



3rd International Conference on **Driver Distraction and Inattention**

Deciding to be distracted: Drivers' strategic choices to interact with the mobile phone

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IFSTTAR

Research objective & methods

- Mobile phone distraction as a growing problem (WHO, 2011)
- Special safety concern regarding visual-manual interactions: texting, dialling, reaching for phone (Martin, 2013)
- Exposure to phone use determines the generated risk (Lerner & Boyd, 2005)

1) Naturalistic Driving Study

Aim: Analyse exposure to different modes of phone use and its driving context

2) Traffic Observation

Aim: Focus on temporary stopping situation at red traffic light

Naturalistic Driving Study

N=9 drivers (6 men, 3 women; aged 33-50)

drove instrumented vehicle with hands-free phone kit during 4-5 weeks

3 cameras

Data Acquisition System

↓ *video coding*

- phone use characteristics
- traffic flow
- stopping situations during phone use

↓

- road type
- speed

Total driving time recorded: 493 h 48 min
Average per participant: 54 h 52 min

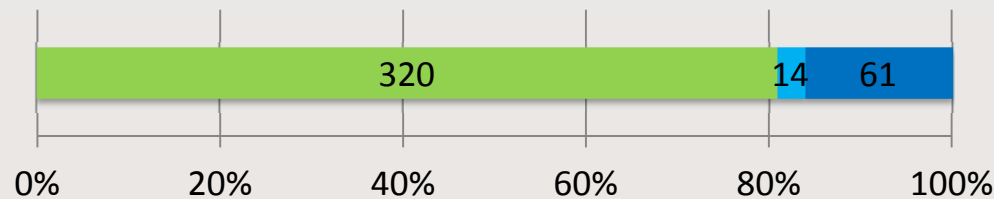


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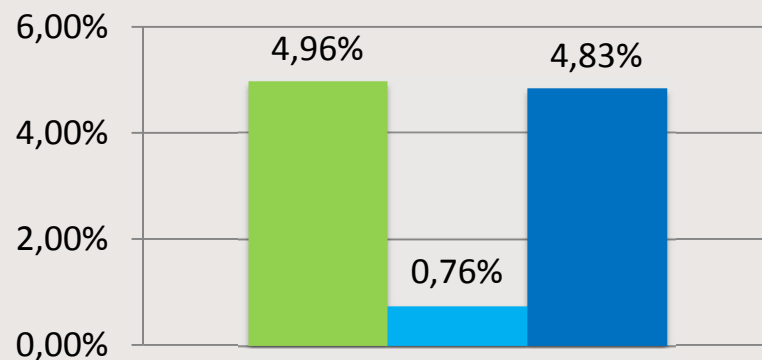
Interaction
Understanding driver interactions



Phone use modes

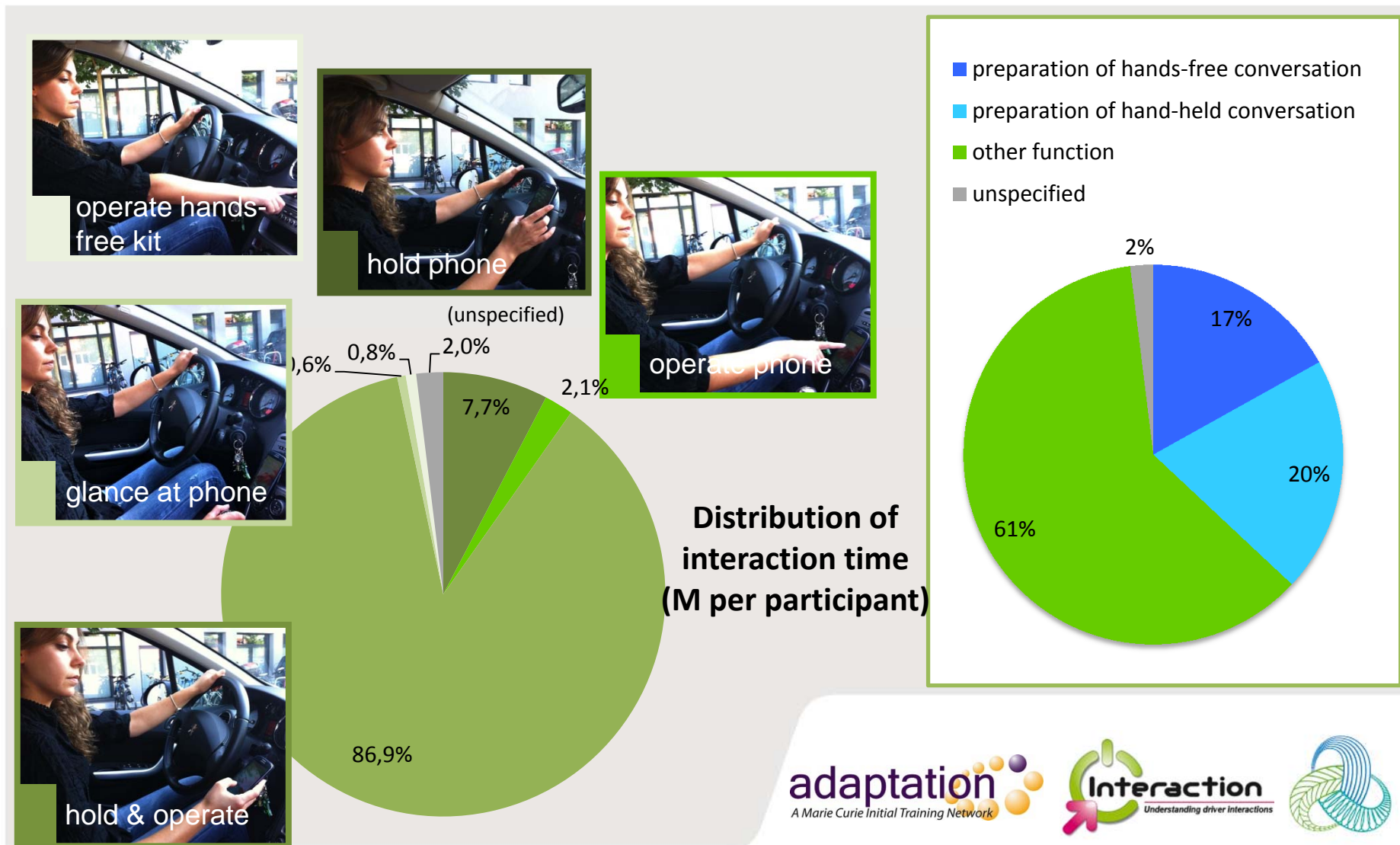


number of phone use episodes
(mean per participant)

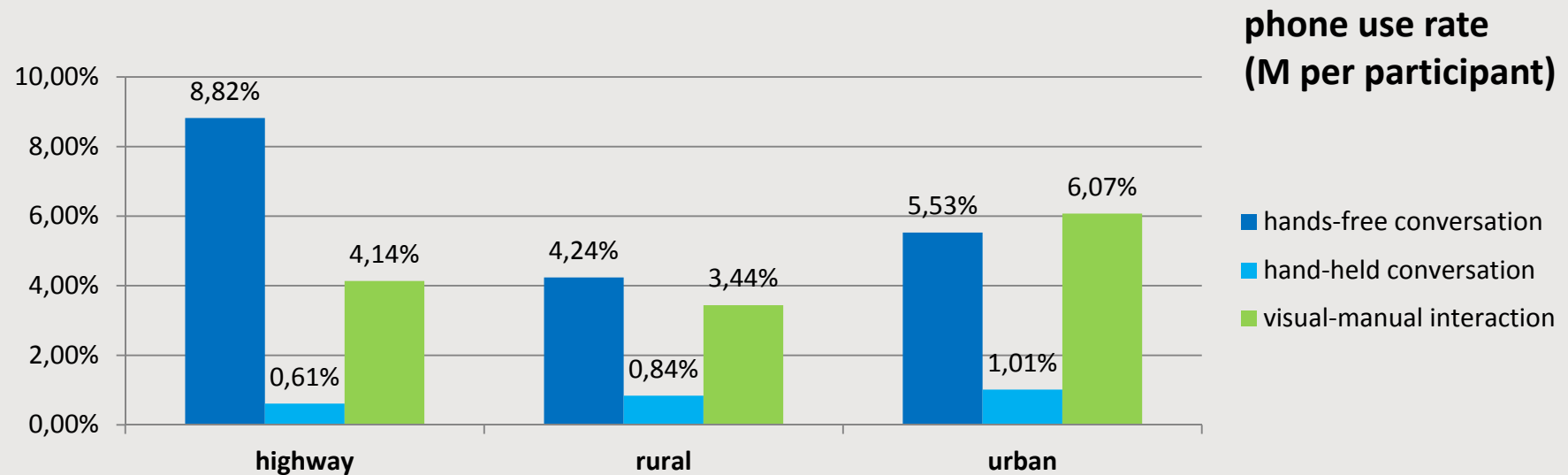


phone use rate
(M per participant)

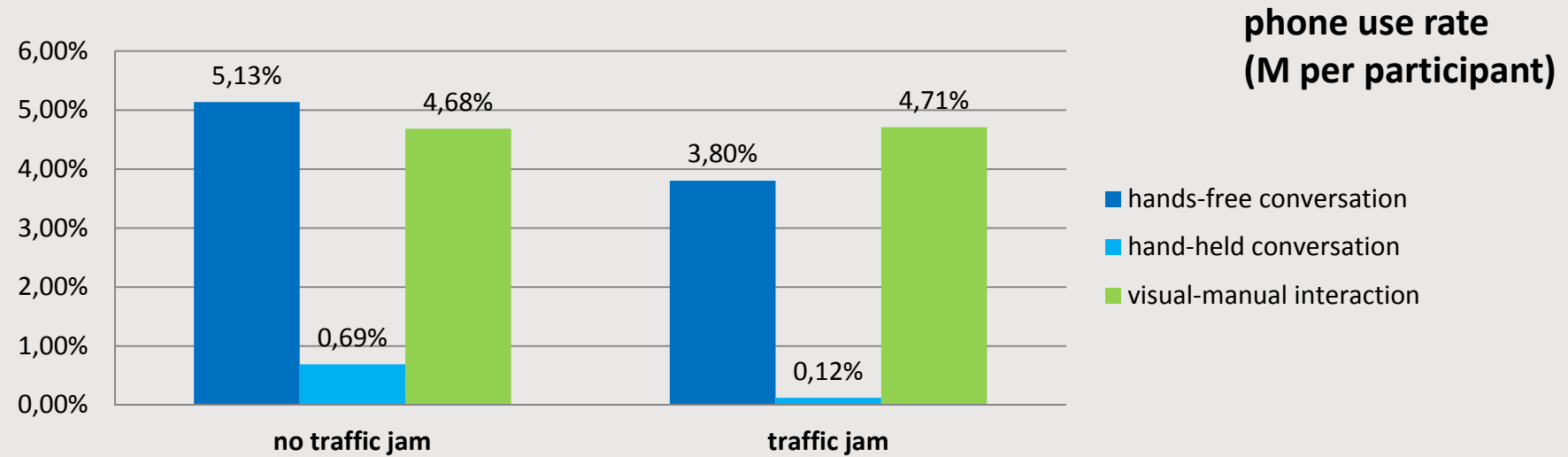
Focus on visual-manual interactions



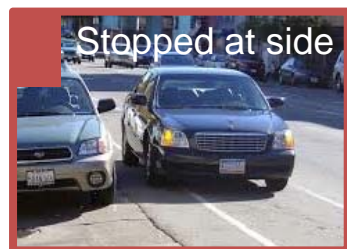
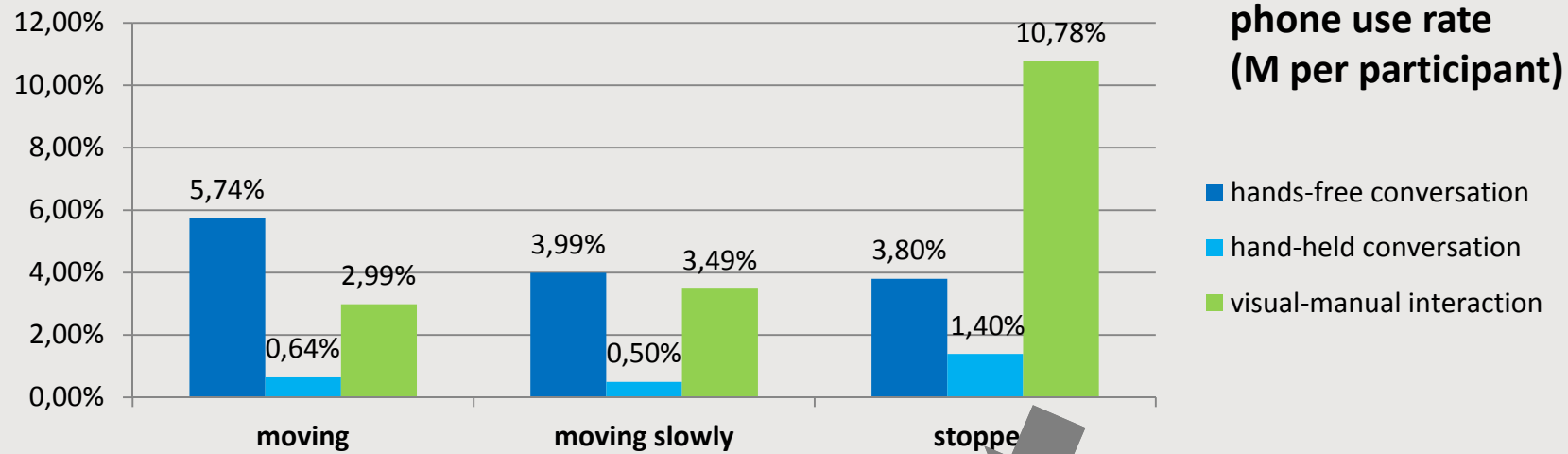
Phone use on road types



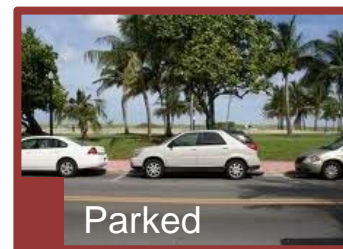
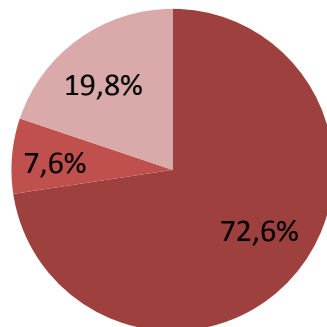
Phone use in traffic jam



Phone use in stopping situations



distribution of interaction episodes
(M per participant)



Traffic Observation

3 observation sites: traffic light approach at urban crossroads

9 hours of observation on weekdays between 4pm and 7pm

2 previously trained observers

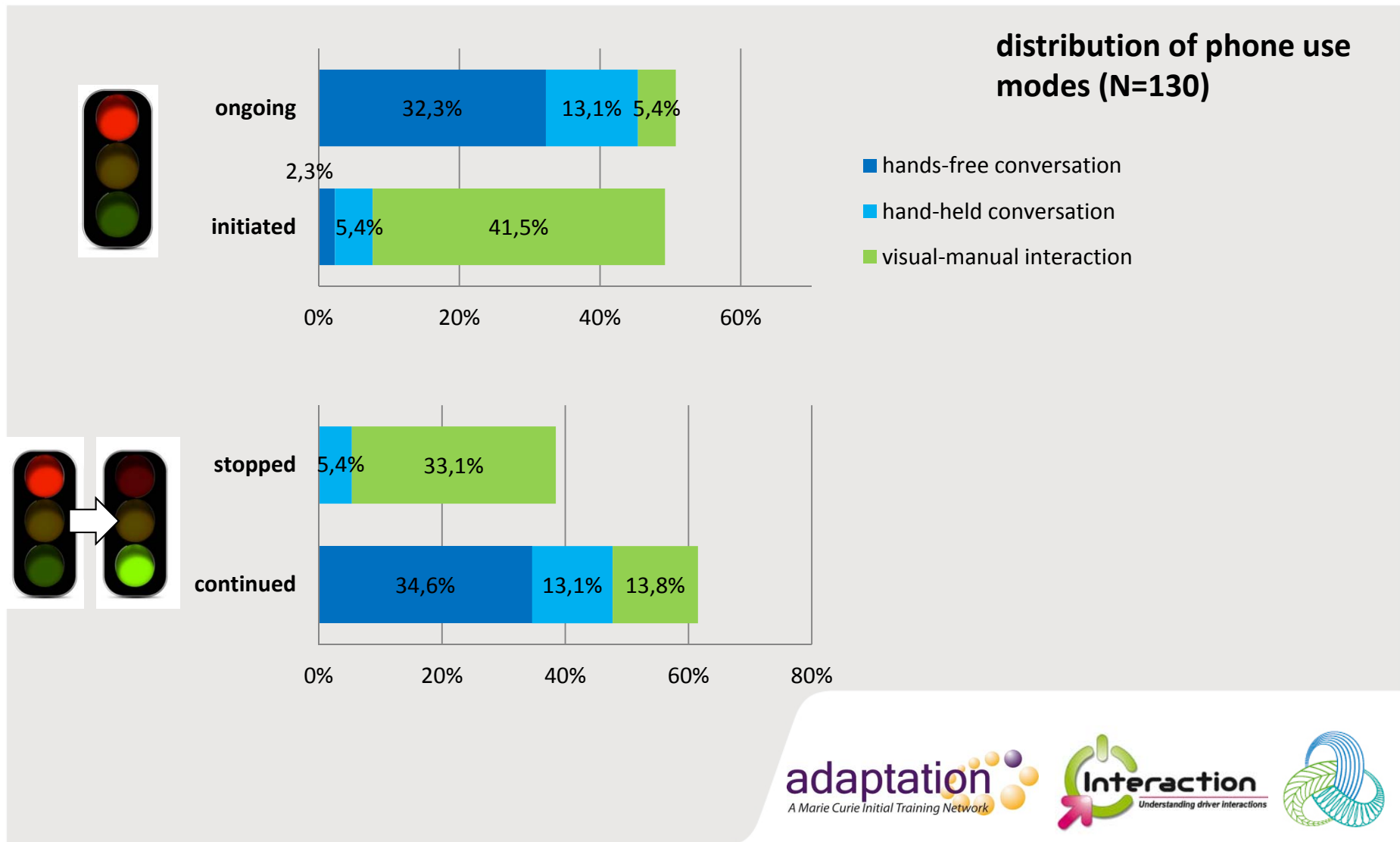
Observation sheet created after ad-hoc observation sessions

Variables:

- phone use mode
- driving errors
- timing of phone use
- other drivers' reactions

N=130 phone users observed in red traffic light situation
Paired with N=130 non-users (control group)

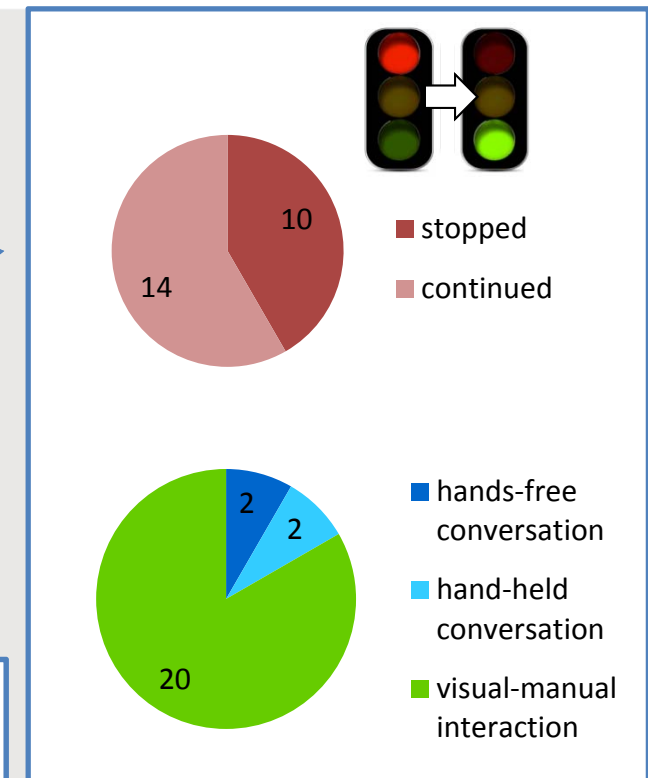
Phone use modes



Delayed start when traffic light turns green

	No delayed start	Delayed start	Total
Non-user	122	8	130
User	106	24	130
Total	228	32	260

$\chi^2 (1, N=260)=9,123, p=.003$



Reaction by other drivers: honking (n=3)



Conclusions

- Relevance of exposure to visual-manual interactions with the phone
- Visual-manual interactions are mostly independant from call
- Drivers try to apply strategies to regulate phone use exposure, but they are not always efficient
- What happens when phone use extends beyond the chosen situation?
- Interruptability of visual-manual interactions?
- Role of social pressure / social norms?
- Need to focus on driver awareness and education

Thank you for your attention.

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**Laboratory Ergonomics and Cognitive Sciences
applied to Transport (LESCOT)**

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