Informal document GRSP-70-30
70th GRSP, 6-10 December 2021
agenda item 24(f)

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Euro NCAP Child Presence Detection

70th Session of GRSP

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10th December 2021

Contents

01

Background & Timeline

Child Presence Detection (CPD)

2025 Roadmap
Identification of topic

2017

Child Working Group
Discussions began
Reviewing data

2018

2019-2022

Draft Protocol
Drafting began
1st publication early 2021
Points allocation - VBA

Implementation & Rating
Delayed from 2022
Scenarios 1 & 2

2023

2025

Updated assessment
All scenarios
Direct sensing only

02

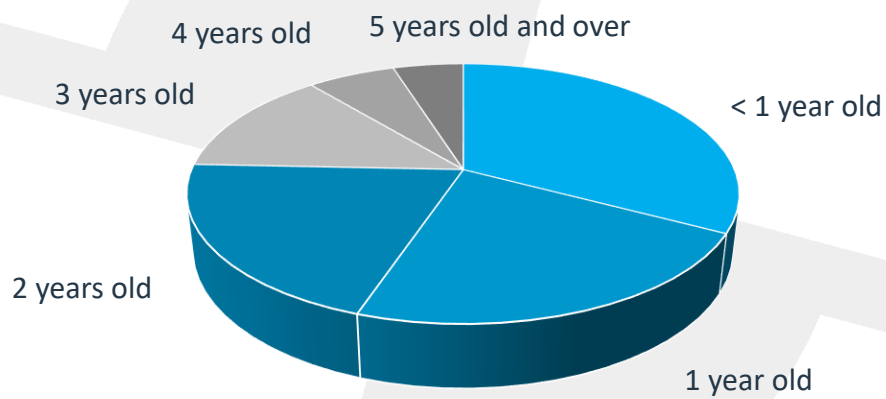
Data – Child Vehicular Heatstroke

- On average 38 vehicular heatstroke fatalities per year in the US
  - No systematic tracking of incidents in Europe (near misses not counted)
- Causes:
  - Forgotten (54%) – Memory failure & distraction
  - Knowingly left (18%) – Underestimate risk & 'back soon'
  - Gained access to car (26%) – Can't exit vehicle
  - Remaining % unknown
- Majority of victims are below two years old - in CRS, often sleeping

In-Vehicle Heatstroke Fatalities in the US

Period: 2000 - 2020
Average: 38 cases per year
Best: 24 (2020)
Worst: 53 (2018/2019)

Age of In-Vehicle Heatstroke Victims



Data courtesy of https//noheatstroke.org

03

Protocol Development

Creating a Euro NCAP protocol

Scenarios to cover

1 Forgotten
2 Knowingly left
3 Accessing vehicle

Warnings

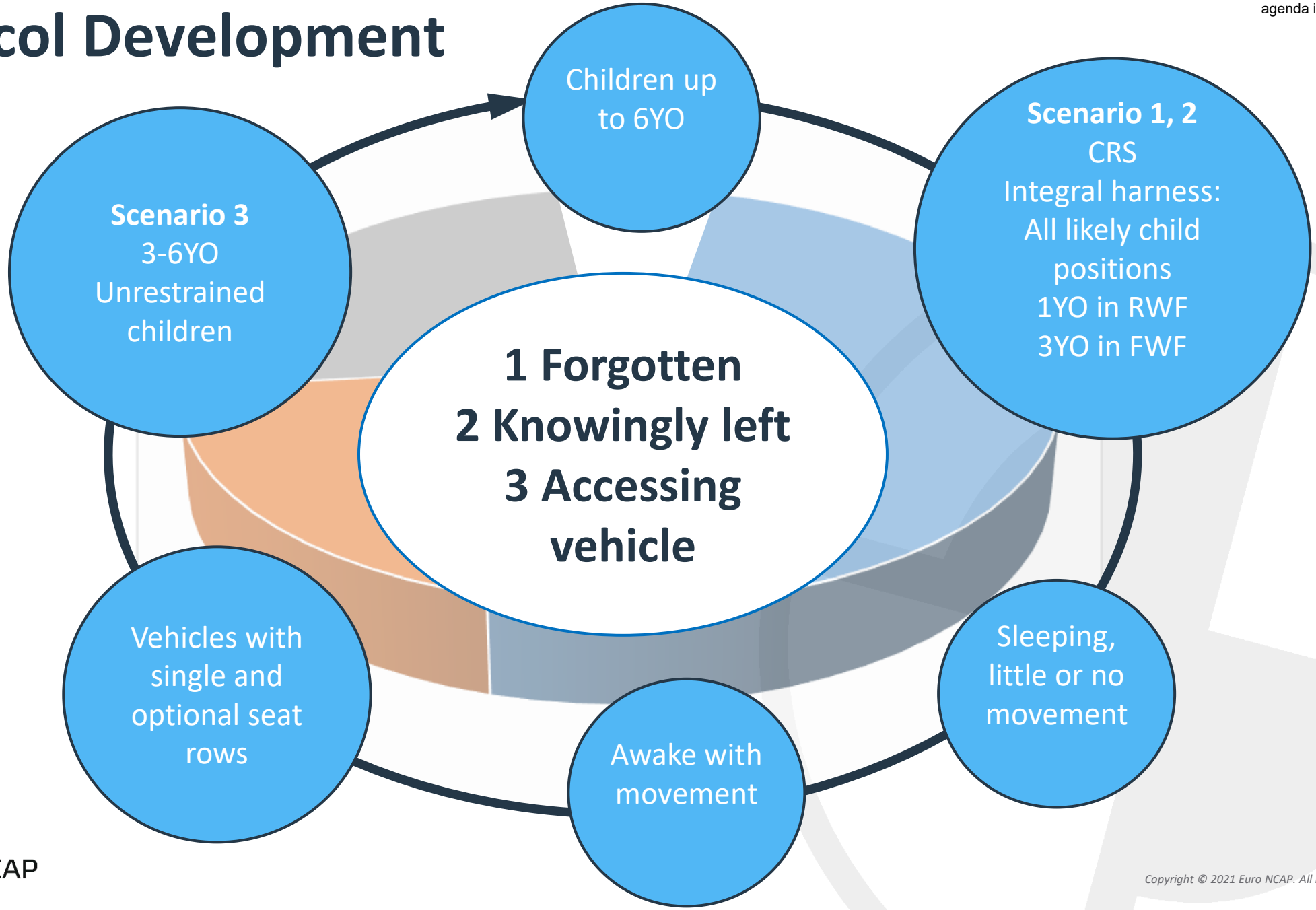
- Initial
- Escalation
- Intervention

Technology

- Direct sensing
- Indirect sensing
- Evaluation

03

Protocol Development



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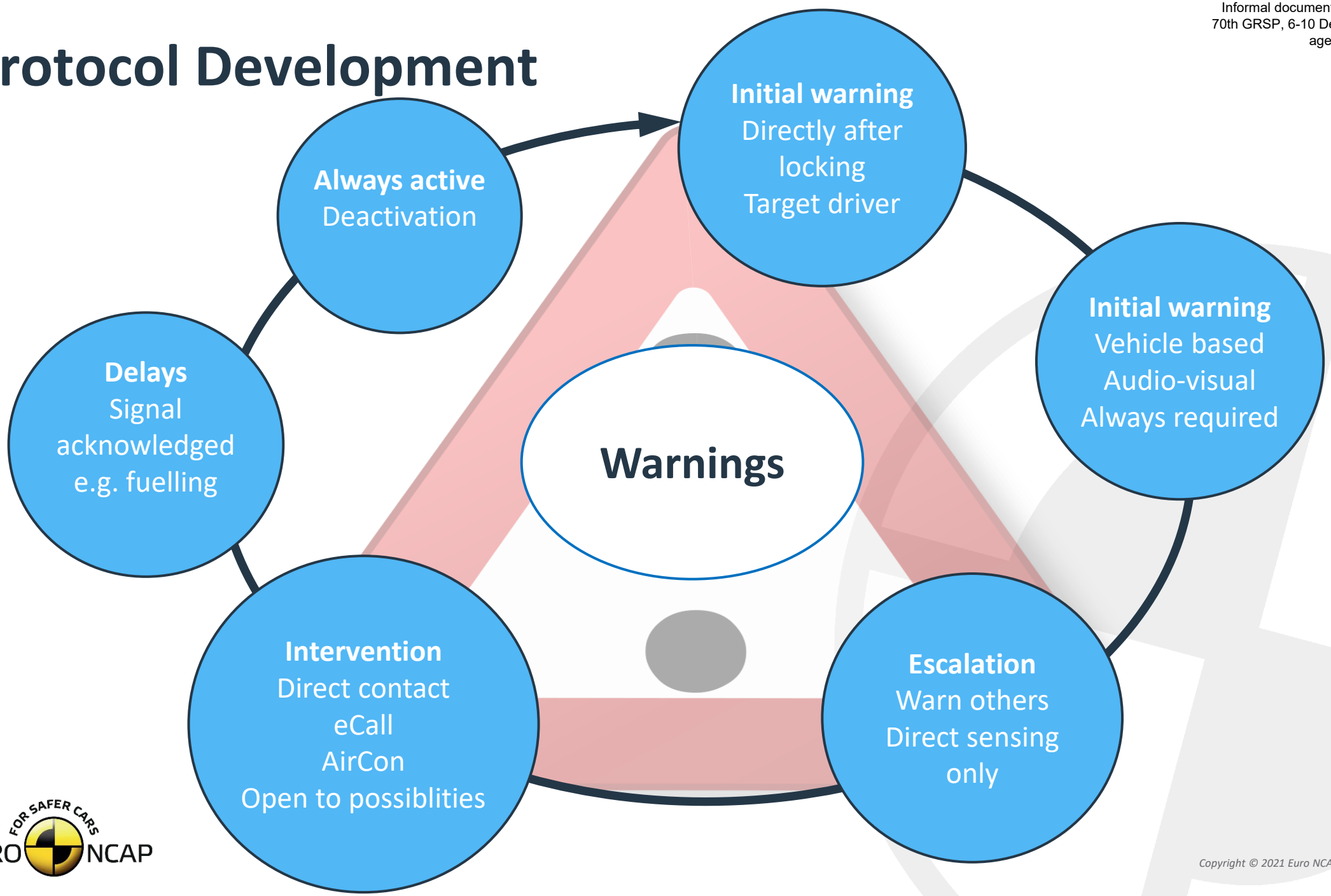
Protocol Development



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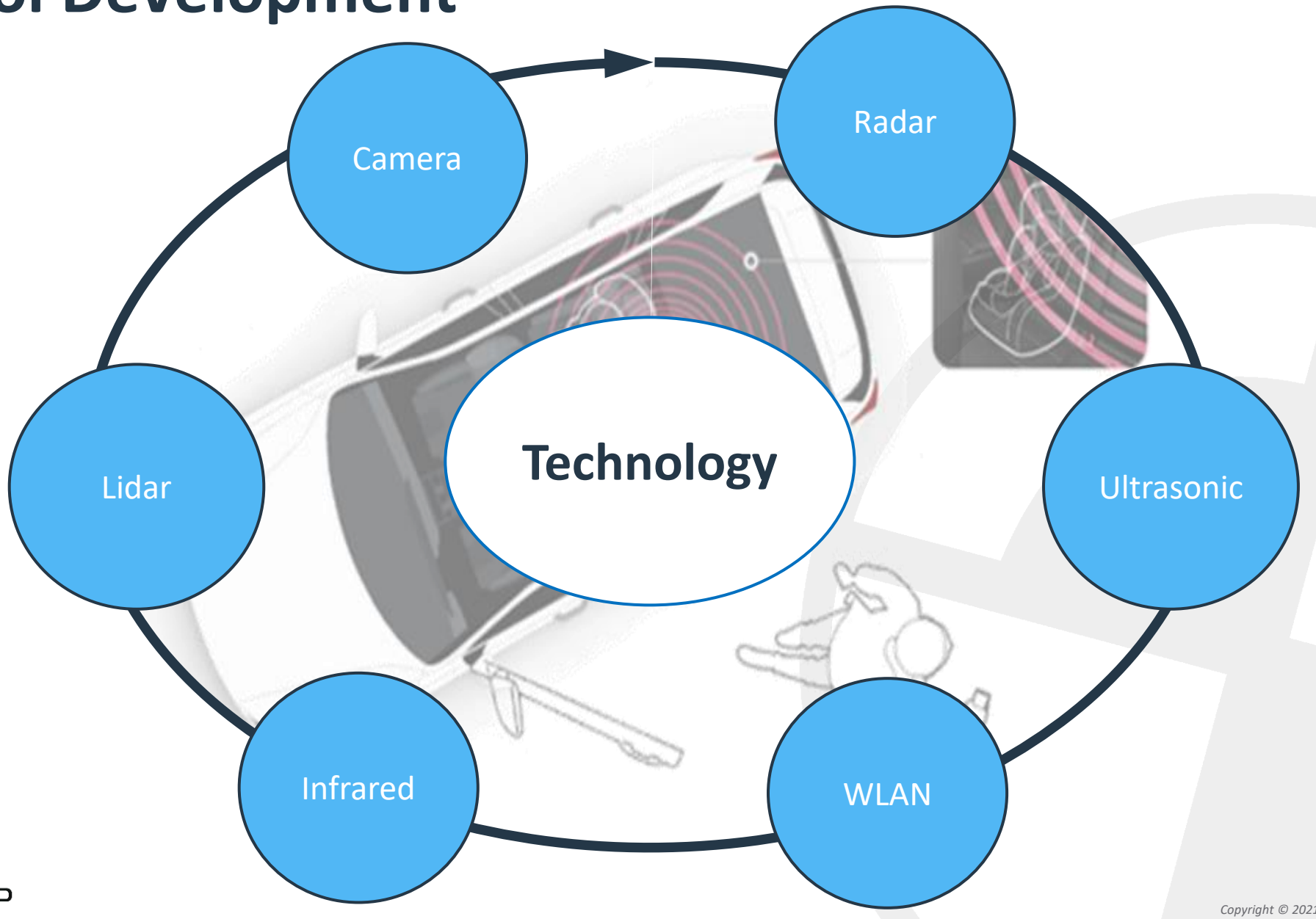
Protocol Development



Protocol Development

‘Indirect sensing’ systems

- Derives the potential presence of a subject or object inside the car based on logic
  - Indirect sensing does not distinguish between live persons or objects
- Based on door opening switches, pressure or capacitive sensing etc.
- Specific use cases detailed in protocol – scenarios based on sequential steps
- Assessment performed by laboratory

‘Direct sensing’ systems

- Detecting the absolute presence of a human inside the vehicle by tracking heartbeat, respiration, movement, or any other sign of life
  - Direct sensing may or may not allow categorization and localization of the subject(s)
- Different technologies proposed: (imaging) radar, ultrasonic, camera, lidar, infrared, …
- Evaluation is technology dependent, based on OEM data submissions
- Validation of test tools needed (where necessary)

NISSAN GMC CHEVROLET HYUNDAI VitaSense vayyar APTIV

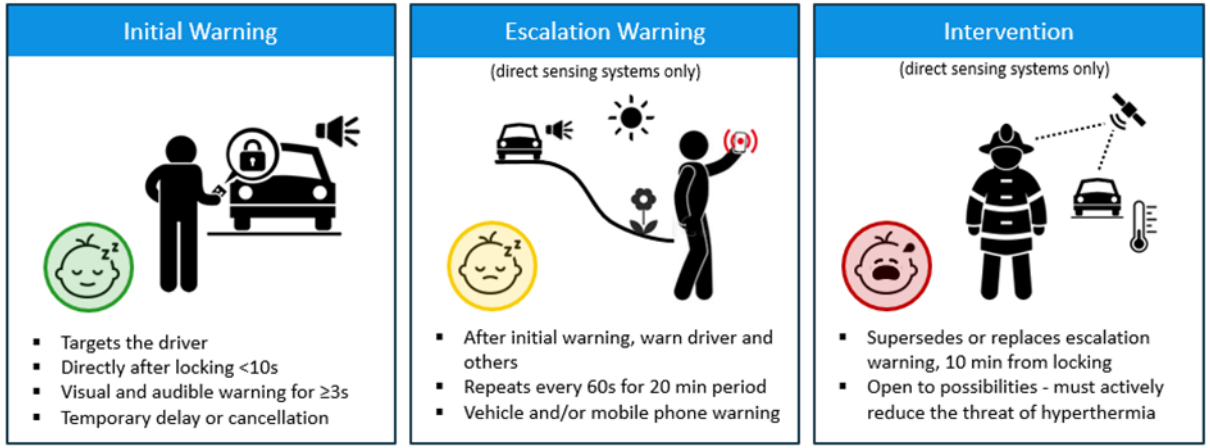
EURO NCAP FOR SAFER CARS

Euro NCAP Assessment - CPD

- Adoption in 2023 - part of Vehicle Based Assessment
- Approach
  - System must be standard vehicle equipment
  - Focus on forgotten & intentionally left cases first
  - Incentive to cover all seating positions (excluding driver seat)
  - Action based on increasing risk: Initial Warning, Escalation Warning and Intervention

Vehicle Based Assessment	2020	2023
Gabarit Installation on all Passenger Seats	2	2
THREE i-Size and Top Tether Marking	3	3
Two or more ISO/R3 Positions	1	
Passenger Airbag Warning Marking and Disabling	4	4
Integrated CRS	3	
Child Presence Detection		4

Euro NCAP Child Presence Detection General Requirements



05

Summary

- Technology currently exists to address CPD
  - Detection & monitoring of occupants
  - Warnings & intervention
- 2023 & 2024 assessment
  - Forgotten & intentionally left cases (Scenario 1 & 2)
  - Direct and indirect sensing systems rewarded
- 2025 assessment
  - Children entering an unlocked vehicle case added (Sc. 1,2 & 3)
  - Only direct sensing will be rewarded

Euro NCAP CPD protocol can be downloaded from here:

https://cdn.euroncap.com/media/67269/euro-ncap-cpd-test-and-assessment-protocol-v101.pdf

The End

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