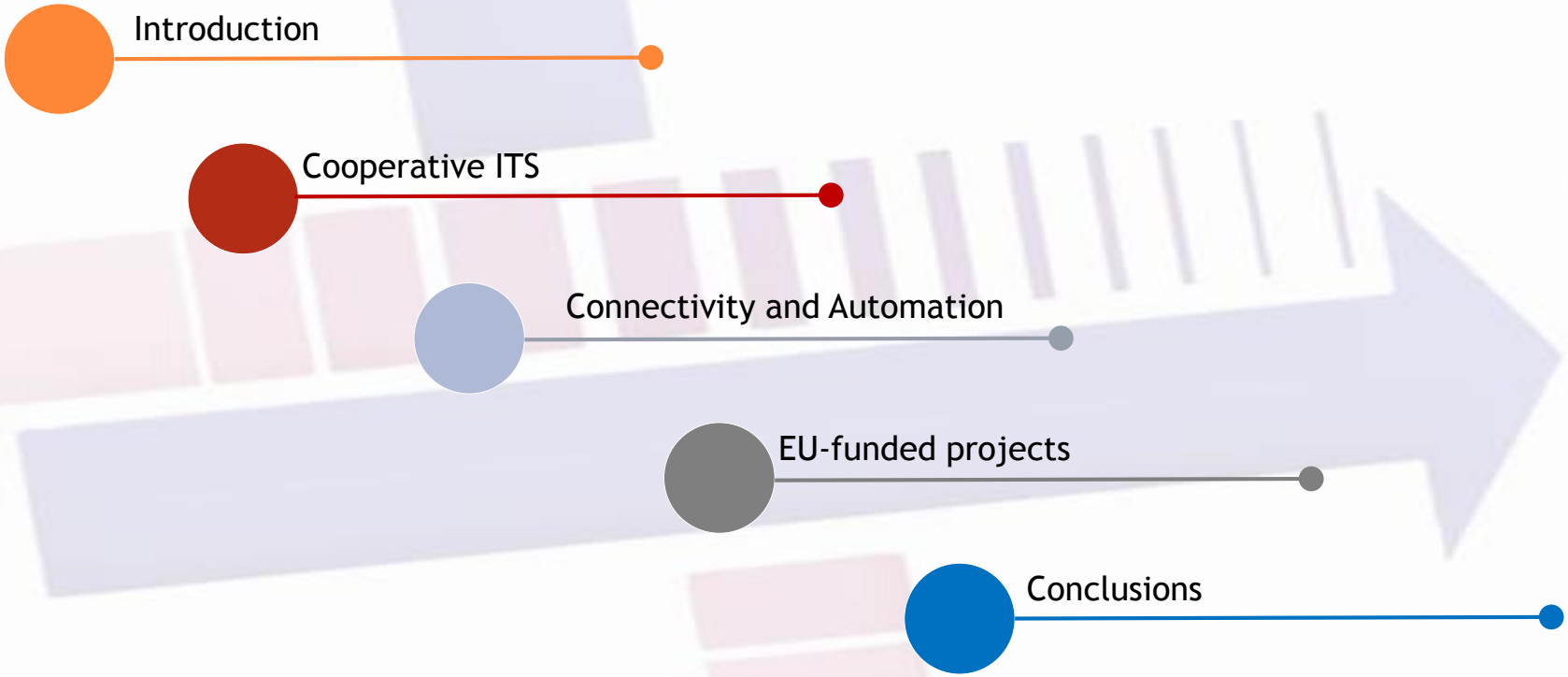
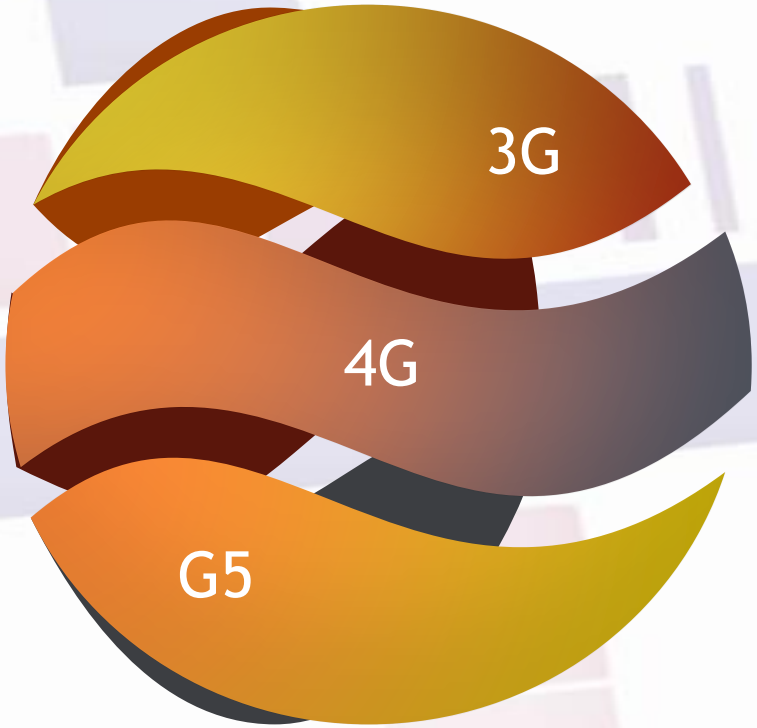
Outline


Introduction
Cooperative ITS
Connectivity and Automation
EU-funded projects
Conclusions

Introduction

Today's uncertainties in transport related communication technologies



Introduction

Today's challenges related to transport

Smartphones

Vehicles' networks

3G & 4G

Low speeds

RSUs

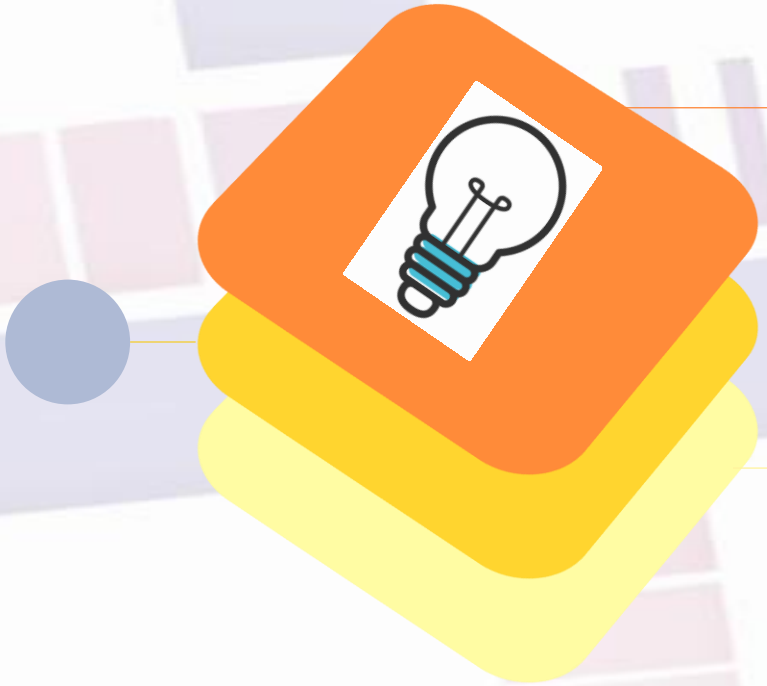
OBUs

G5

High costs for RSUs and OBUs

Introduction

5G solution



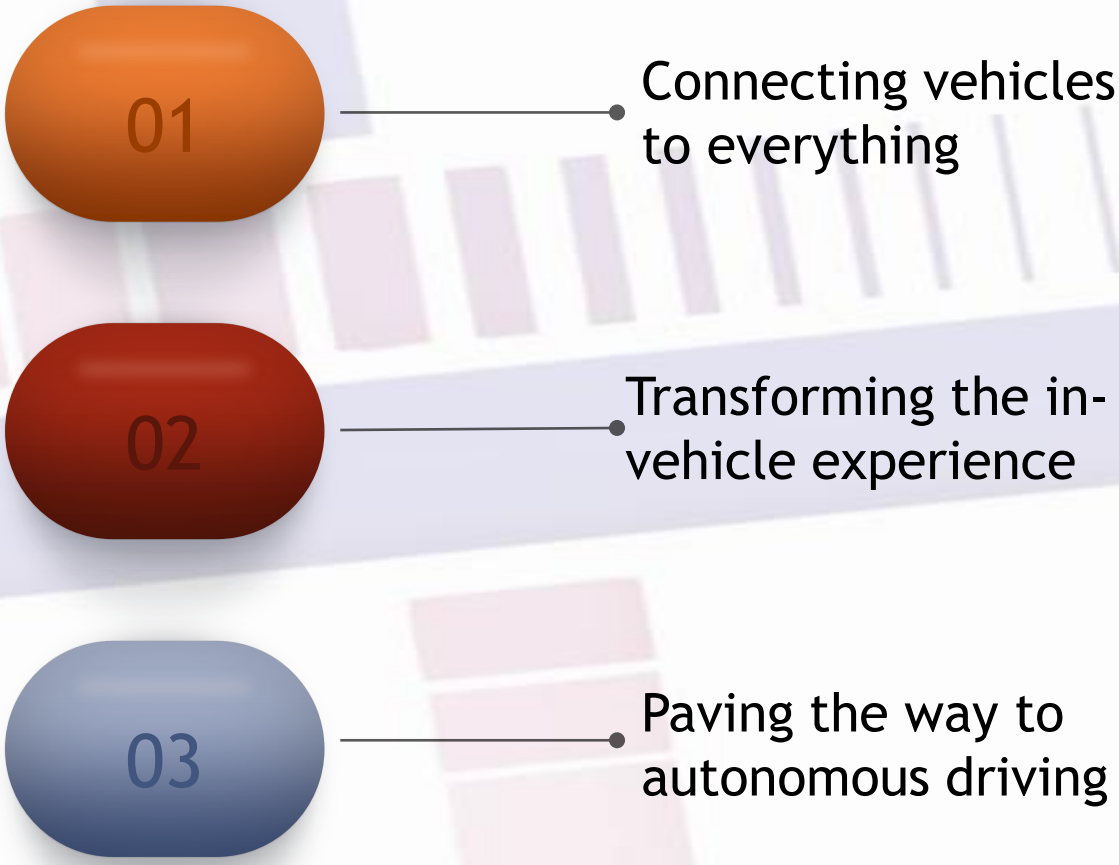
Game changer for citizens and industry alike

Meets the connectivity needs of new & innovative transport & mobility services

Significantly improved performance (up to a thousand times higher data volume with a similar increase in device density)

Introduction

5G solution



Cooperative ITS

- **Cooperative ITS (C-ITS)** use DSRC and cellular technologies to enable real-time communication between vehicles, roadside infrastructure, mobile devices and back-office systems
- **Goal** → improve road safety, increase the efficient flow of traffic, reduce environmental impacts, provide additional traveler information services

C-ITS services

Day 1 services

- Hazardous location notifications
- Slow or stationary vehicle(s) & Traffic ahead warning
- Emergency brake light
- Road works warning
- Emergency vehicle approaching
- Weather conditions
- Other hazardous notifications

Signage applications

- In-vehicle signage & In-vehicle speed limits
- Green Light Optimal Speed Advisory (GLOSA)
- Signal violation / Intersection Safety
- Probe vehicle data
- Traffic signal priority request by designated vehicles
- Shockwave Damping

C-ITS services

Day 1,5 services

- Information on fueling & charging stations for alternative fuelled vehicles
- Vulnerable Road user protection
- On street parking management & information
- Off street parking information
- Park & Ride information
- Connected & Cooperative navigation into and out of the city
- Traffic information & Smart routing

Cooperative ITS

Current state in Europe

C-ITS are considering both ETSI-ITS-G5 and cellular C-ITS

Existence of several regulatory actions supporting development/deployment of C-ITS

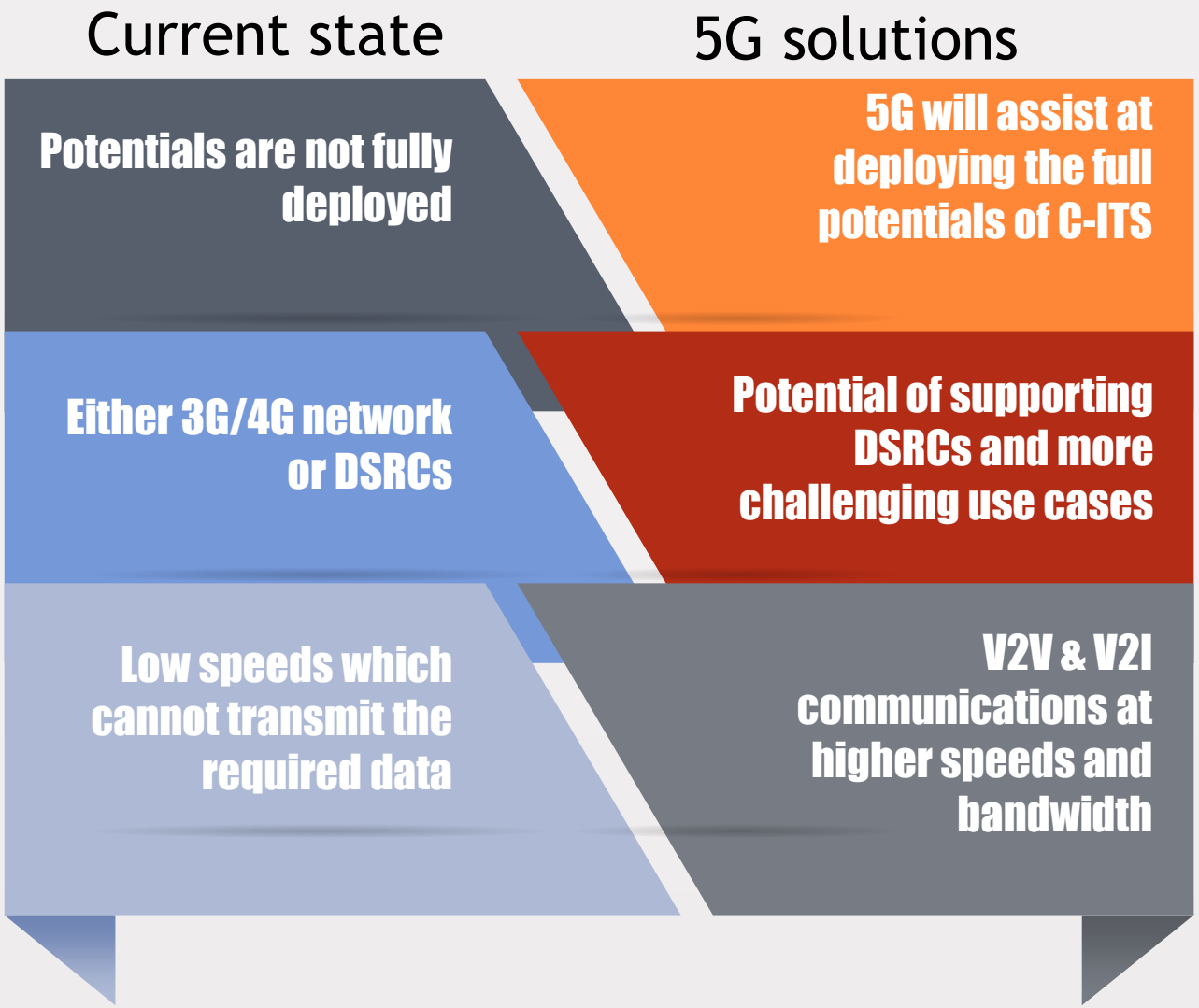
Standardization

- ISO (TC 204)
- ETSI (TC ITS)
- CEN (European Committee for Standardization) (TC 278)

Relevant groups / alliances

- C-Roads platform
- C2C-CC
- Amsterdam Group
- ERTICO ITS Europe

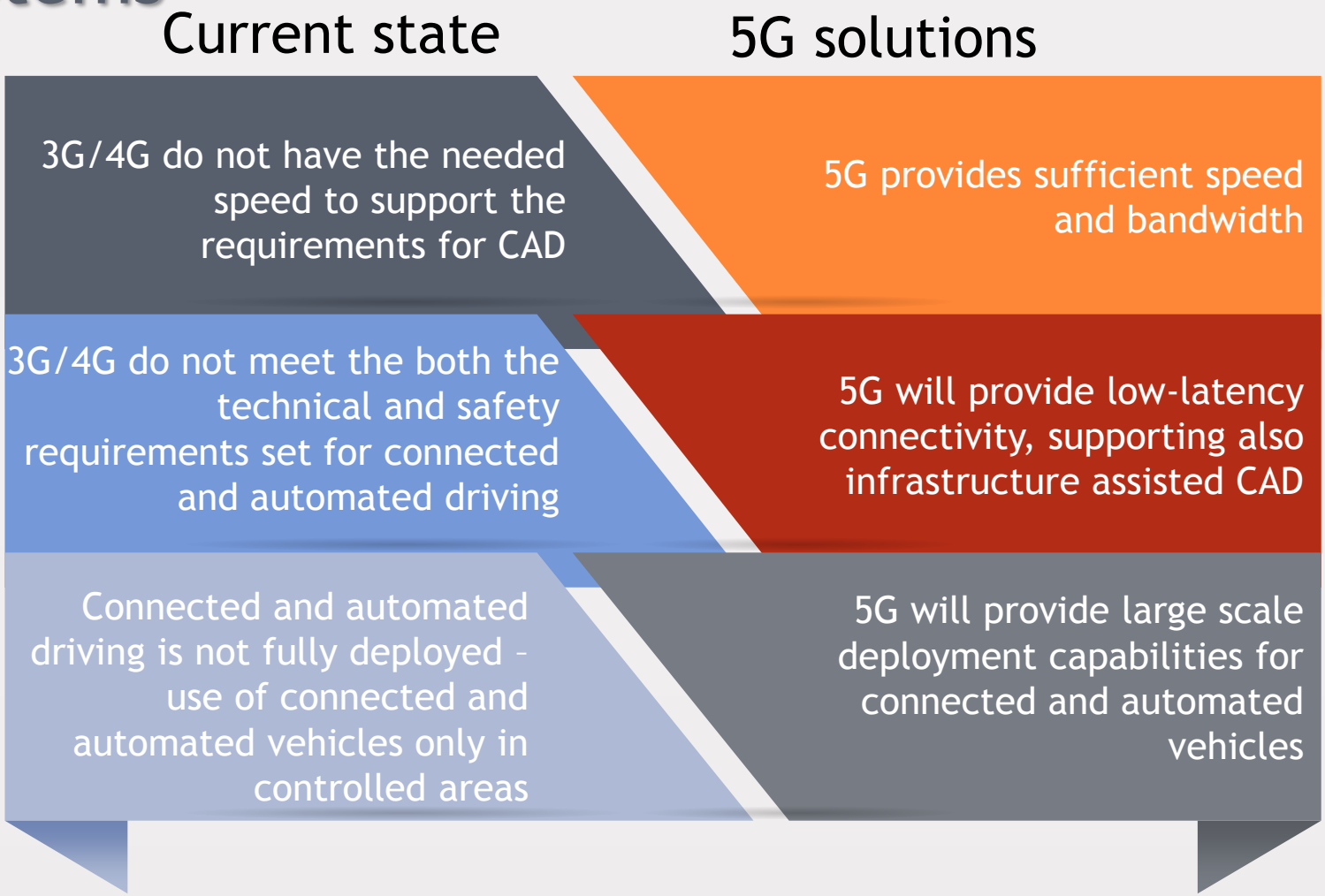
Cooperative vehicles (C-ITS)



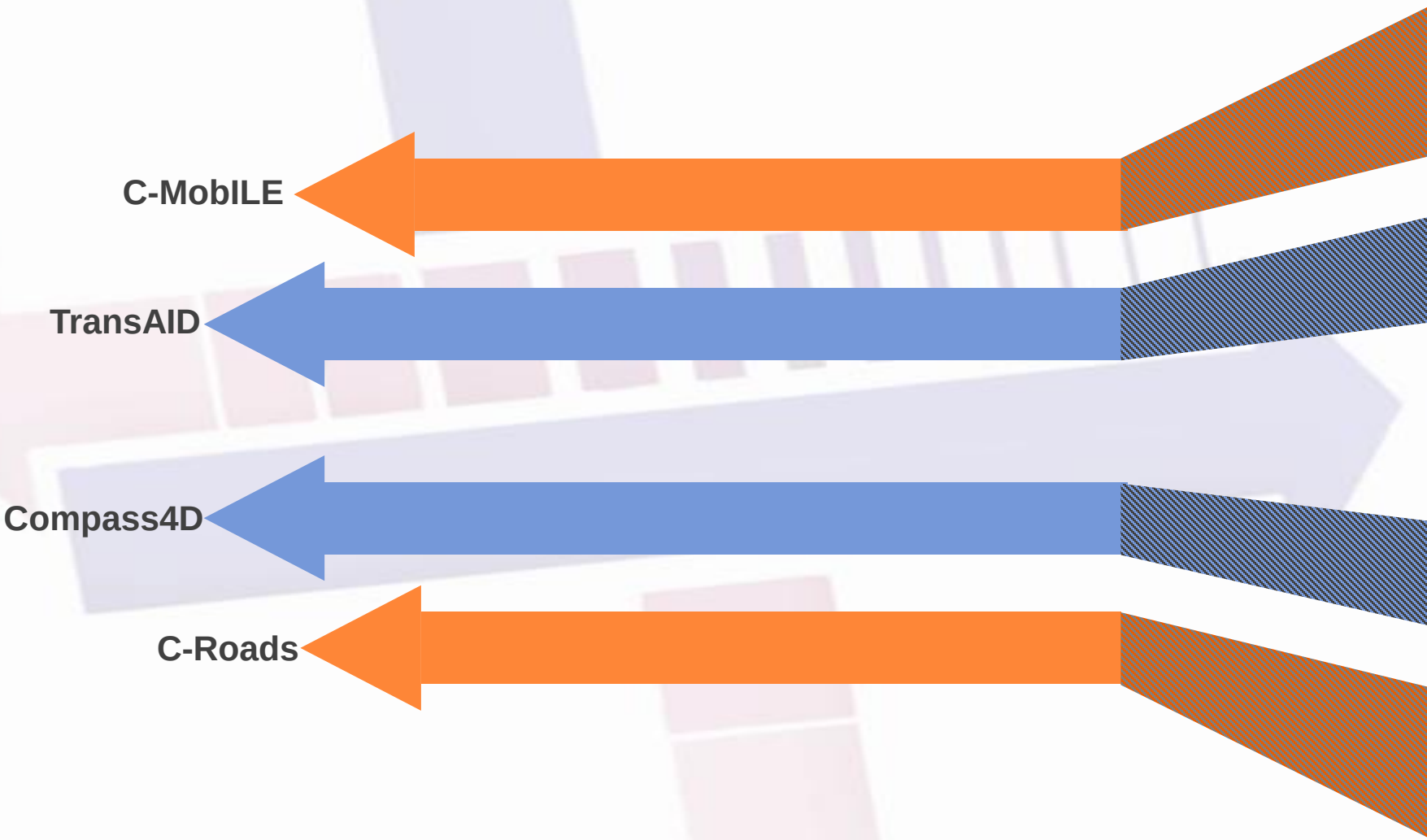
Connected and Automated Transport Systems

- 5G paves the way to connected and automated transport systems by offering essential technologies for the connected cars
  - Unified connectivity with C-V2X
  - 3D mapping and precise positioning
  - On-board intelligence

Connected and Automated Transport Systems



Related EU-funded projects



Related EU-funded projects

Thank you for your attention!

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