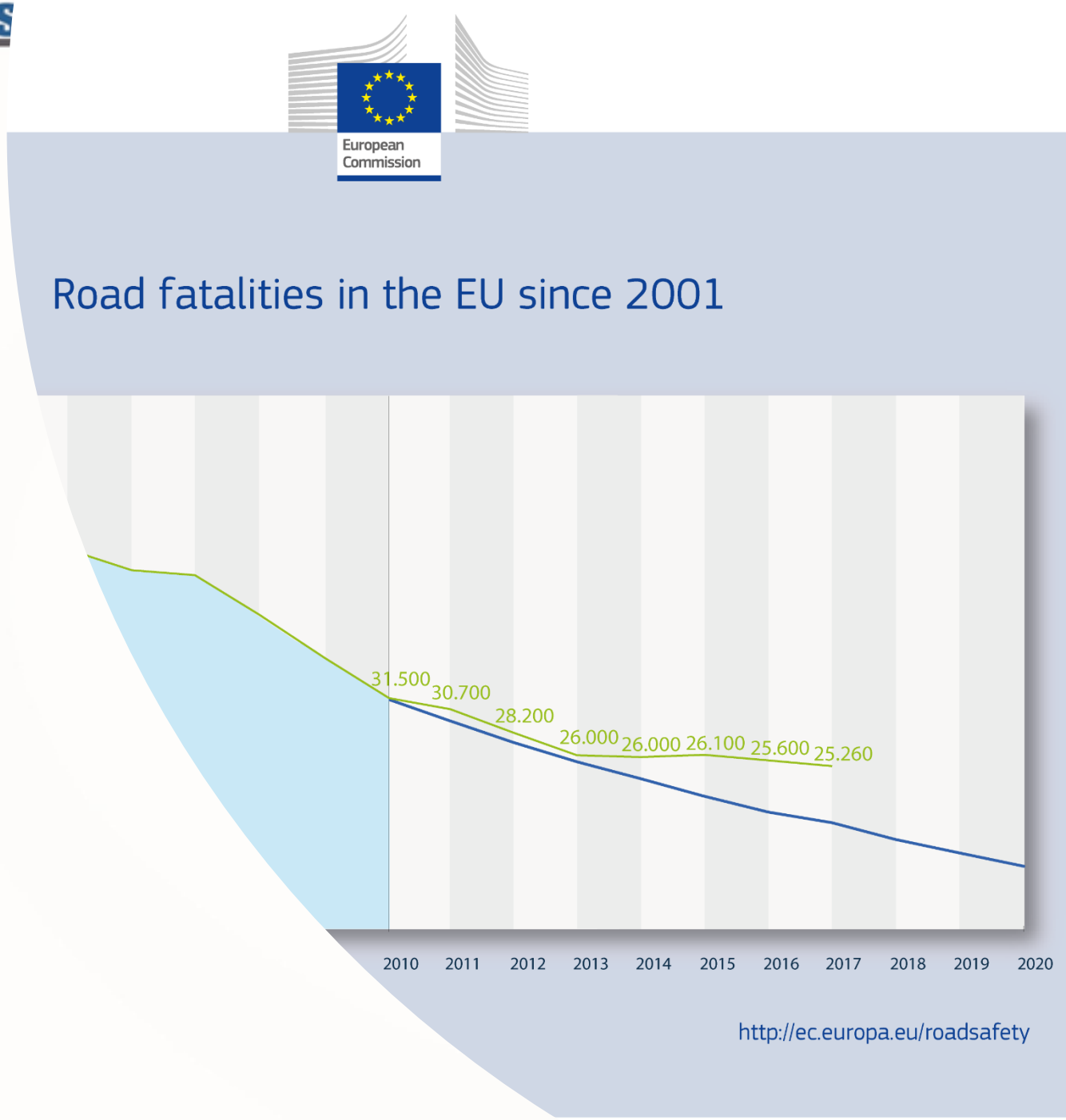
# Key Performance Indicators (KPIs) of road safety in the HELLASTRON network

**Kostas Papandreou -** HELLASTRON
**Chief Executive Officer:** Olympia Odos Operation S.A.
**Head of:** permanent Committee COPER I, HELLASTRON

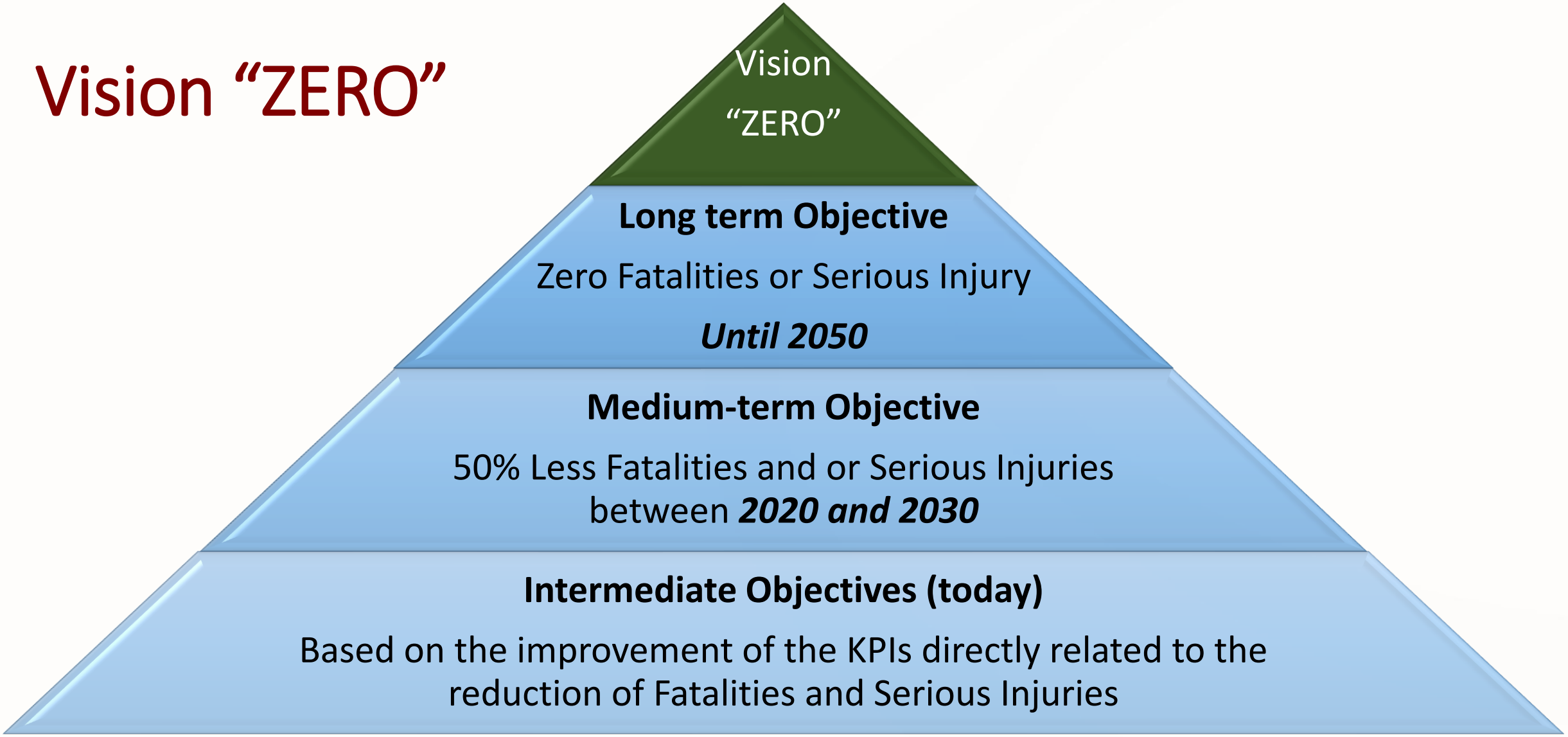
**Charalambos Malimoglou**
**Chief Operation Officer:** InVision Consulting S.A.
**Technical Consultant:** HELLASTRON

# KPIs & Road Safety

**In the framework of achieving the "Vision Zero" objective, the European Committee recommends the observation of specific KPIs in order to gauge the effectiveness of actions taken in national and European level.** *(ref. SWD 283/19.6.2019) .*



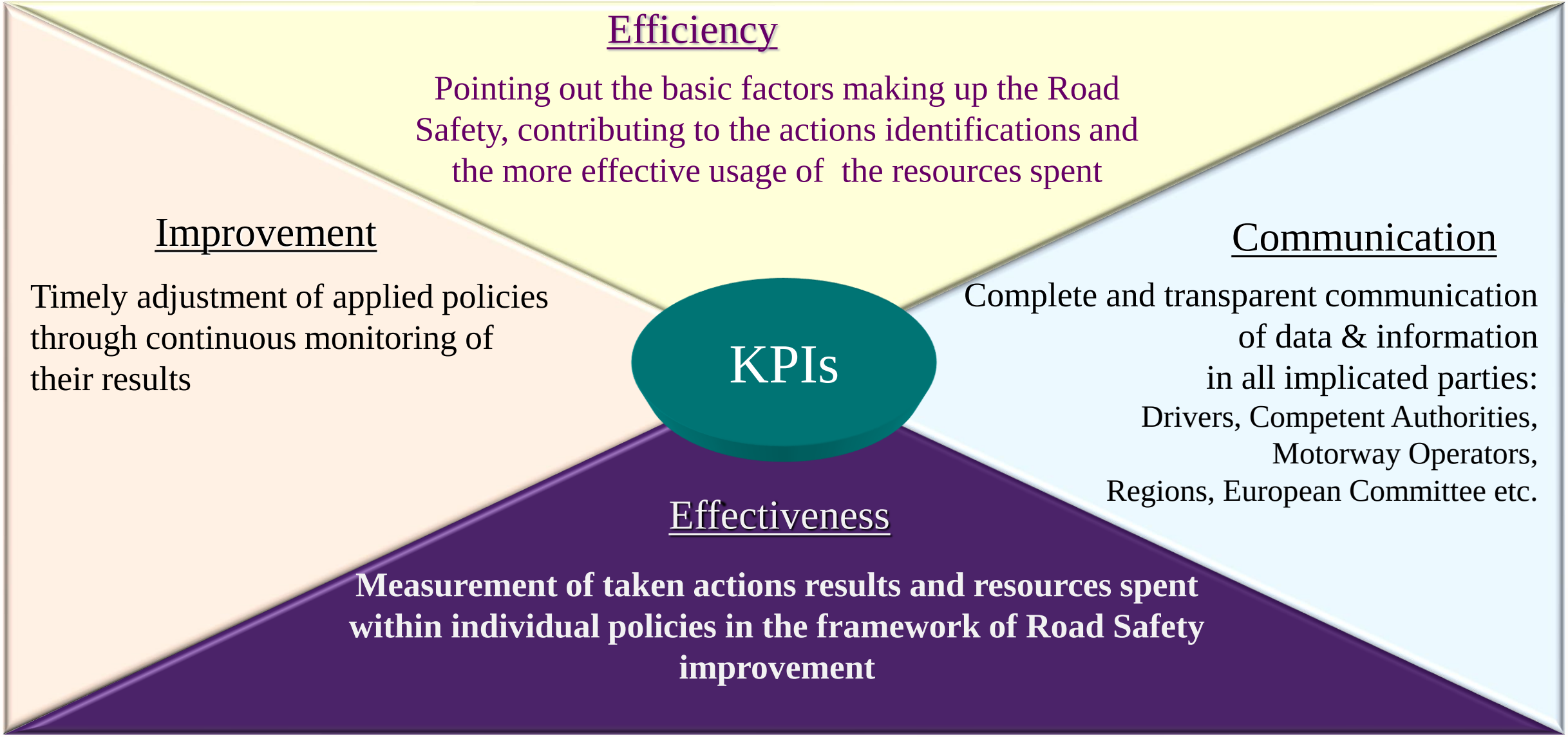
# Vision "ZERO"


Vision
"ZERO"
Long term Objective
Zero Fatalities or Serious Injury
Until 2050
Medium-term Objective
50% Less Fatalities and or Serious Injuries
between 2020 and 2030
Intermediate Objectives (today)
Based on the improvement of the KPIs directly related to the
reduction of Fatalities and Serious Injuries

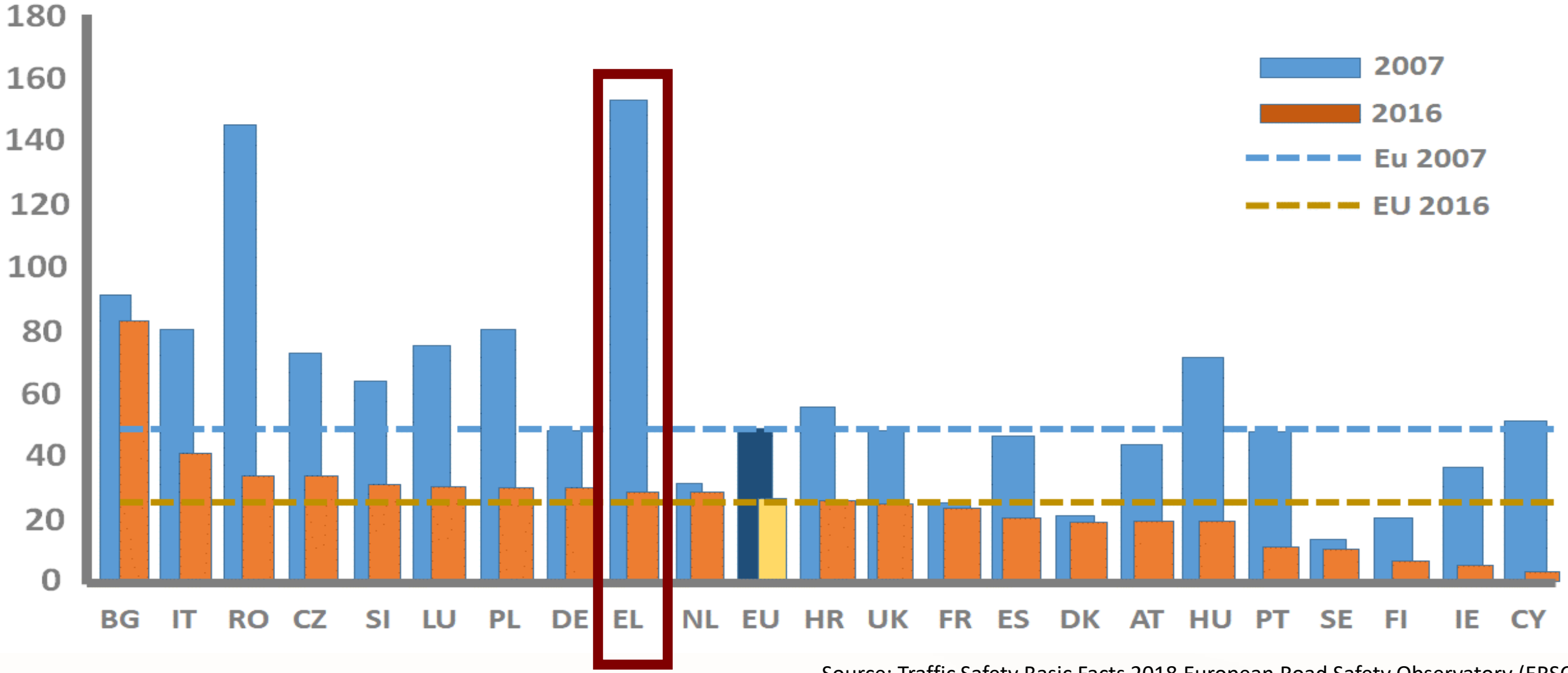
# HELLASTRON breaks new ground…

## 1st Pilot Run of Road Safety KPIs measurement in the members' road network

# Profits from the use of KPIs in Road Safety:



# Current situation in Europe: Fatalities in Motorways per 1000 km. of motorway , 2007 and 2016




Source: Traffic Safety Basic Facts 2018 European Road Safety Observatory (ERSO

# Main KPIs for Road Safety:


**KPI 1.**
**Observance of Speed Limits** ★

**KPI 3.**
**Use of helmet by Motorcyclists** ★

**KPI 5.**
**Distractions while Driving (Mobile phone, Tablet)** ★

**KPI 7.**
**Road Infrastructures Safety**

**KPI 2.**
**Use of Seat-belts and child safety seats** ★

**KPI 4.**
**Driving under the influence of alcohol**


**KPI 6.**
**Vehicles Safety**


**KPI 8.**
**Care of injured person after a road accident** ★

person

vehicle

road

immediate intervention

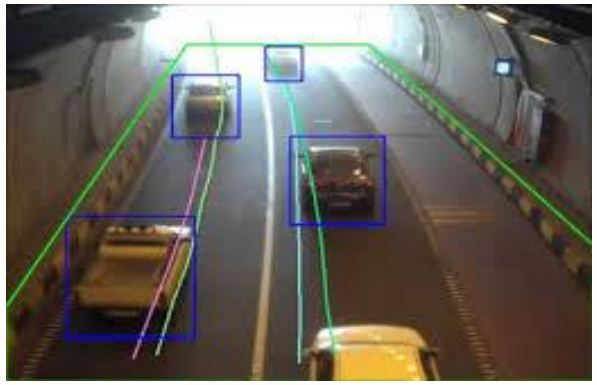
★ Measured in the HELLASTRON network

European Commission

# KPIs Measurement Methodology in the HELLASTRON network

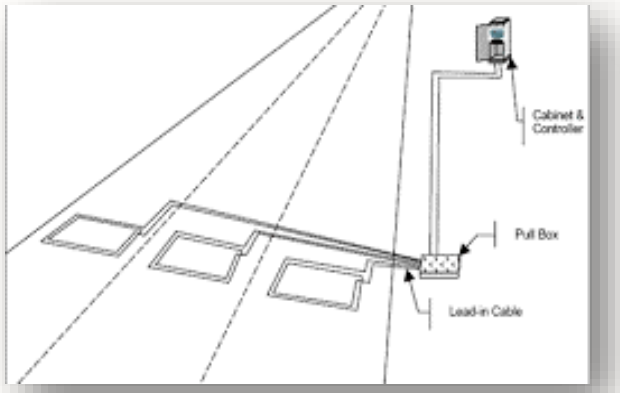

**KPI 1.**
**Observance of Speed Limits**

- **In Road Tunnels:**
  Making use of the Automatic Incident Detection System & Traffic Management System



**7**
Road Tunnels

**6**
Open Road Points



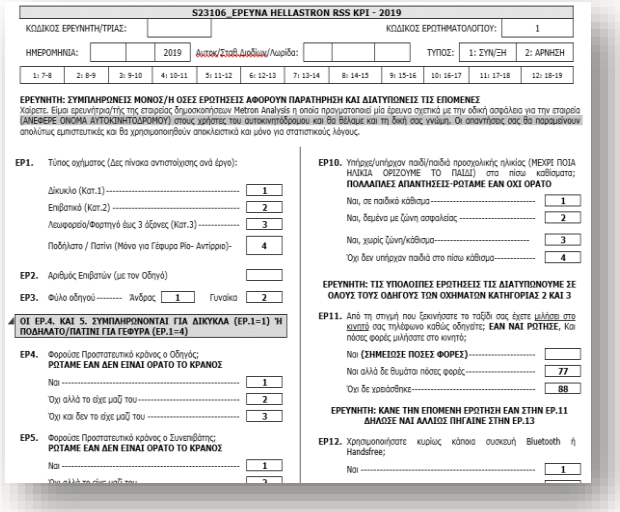

- **In the open road sections**
  Making use of the Traffic Data recording Loops

# KPIs Measurement Methodology in the HELLASTRON network

**KPI 2.**
**Use of Seat-belts and child safety seats**

**KPI 3.**
**Use of helmet by Motorcyclists**

**KPI 5.**
**Distractions while Driving (Mobile phone, Tablet)**



S23106_ΕΡΕΥΝΑ HELLASTRON RSS KPI - 2019

ΚΩΔΙΚΟΣ ΕΡΕΥΝΗΤΗ/ΤΡΙΑΣ: ΚΩΔΙΚΟΣ ΕΡΩΤΗΜΑΤΟΛΟΓΙΟΥ: 1

ΗΜΕΡΟΜΗΝΙΑ: 2019 Αυτοκ/Στοβ.Διοδίων/Λωρίδα: ΤΥΠΟΣ: 1: ΣΥΝΕΞΗ 2: ΑΡΝΗΣΗ

1: 7-8 | 2: 8-9 | 3: 9-10 | 4: 10-11 | 5: 11-12 | 6: 12-13 | 7: 13-14 | 8: 14-15 | 9: 15-16 | 10: 16-17 | 11: 17-18 | 12: 18-19

**ΕΡΕΥΝΗΤΗ: ΣΥΜΠΛΗΡΩΝΕΙΣ ΜΟΝΟΣ/Η ΟΣΕΣ ΕΡΩΤΗΣΕΙΣ ΑΦΟΡΟΥΝ ΠΑΡΑΤΗΡΗΣΗ ΚΑΙ ΔΙΑΤΥΠΩΝΕΙΣ ΤΙΣ ΕΠΟΜΕΝΕΣ**

Χαίρετε. Είμαι ερευνήτρια/τής της εταιρείας δημοσκοπήσεων Metron Analysis η οποία πραγματοποιεί μία έρευνα σχετικά με την οδική ασφάλεια για την εταιρεία (ΑΝΕΦΕΡΕ ΟΝΟΜΑ ΑΥΤΟΚΙΝΗΤΟΔΡΟΜΟΥ) στους χρήστες του αυτοκινητόδρομου και θα θέλαμε και τη δική σας γνώμη. Οι απαντήσεις σας θα παραμείνουν απολύτως εμπιστευτικές και θα χρησιμοποιηθούν αποκλειστικά και μόνο για στατιστικούς λόγους.

**ΕΡ1.** Τύπος οχήματος (Δες πίνακα αντιστοίχισης ανά έργο):
- Δίκυκλο (Κατ.1) ---------- 1
- Επιβατικό (Κατ.2) ---------- 2
- Λεωφορείο/Φορτηγό άνω 3 άξονες (Κατ.3) ---------- 3
- Ποδήλατο / Πατίνι (Μόνο για Γέφυρα Ρίο- Αντίρριο)- 4

**ΕΡ2.** Αριθμός Επιβατών (με τον Οδηγό)

**ΕΡ3.** Φύλο οδηγού -------- Άνδρας 1 Γυναίκα 2

**ΟΙ ΕΡ.4. ΚΑΙ 5. ΣΥΜΠΛΗΡΩΝΟΝΤΑΙ ΓΙΑ ΔΙΚΥΚΛΑ (ΕΡ.1=1) Ή ΠΟΔΗΛΑΤΟ/ΠΑΤΙΝΙ ΓΙΑ ΓΕΦΥΡΑ (ΕΡ.1=4)**

**ΕΡ4.** Φορούσε Προστατευτικό κράνος ο Οδηγός; **ΡΩΤΑΜΕ ΕΑΝ ΔΕΝ ΕΙΝΑΙ ΟΡΑΤΟ ΤΟ ΚΡΑΝΟΣ**
- Ναι ---------- 1
- Όχι αλλά το είχε μαζί του ---------- 2
- Όχι και δεν το είχε μαζί του ---------- 3

**ΕΡ5.** Φορούσε Προστατευτικό κράνος ο Συνεπιβάτης; **ΡΩΤΑΜΕ ΕΑΝ ΔΕΝ ΕΙΝΑΙ ΟΡΑΤΟ ΤΟ ΚΡΑΝΟΣ**
- Ναι ---------- 1

**ΕΡ10.** Υπήρχε/υπήρχαν παιδί/παιδιά προσχολικής ηλικίας (ΜΕΧΡΙ ΠΟΙΑ ΗΛΙΚΙΑ ΟΡΙΖΟΥΜΕ ΤΟ ΠΑΙΔΙ) στα πίσω καθίσματα; **ΠΟΛΛΑΠΛΕΣ ΑΠΑΝΤΗΣΕΙΣ-ΡΩΤΑΜΕ ΕΑΝ ΟΧΙ ΟΡΑΤΟ**
- Ναι, σε παιδικά κάθισμα ---------- 1
- Ναι, δεμένα με ζώνη ασφαλείας ---------- 2
- Ναι, χωρίς ζώνη/κάθισμα ---------- 3
- Όχι δεν υπήρχαν παιδιά στο πίσω κάθισμα ---------- 4

**ΕΡΕΥΝΗΤΗ: ΤΙΣ ΥΠΟΛΟΙΠΕΣ ΕΡΩΤΗΣΕΙΣ ΤΙΣ ΔΙΑΤΥΠΩΝΟΥΜΕ ΣΕ ΟΛΟΥΣ ΤΟΥΣ ΟΔΗΓΟΥΣ ΤΩΝ ΟΧΗΜΑΤΩΝ ΚΑΤΗΓΟΡΙΑΣ 2 ΚΑΙ 3**

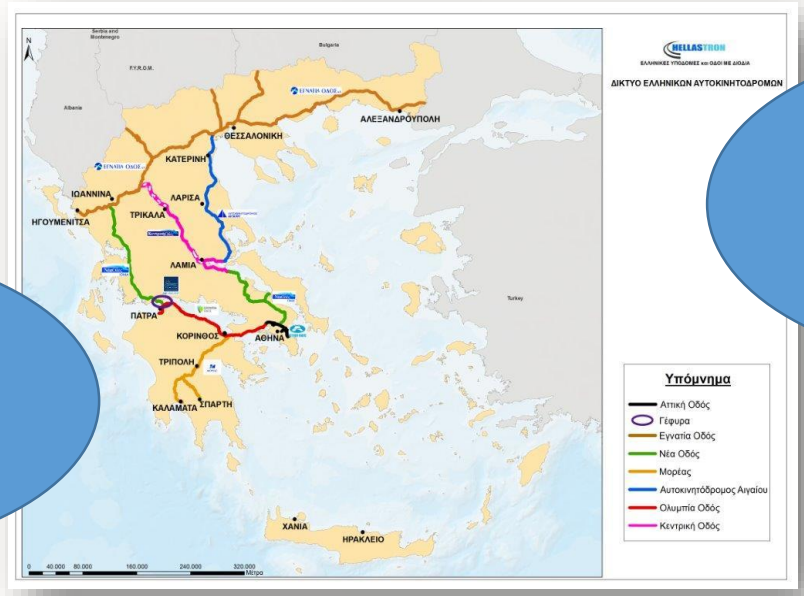
**ΕΡ11.** Από τη στιγμή που ξεκινήσατε το ταξίδι σας έχετε μιλήσει στο κινητό σας τηλέφωνο καθώς οδηγάτε; **ΕΑΝ ΝΑΙ ΡΩΤΗΣΕ,** Και πόσες φορές μιλήσατε στο κινητό;
- Ναι **(ΣΗΜΕΙΩΣΕ ΠΟΣΕΣ ΦΟΡΕΣ)** ----------
- Ναι αλλά δε θυμάται πόσες φορές ---------- 77
- Όχι δε χρειάσθηκε ---------- 88

**ΕΡΕΥΝΗΤΗ: ΚΑΝΕ ΤΗΝ ΕΠΟΜΕΝΗ ΕΡΩΤΗΣΗ ΕΑΝ ΣΤΗΝ ΕΡ.11 ΔΗΛΩΣΕ ΝΑΙ ΑΛΛΙΩΣ ΠΗΓΑΙΝΕ ΣΤΗΝ ΕΡ.13**

**ΕΡ12.** Χρησιμοποιήσατε κυρίως κάποια συσκευή Bluetooth ή Handsfree;
- Ναι ---------- 1

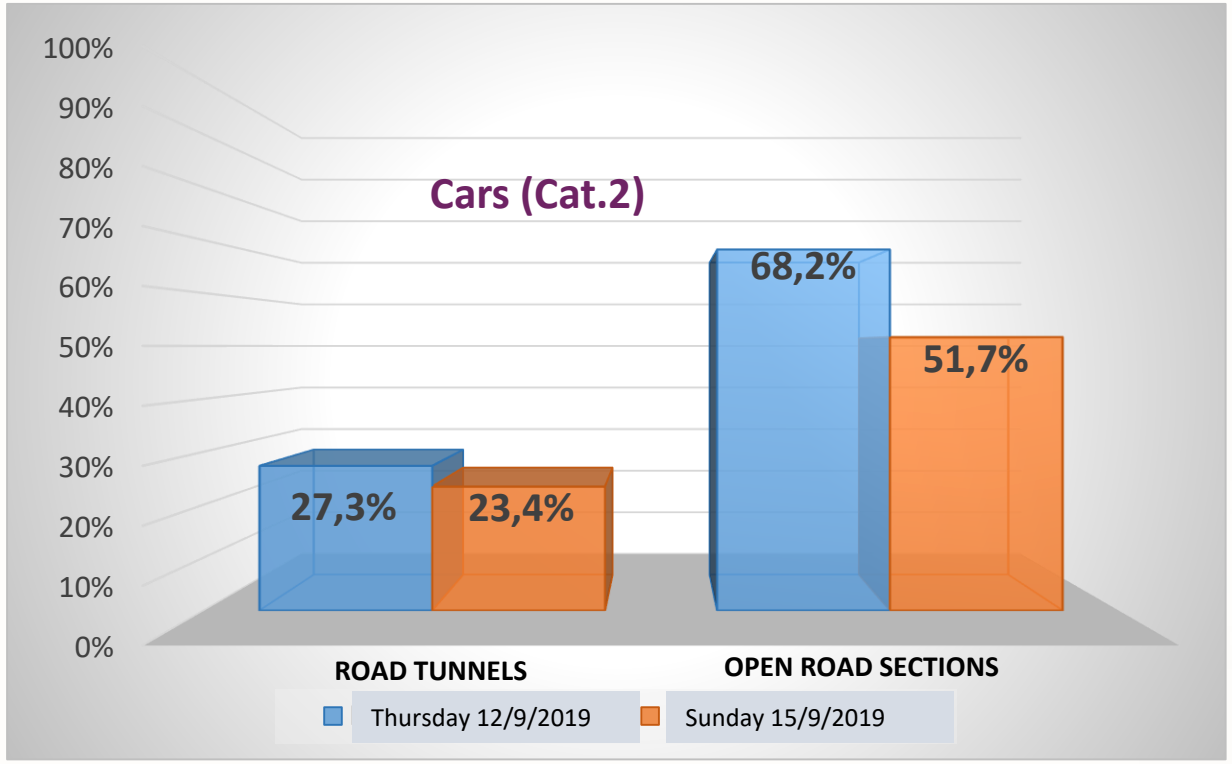
- By using a questionnaire and individual interviews in toll stations of HELLASTRON members

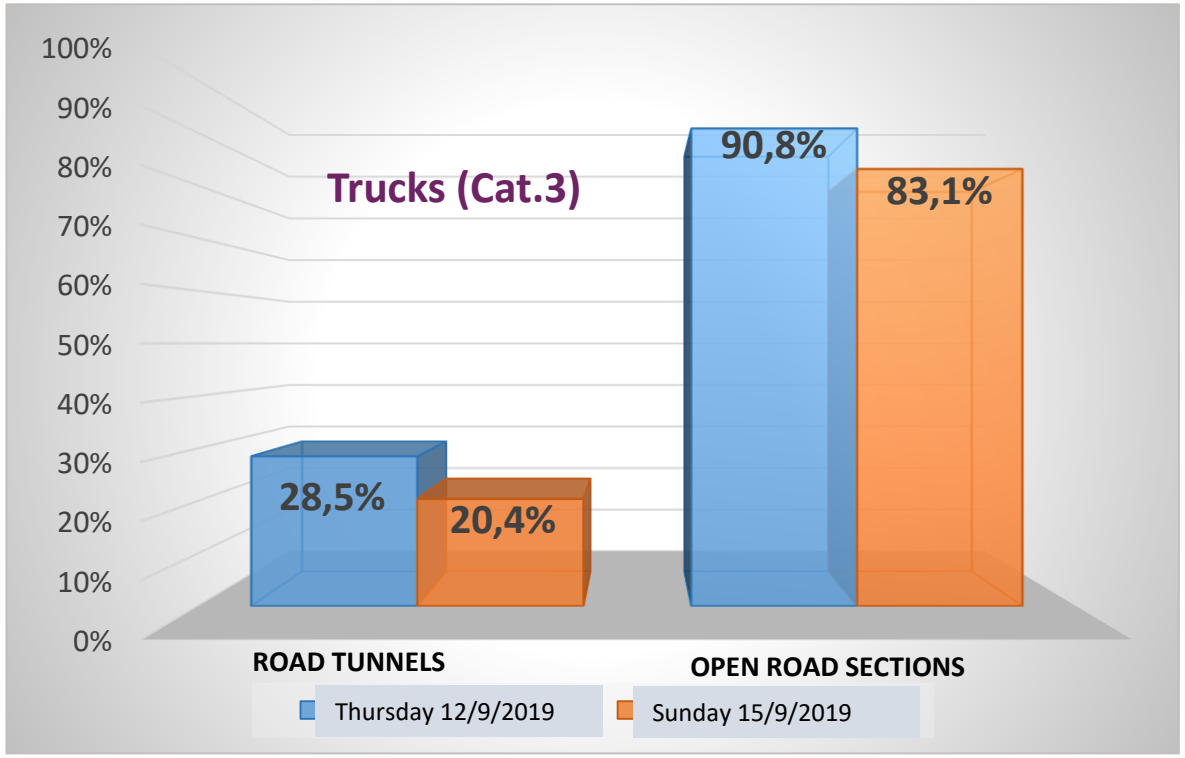
**21.000**
Individual interviews




**22**
Toll stations in the entire HELLASTRON network

# Results - KPI.1: Observance of Speed limits (in EU 1/3 of fatal accidents are due to over speeding)




**Open Road Sections:**

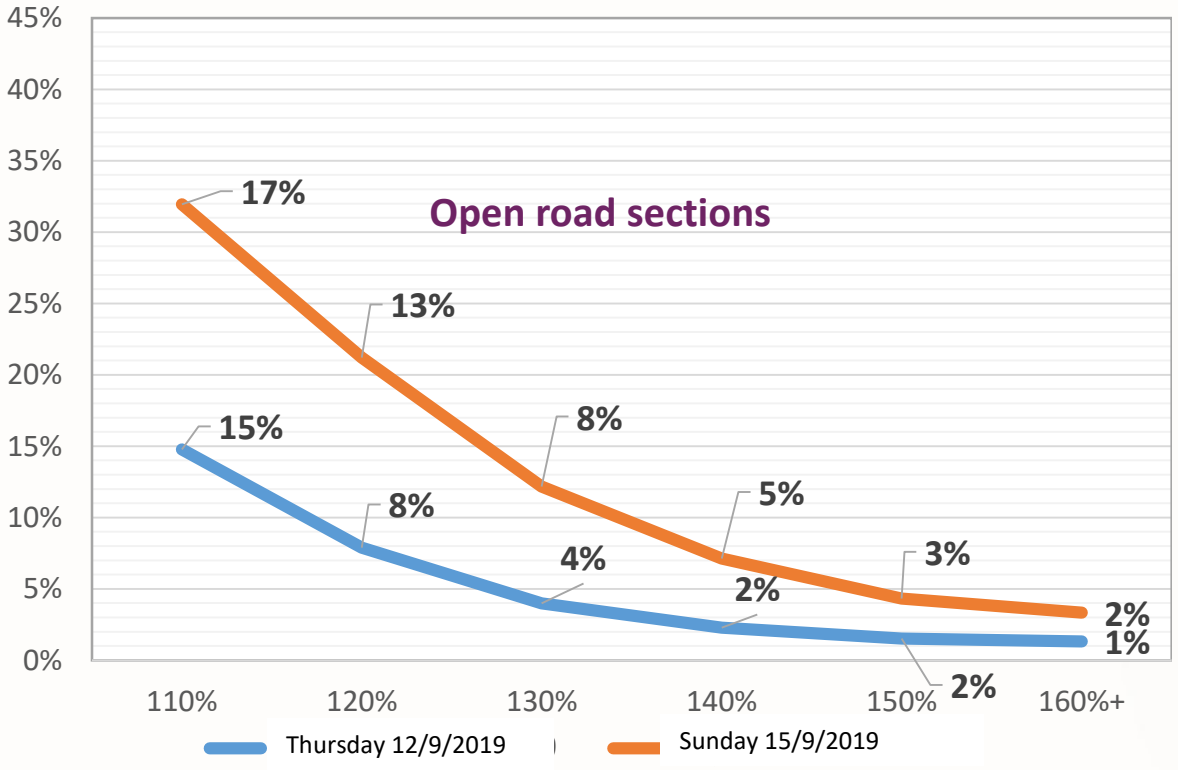
- Significant percentage of cars drivers violate speed limits (3/10)
- Relatively lower percentage of speed violations in trucks (1/10)
- Higher "delinquency" on weekends, 5/10 cars and 2/10 Trucks
- The lower the speed limits, the higher the delinquency

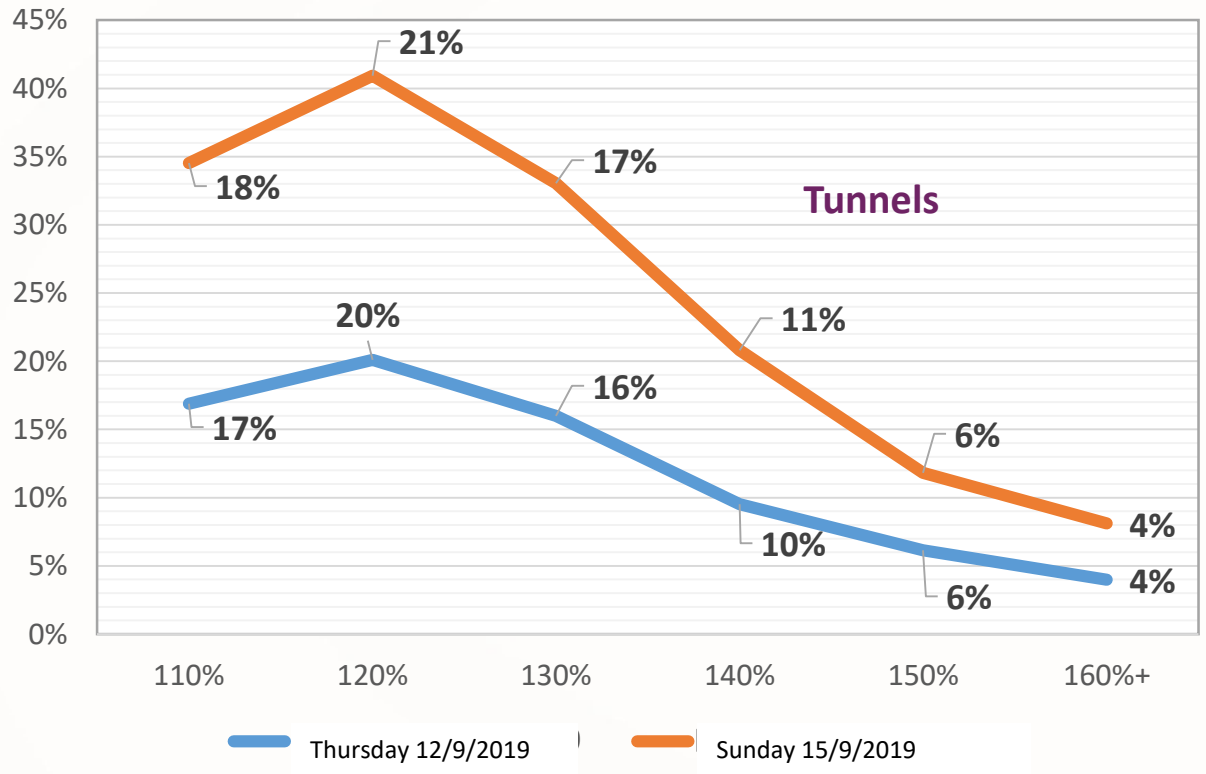
**Tunnels:**

- Extremely high percentage of drivers both in cars and in trucks do not observe the speed limits (7/10 ), fact that gives rise to serious risks
- Slightly higher "delinquency" on weekends

**Day/Night:** No significant differences were recorded statistically

# Results - KPI.1: Speed limits violation– cars (Cat.2)



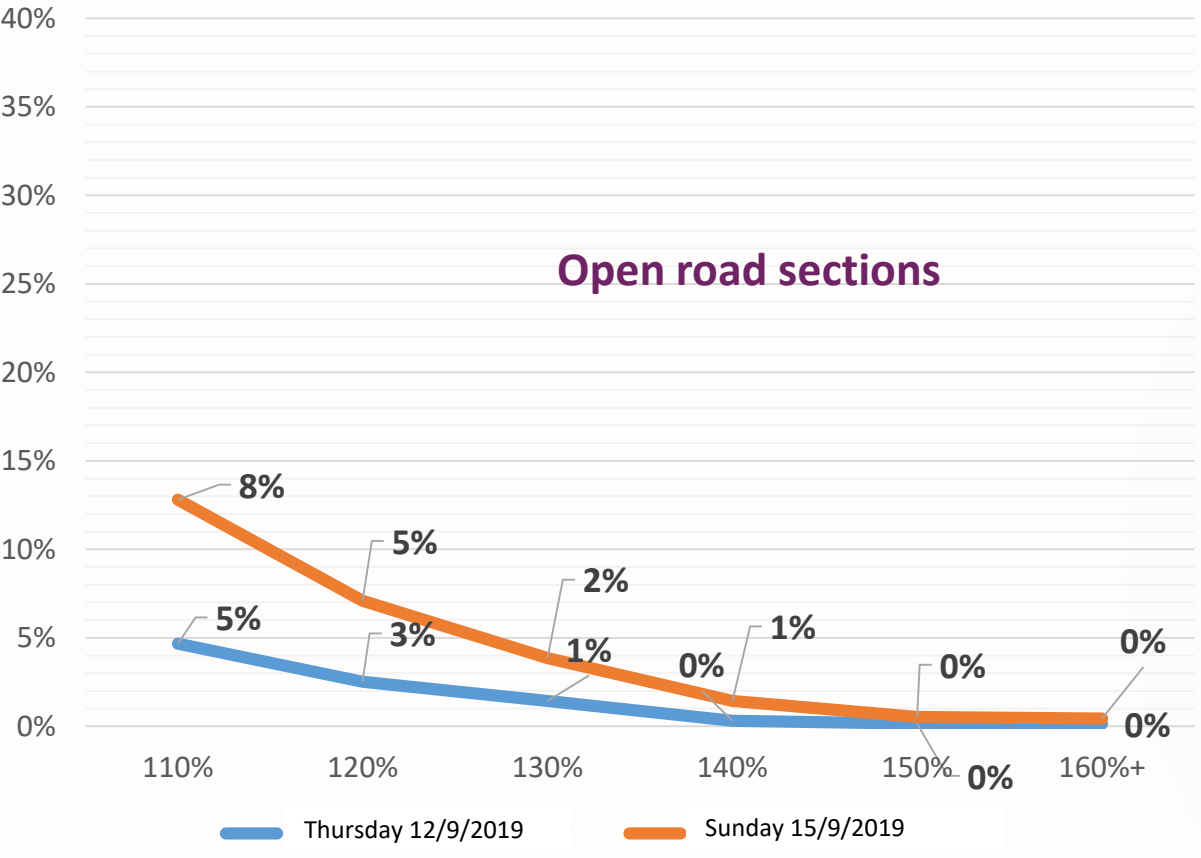

**Open road sections:**

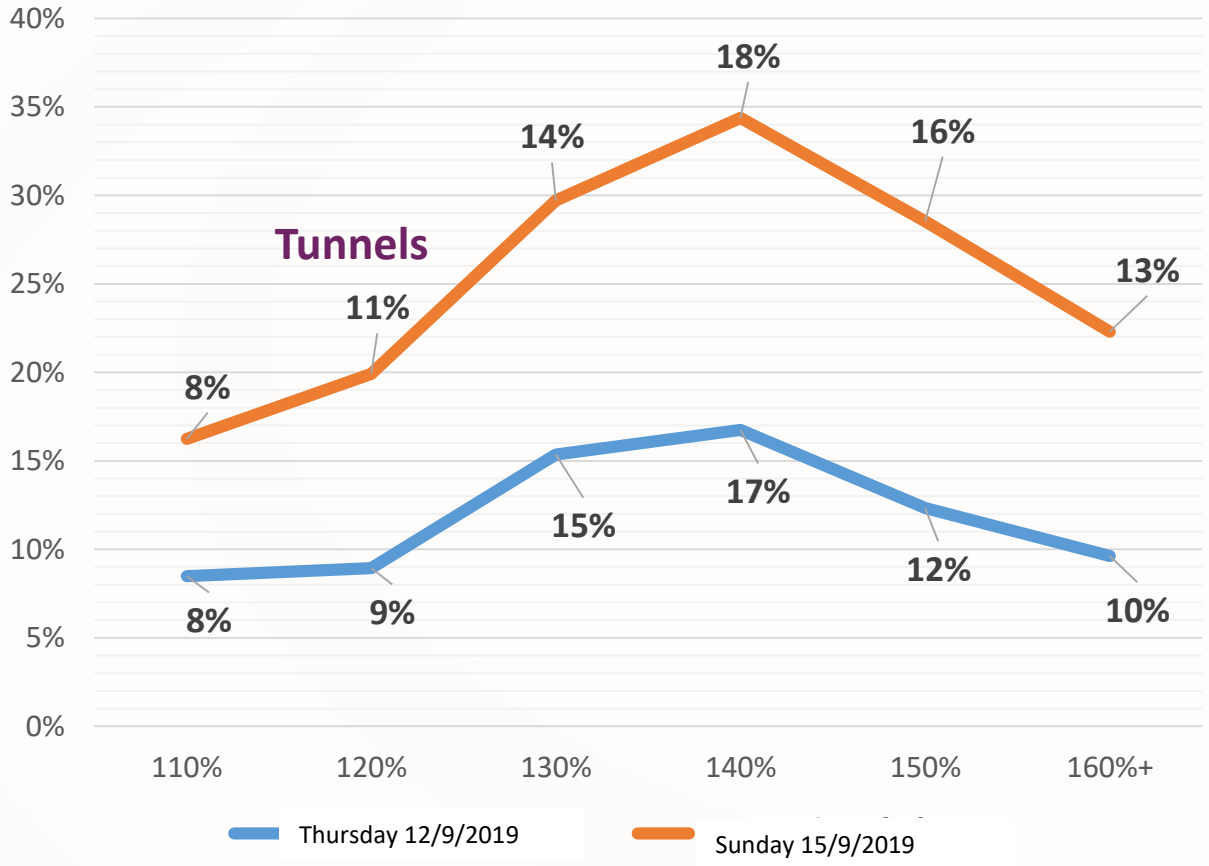
- Half of 3/10 violating the speed limits on weekdays, exceed it at least by 20%
- From 5/10 exceeding the limits on weekends, more than 3 exceed it at least by 20%

**Tunnels:**

From 7/10 exceeding the speed limits, 6 exceed it at least by 20%

# Results - KPI.1: Speed limits violation– Trucks (Cat.3)



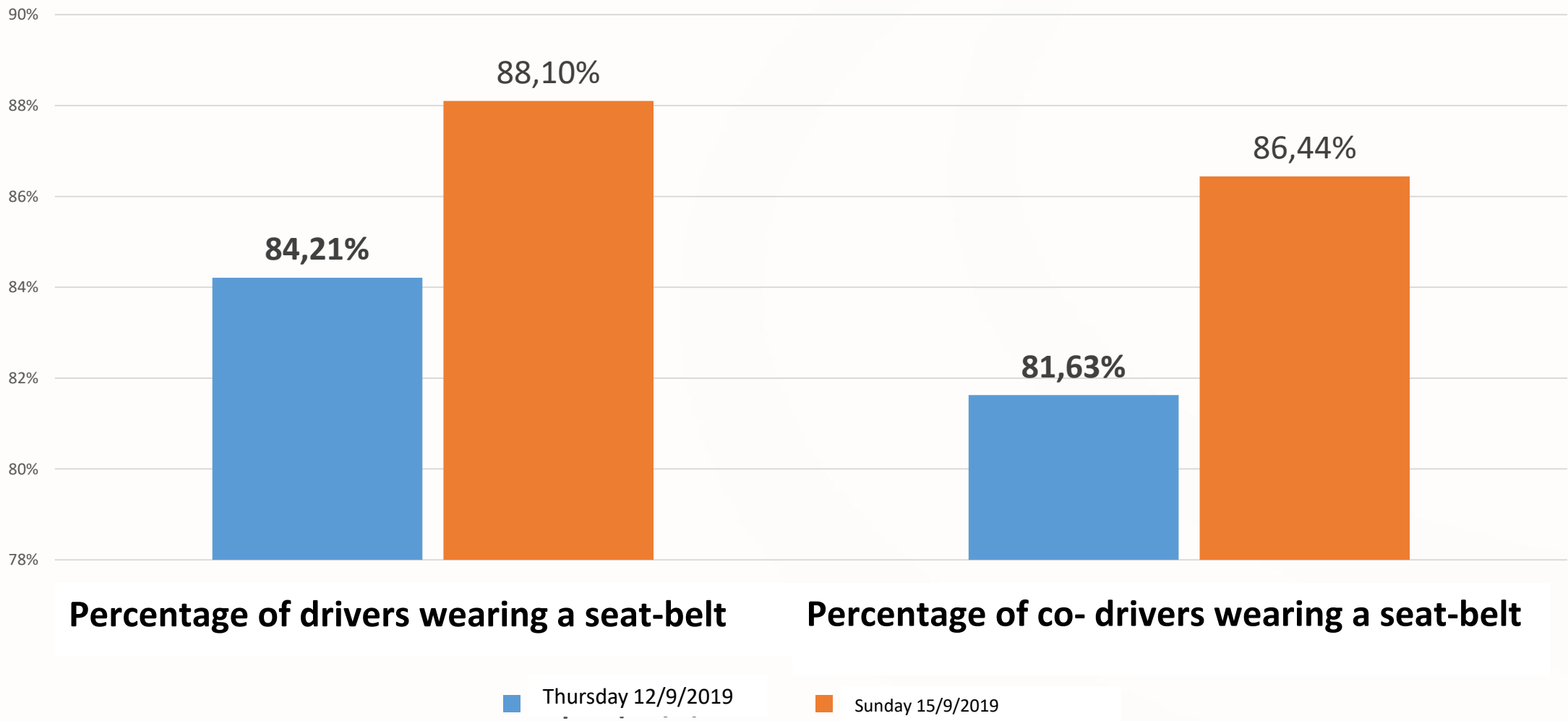

**Open road sections:**

- Half of 1/10 violating the speed limits on weekdays exceed it at least by 20%
- Half of 2/10 exceeding the limits on weekends exceed it at least by 20%

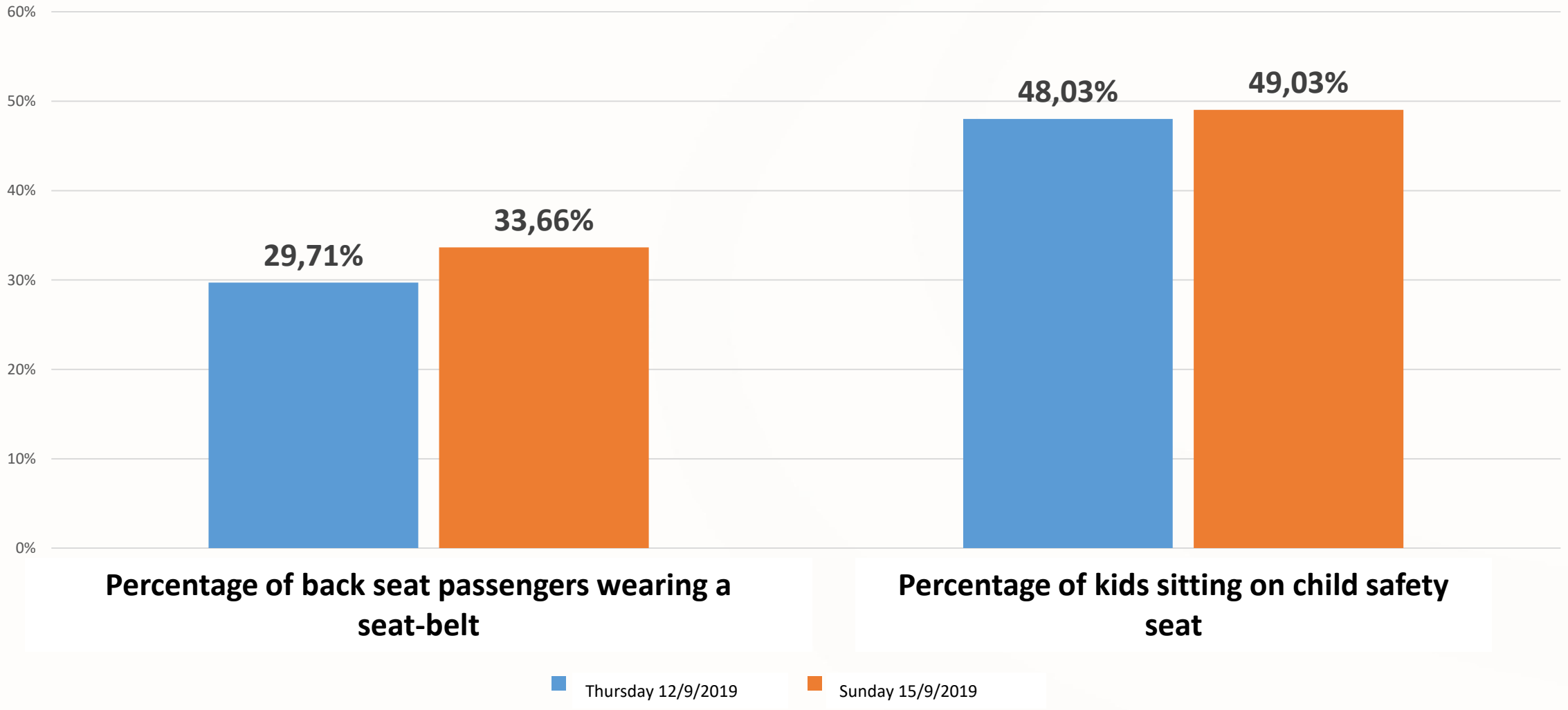
**Σήραγγες:**

From7/10 exceeding the speed limits, 6 exceed it at least by 20%

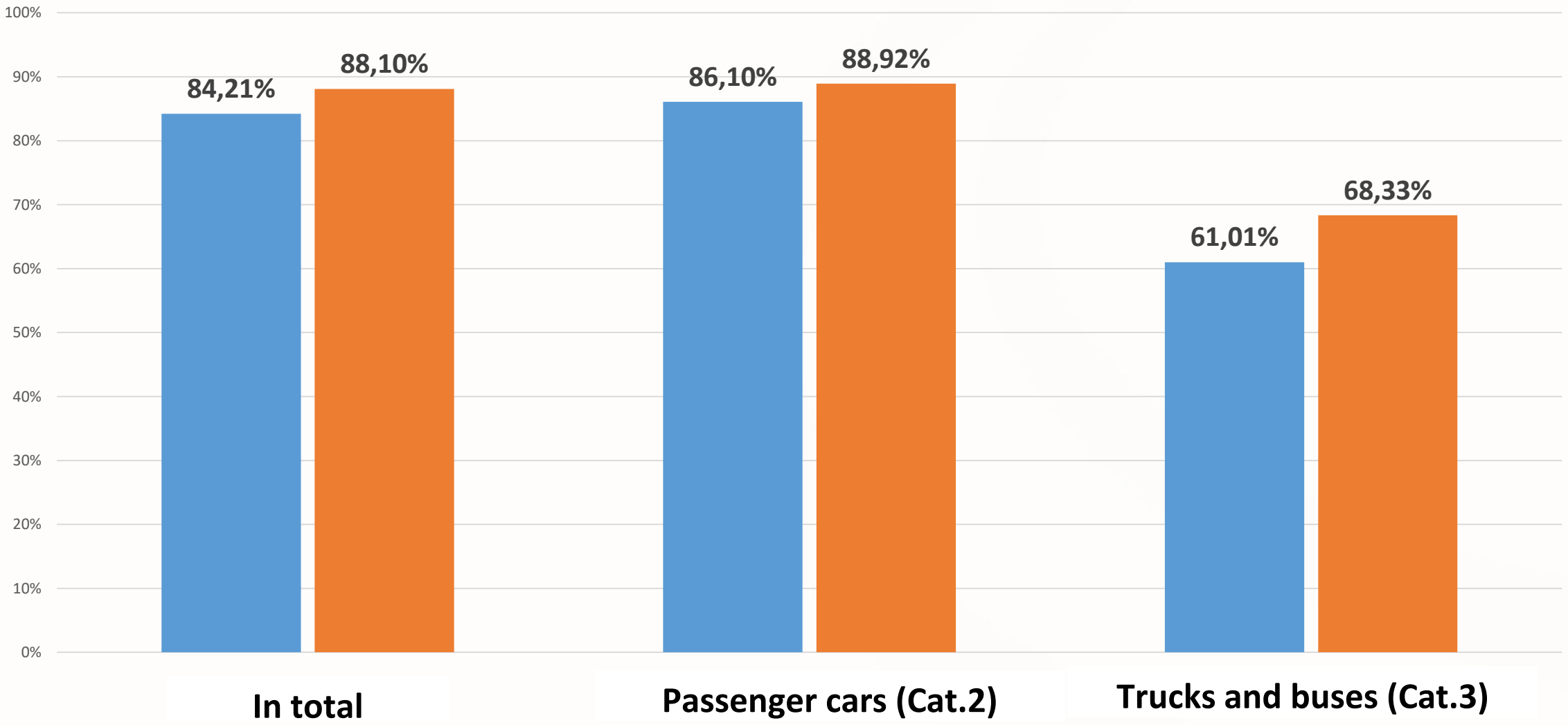
# Results - KPI.2: Use of Seat-belts and child safety seats



# Results - KPI.2: Use of Seat-belts and child safety seats



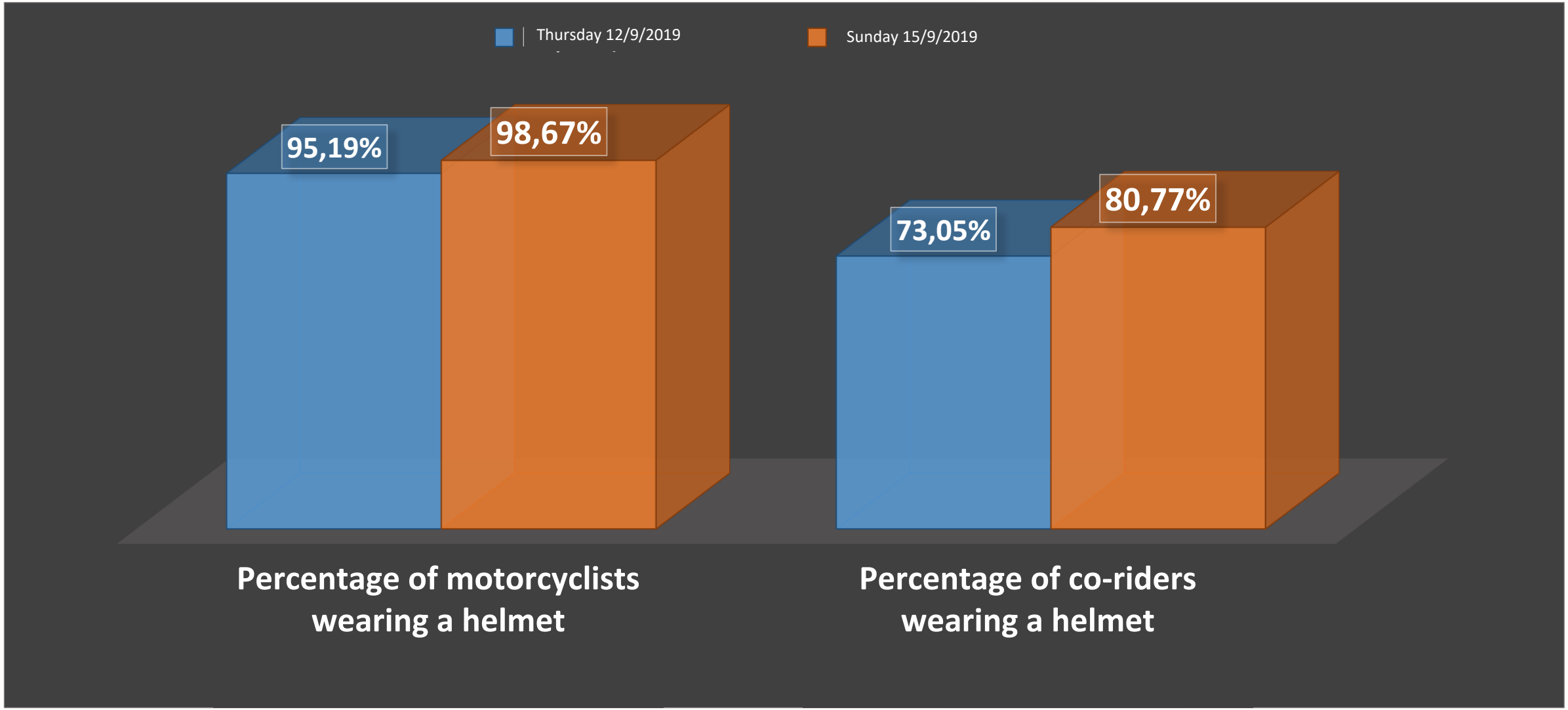
# Results - KPI.2: Use of Seat-belts and child safety seats –Use of seat-belt by the driver



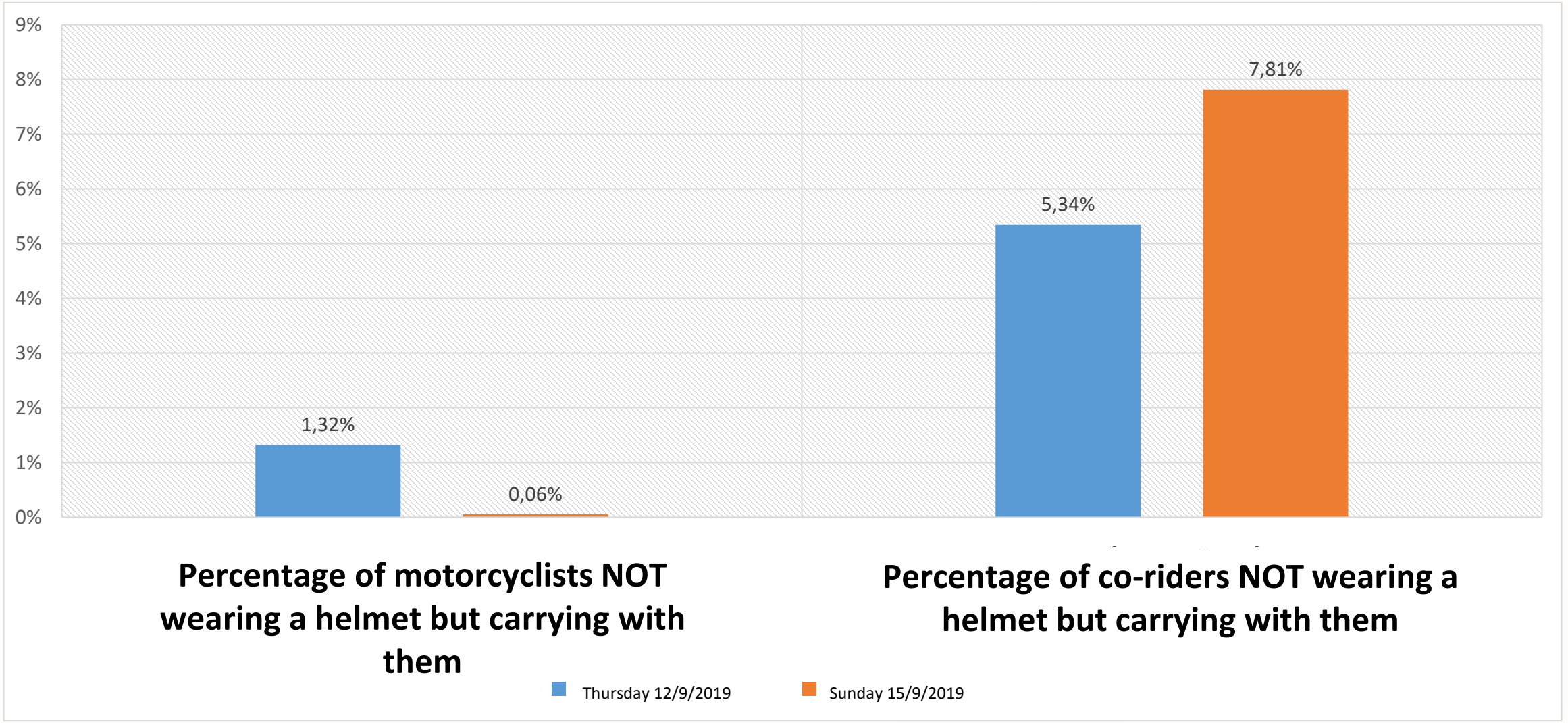
# Results - KPI.2: Use of Seat-belts and child safety seats – Crucial remarks

- The percentage of drivers who do not use seat-belt is considerable (16%) on weekdays and (12%) on Sundays,
- Higher percentages for co-drivers (18,5%) on weekdays and (13,5%) on Sundays,
- The fact that only 1 out of 3 passengers in the back seats wear seat-belts is important!
- Also important is that less that half the children riding on the back seats are fastened on the child safety seats
- According to EU studies the universal use of seat-belts and child safety seats would decrease annual fatalities per 2800 on an EU level

# Results - KPI.3: Use of helmet by Motorcyclists



# Results - KPI.3: Use of helmet by Motorcyclists



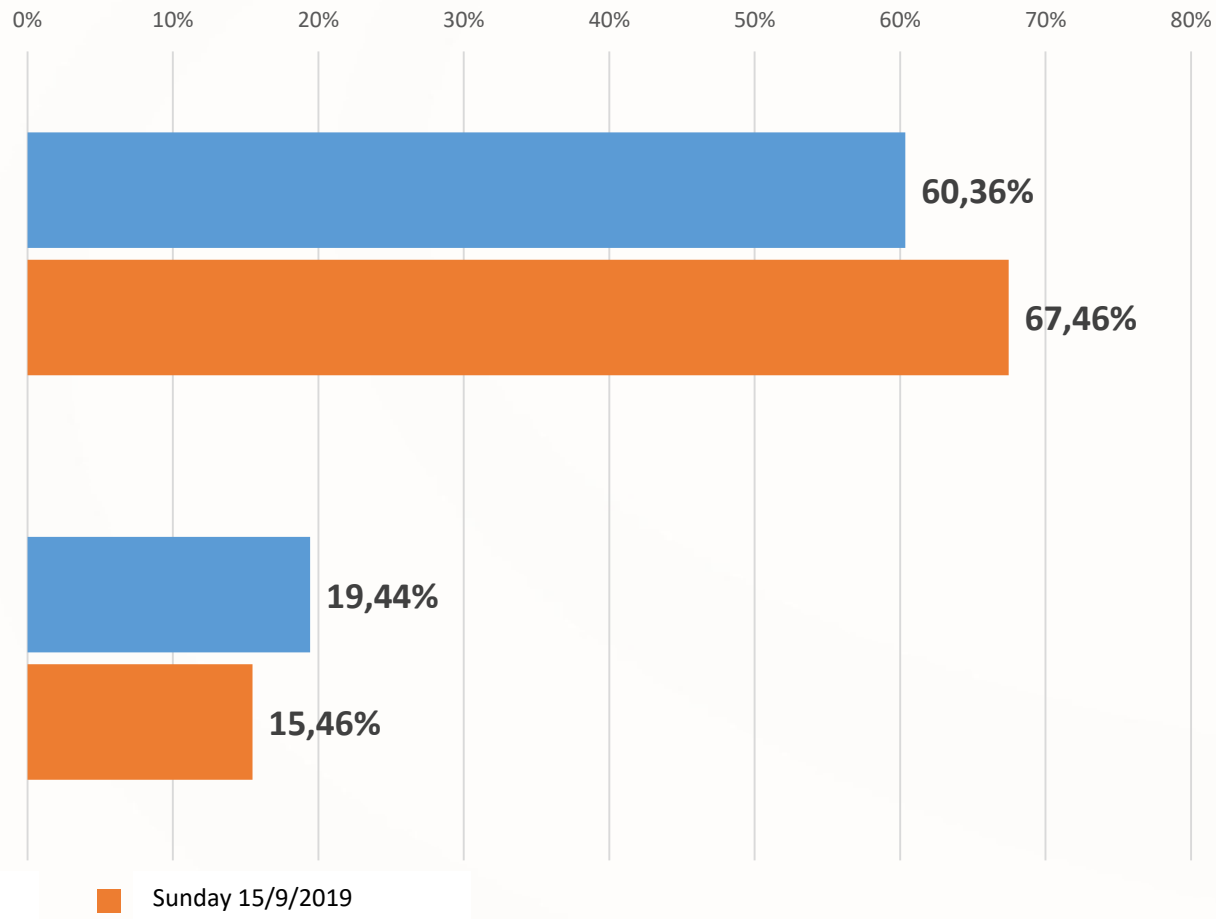
# Results - KPI.3: Use of helmet by Motorcyclists – Crucial Remarks

- The vast majority of motorcyclists wear helmets during their transports. Nevertheless there is a considerable 5% that does not. Among them, 1/4 had it with them but did not wear it.
- However, the percentage of co-riders that did not wear a helmet is considerably increased (almost 1 out of 3 on weekdays and 1 out of 5 on Sundays). Of those, 1/5 to 1/3 (depending on the day) carried a helmet but did not wear it.
- According to the EU studies, the universal use of helmet would decrease annual fatalities per 206 on a EU level

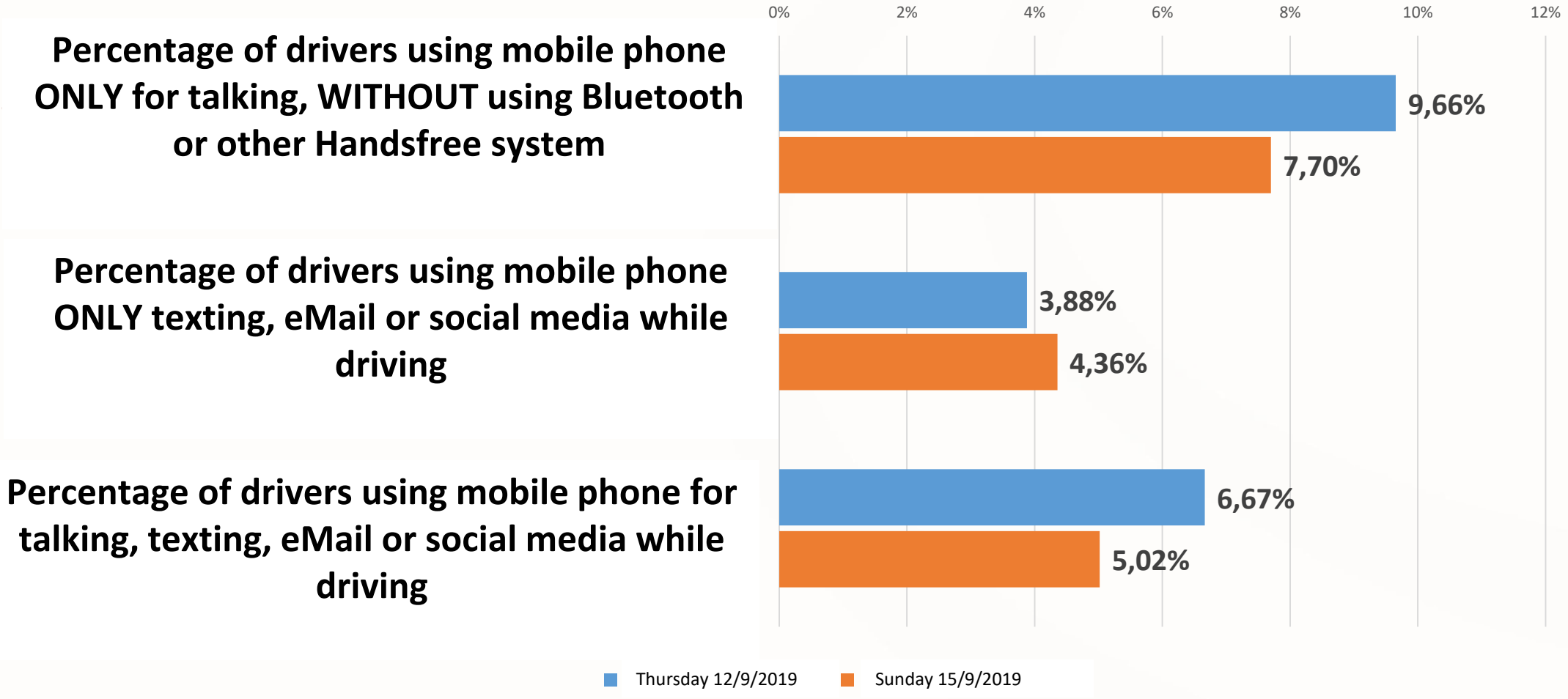
# Results - KPI.5: Distraction due to use of mobile device

**Percentage of drivers not using mobile phone or other mobile device for any reason**

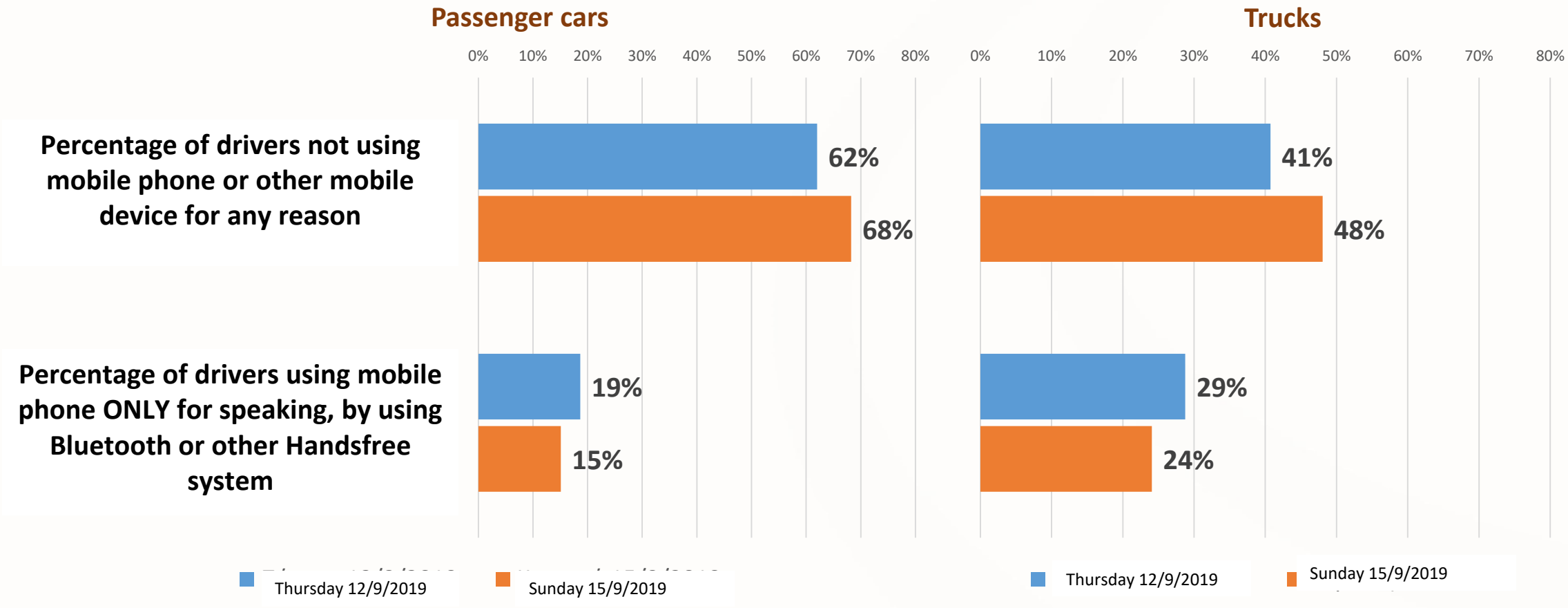
**Percentage of drivers using mobile phone ONLY for speaking, by using Bluetooth or other Handsfree system**



# Results - KPI.5: Distraction due to use of mobile device



# Results - KPI.5: Distraction due to use of mobile device -Cars (Cat.2)

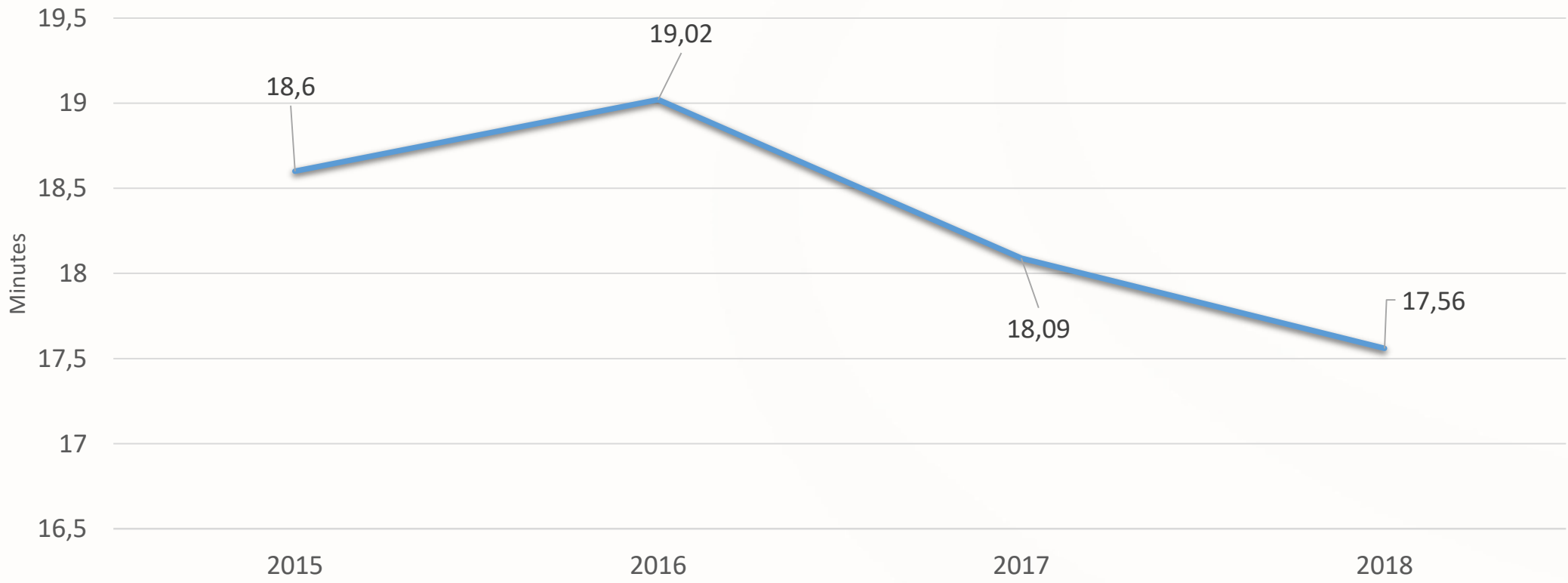


# Results - KPI.5: Distraction due to use of mobile device - Crucial Remarks

- The results are based on answers given by the drivers of the vehicles on relevant questions and not on researchers observations
- 4/10 drivers use mobile phones or other mobile device while driving. Half of them (2/10) use them inappropriately (without using Bluetooth/handsfree, texting…)
- Especially for trucks, 6/10 drivers use mobile phone or other mobile device while driving and half of them (3/10) inappropriately.
- According to EU studies the use of mobile devices increases the risk of accident from 6 to 12 times and is responsible for 10-30% of collisions.
- It should be born in mind that  when we are travelling at 100 km per hour and turn our attention to our phone to see who is calling, we will cover about 100 meters without looking at the road.
- In addition, more that 5% Επίσης περισσότερο από 5% stated that used their mobile phones for texting or social media, thus impairing their perception by 50% at that moment.

# Results - KPI 8. Care of injured person upon a road accident

## Average time of Ambulance arrival in case of accident with injuries (within minutes):



# Results - KPI 8. Care of injured person after a road accident - Crucial remarks

- The time lag between the moment of the accident until the paramedics arrival is decreased over the years. However, the first 10 minutes of the injury define at large its evolution.

- According to EU studies it is estimated that if the paramedics arrival time falls from 25 to 15 minutes, the victims could decrease per 30%

- For this indicator to be essential, a doctor or other specialized personnel should be present in the ambulance for the provision of primary health care to the injured person.

## Conclusion

- The experience and pilot study presented, points out for one more time **the need for continuous and systematic effort in all levels / parameters of the road safety.** Not only in road infrastructure, but also with regard to the vehicles, the human factor and of course the immediate intervention in the undesirable case of accident.

- The above results from the HELLASTRON network can be used for improving road safety through **prioritized and focused actions of information, raising awareness and Policing**

- Similar measurements could be applied to **the entire National Road Network**

- **HELLASTRON can offer its experience** for supporting common actions with the competent Services.

HELLASTRON

# Thank you !

**Kostas Papandreou -** HELLASTRON
**Chief Executive Officer:** Olympia Odos Operation S.A.
**Head of:** permanent Committee COPER I, HELLASTRON

**Charalambos Malimoglou**
**Chief Operation Officer:** InVision Consulting S.A.
**Technical Consultant:** HELLASTRON