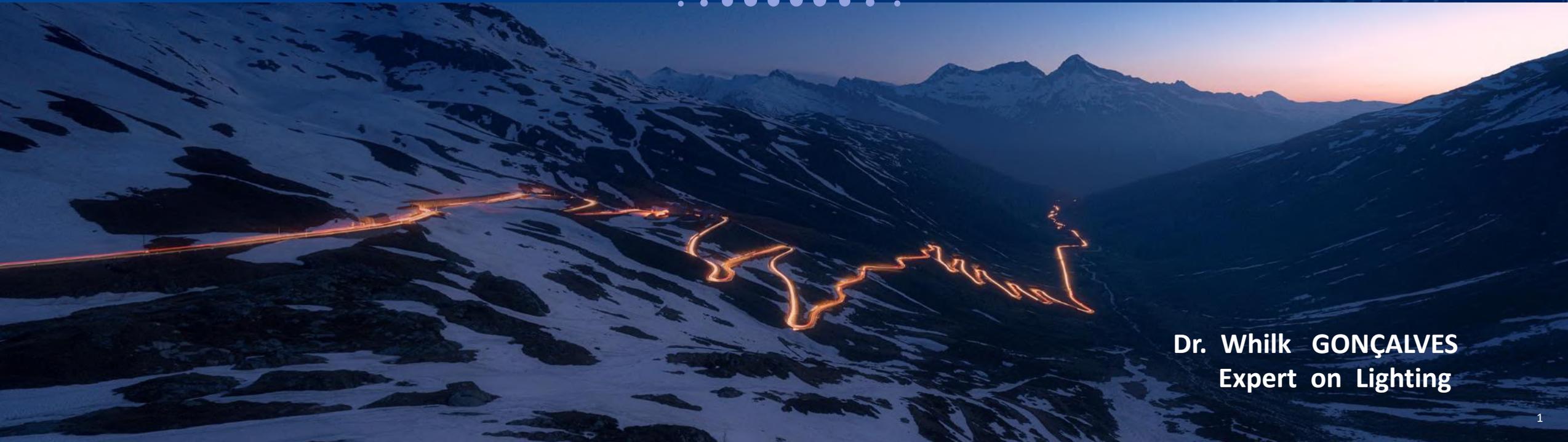




A GLOBAL STRATEGY FOR COMMUNICATING WITH LIGHT

与光沟通的全球战略



Dr. Whilk GONÇALVES
Expert on Lighting

STELLANTIS

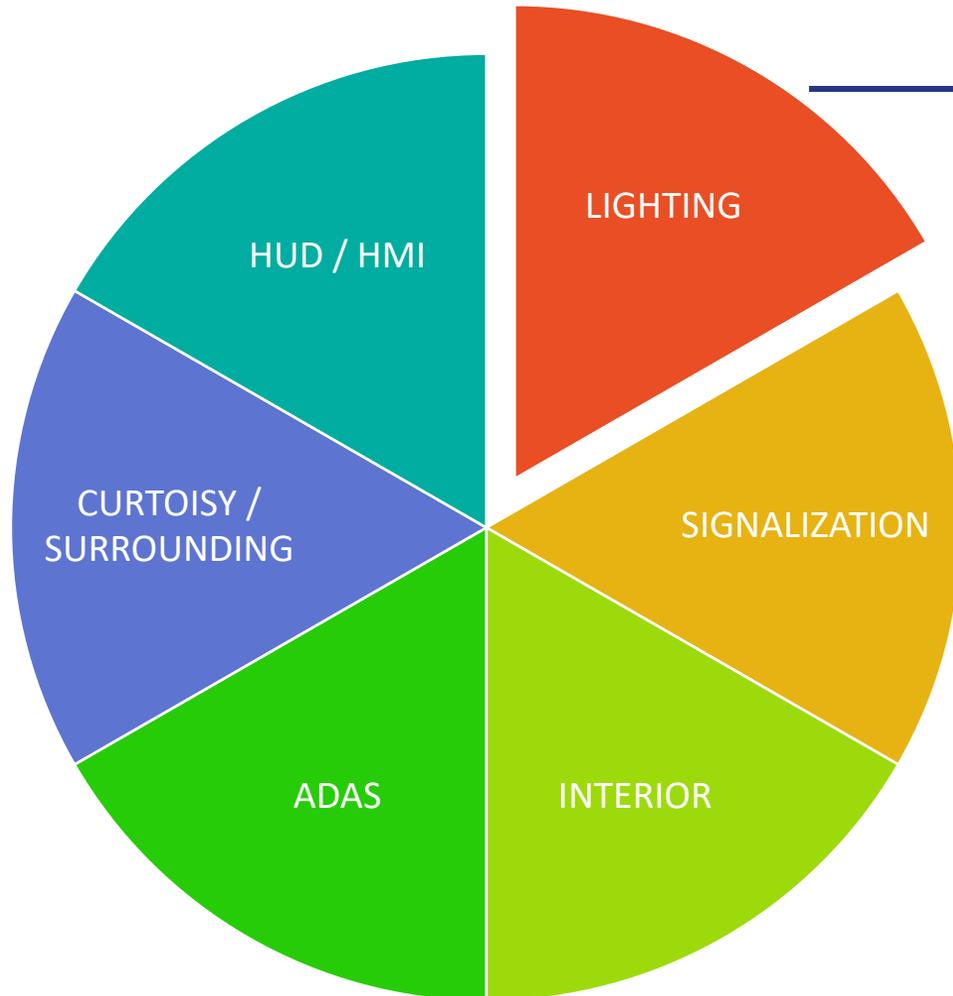
THE GROUP STELLANTIS WAS BORN IN
JANUARY 2021, FROM THE UNION OF THE PSA
AND FCA GROUPS

WE REPRESENT NOW 14 BRANDS, WHOSE
GLOBAL STRATEGY IS BEING BUILT FOR
LIGHTING



沟通是一个复杂的概念

COMMUNICATION - A VERY BROAD CONCEPT



USER & CAR

CAR TO CAR

CAR TO THE INFRASTRUCTURES

LIGHTING AND SIGNALIZATION

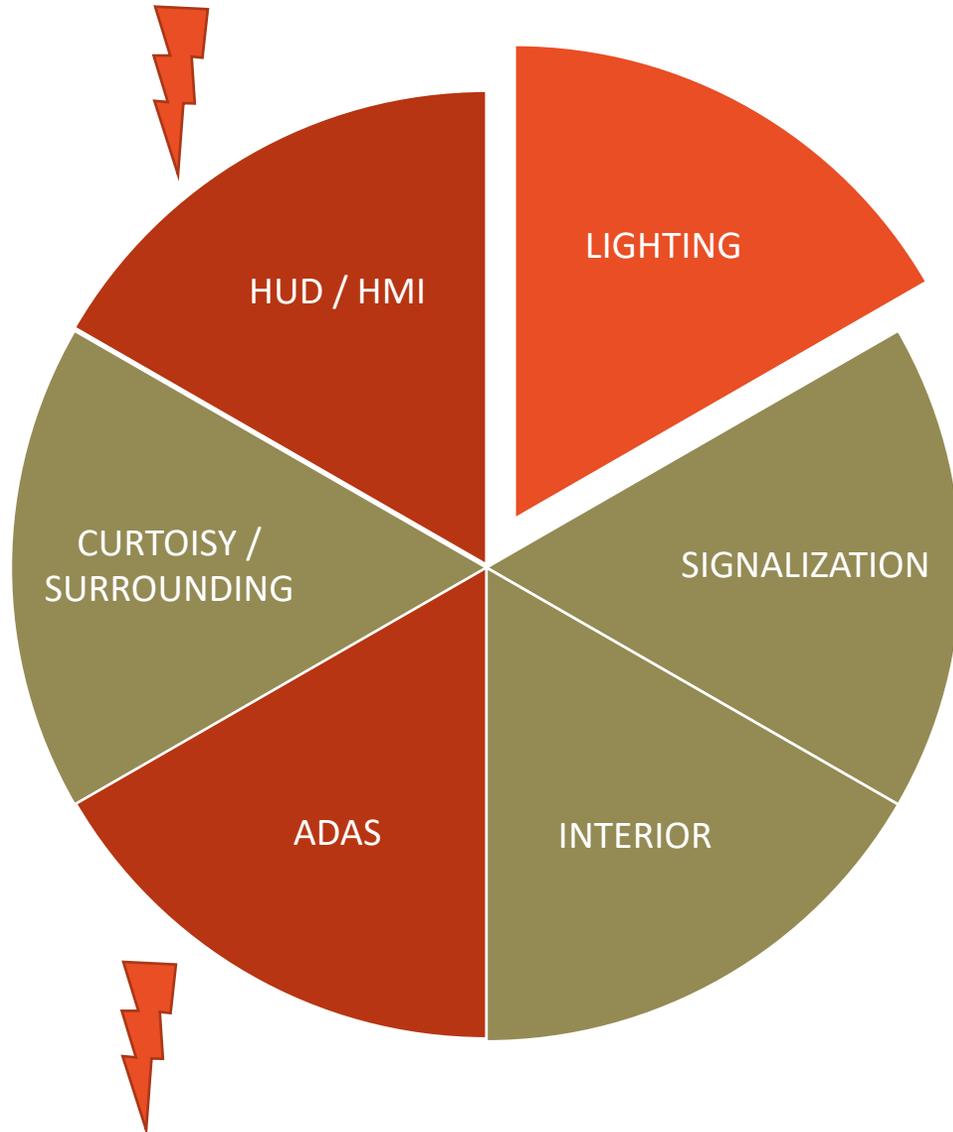
- SEE AND BE SEEN
- PERFORMANCE
- HOMOGENEITY
- AUTOMATISM AND PRECISION
- DAY AND NIGHT TRANSITIONS
- ...



GUIDING LINES 指导线

ADVANTAGES

- PLACEMENT ON THE LANE
- ASSISTANCE / WORKING AREAS
- LANE KEEPING ASSISTANCE
- TRAJECTORY FORECASTING
- ...



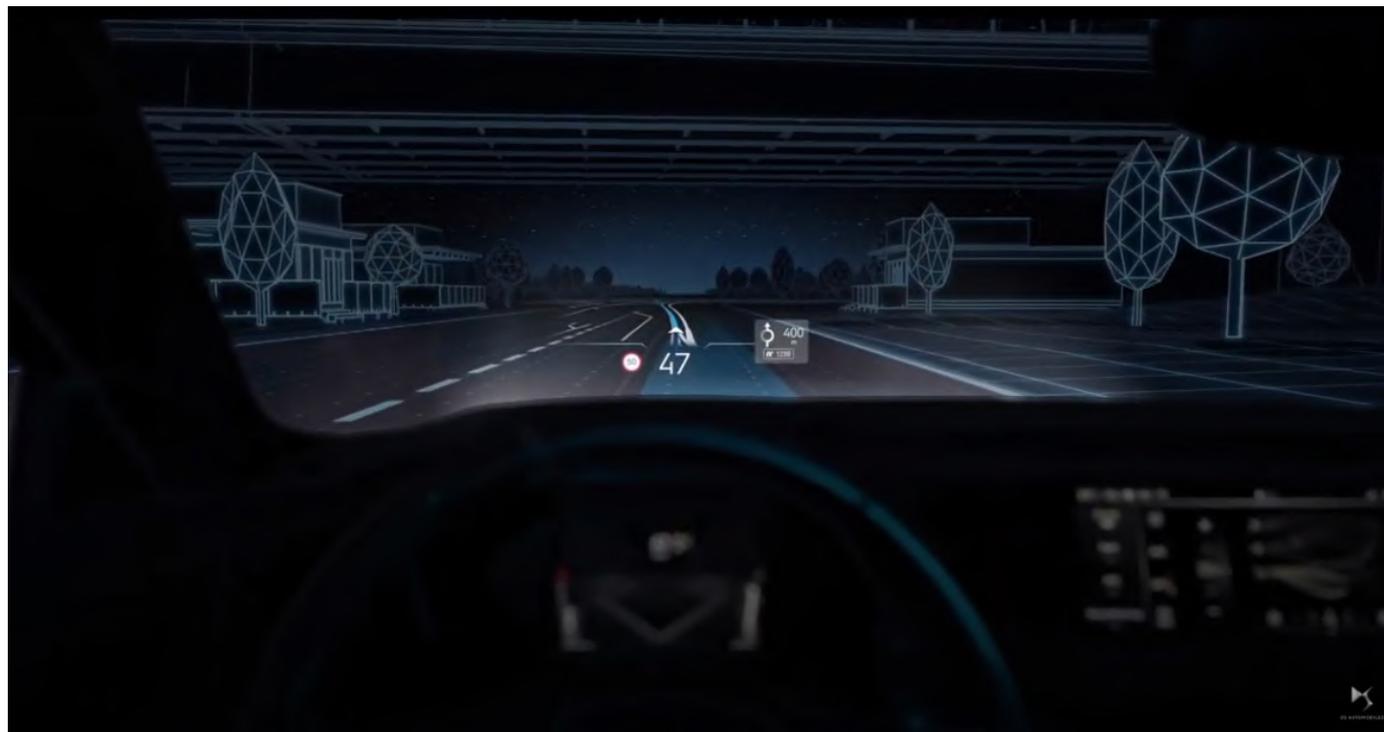
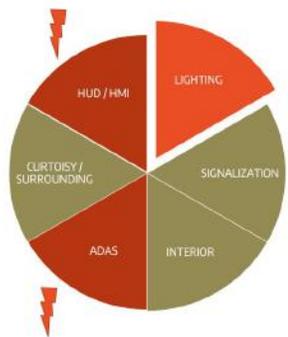
误解



GUIDING LINES INTERFERENCES

- HEAD UP DISPLAY
- ADAS FUNCTIONS
- CAMERA BEHAVIOUR

- USER PERCEPTION
 - DAY / NIGHT
 - QUALITY
 - DISTRACTION



GUIDING LINES INTERFERENCES

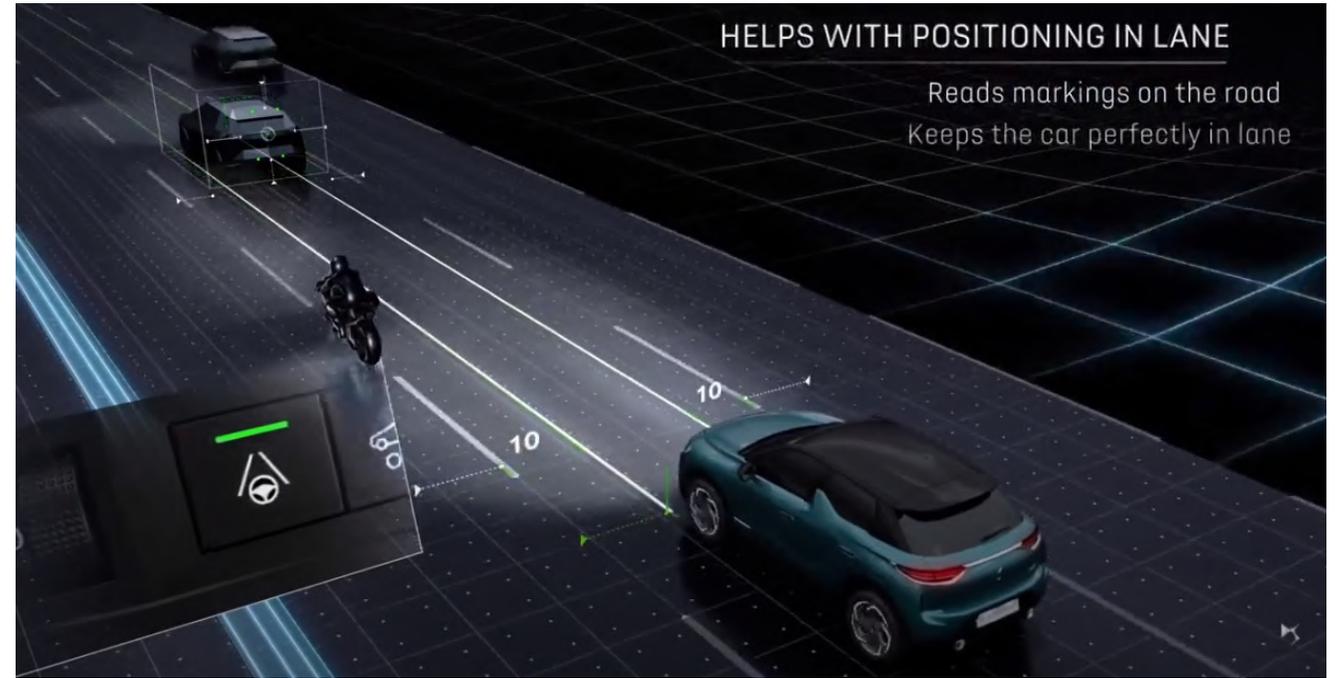
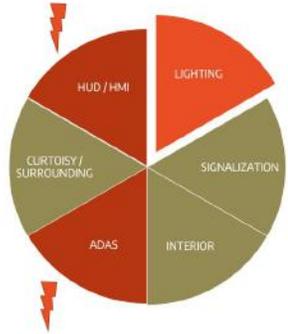
- HEAD UP DISPLAY
- ADAS FUNCTIONS
- CAMERA BEHAVIOUR

- USER PERCEPTION
 - DAY / NIGHT
 - QUALITY
 - DISTRACTION

Where to best place guiding lines ?

在哪里展示

- No interference or superimposition
- Good Image quality
- Observation field
- Shape adaptation
- User experience?



GUIDING LINES INTERFERENCES

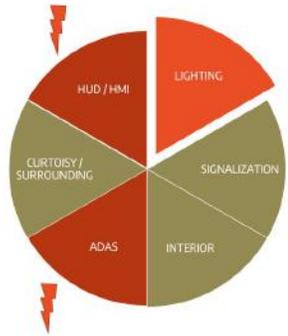
- HEAD UP DISPLAY
- ADAS FUNCTIONS
- CAMERA BEHAVIOUR

- USER PERCEPTION
 - DAY / NIGHT
 - QUALITY
 - DISTRACTION

ADAS Functions behavior

驾驶协助

- Depend on information from the camera
- New symbols, lines : possible camera interference
- Find the best strategies and symbols to avoid misdetections



GUIDING LINES INTERFERENCES

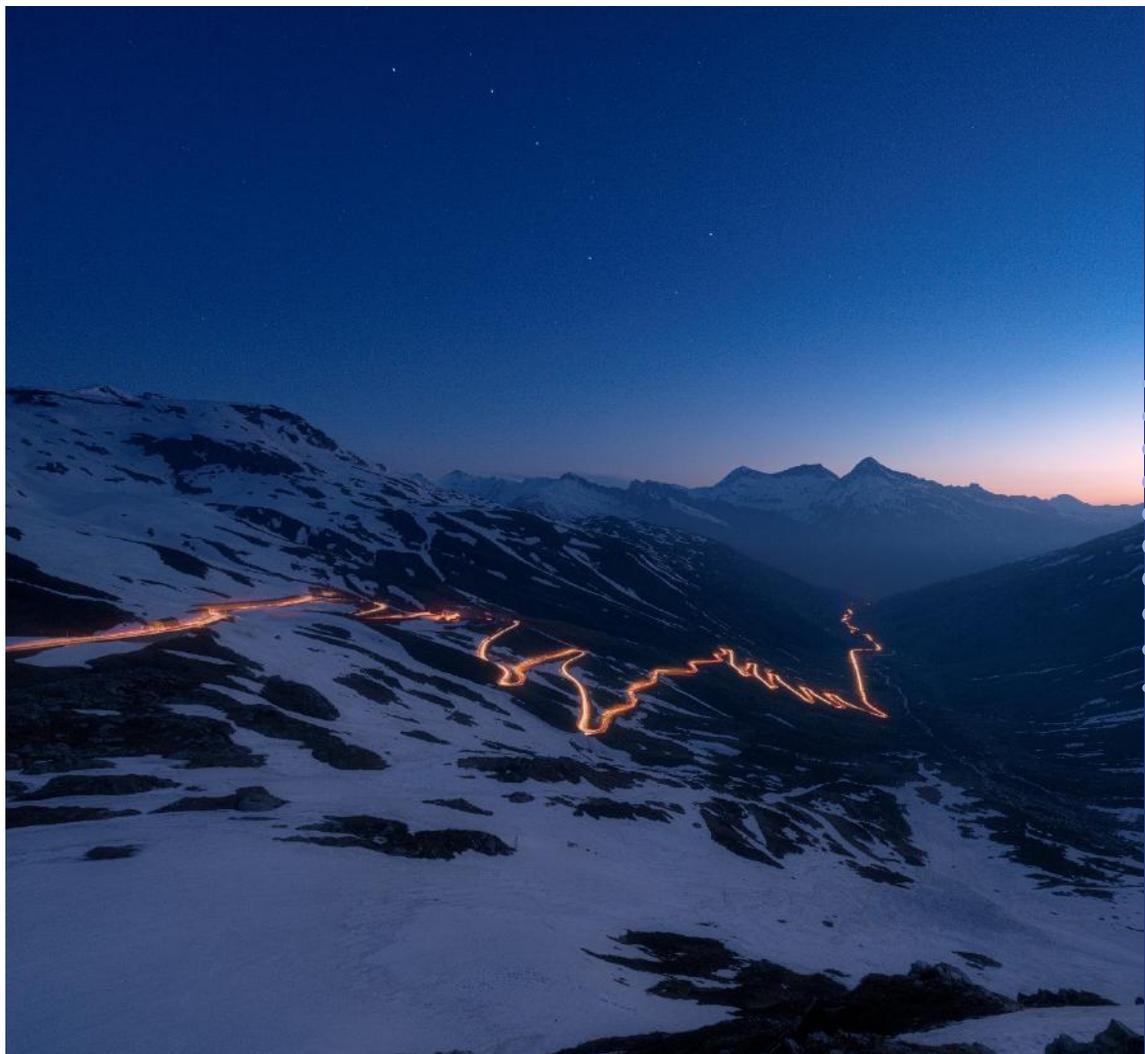
- HEAD UP DISPLAY
- ADAS FUNCTIONS
- CAMERA BEHAVIOUR

- **USER PERCEPTION**
 - DAY / NIGHT
 - QUALITY
 - DISTRACTION

USER PERCEPTION

驾驶员的感知

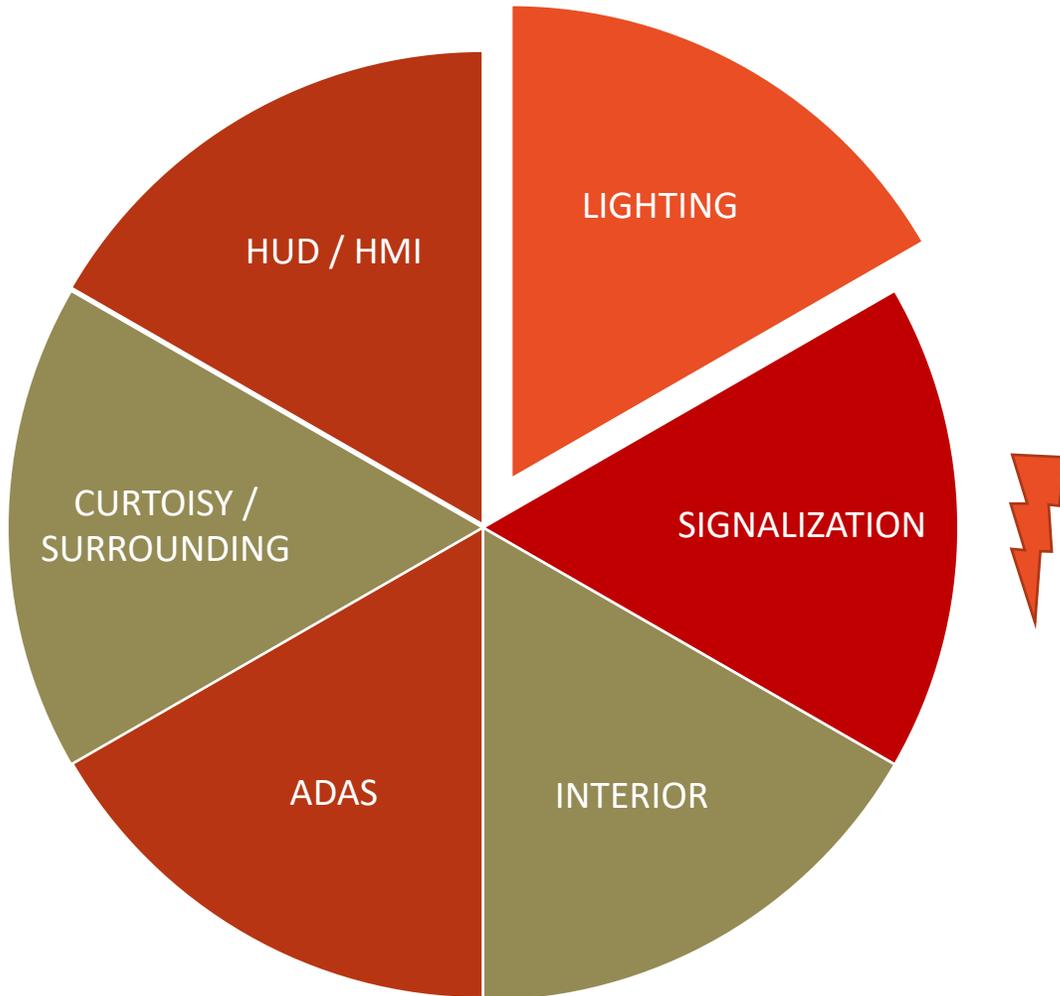
- Information useful for the driver and to other road users
- Is Lighting the best support?
- Projection on the road context / extended- reality
- View point
- Only available at night
- Not the same graphical quality as in a head-up display
- Attention to animations that may bring distraction



SYMBOL PROJECTION

图片投影

图片投影

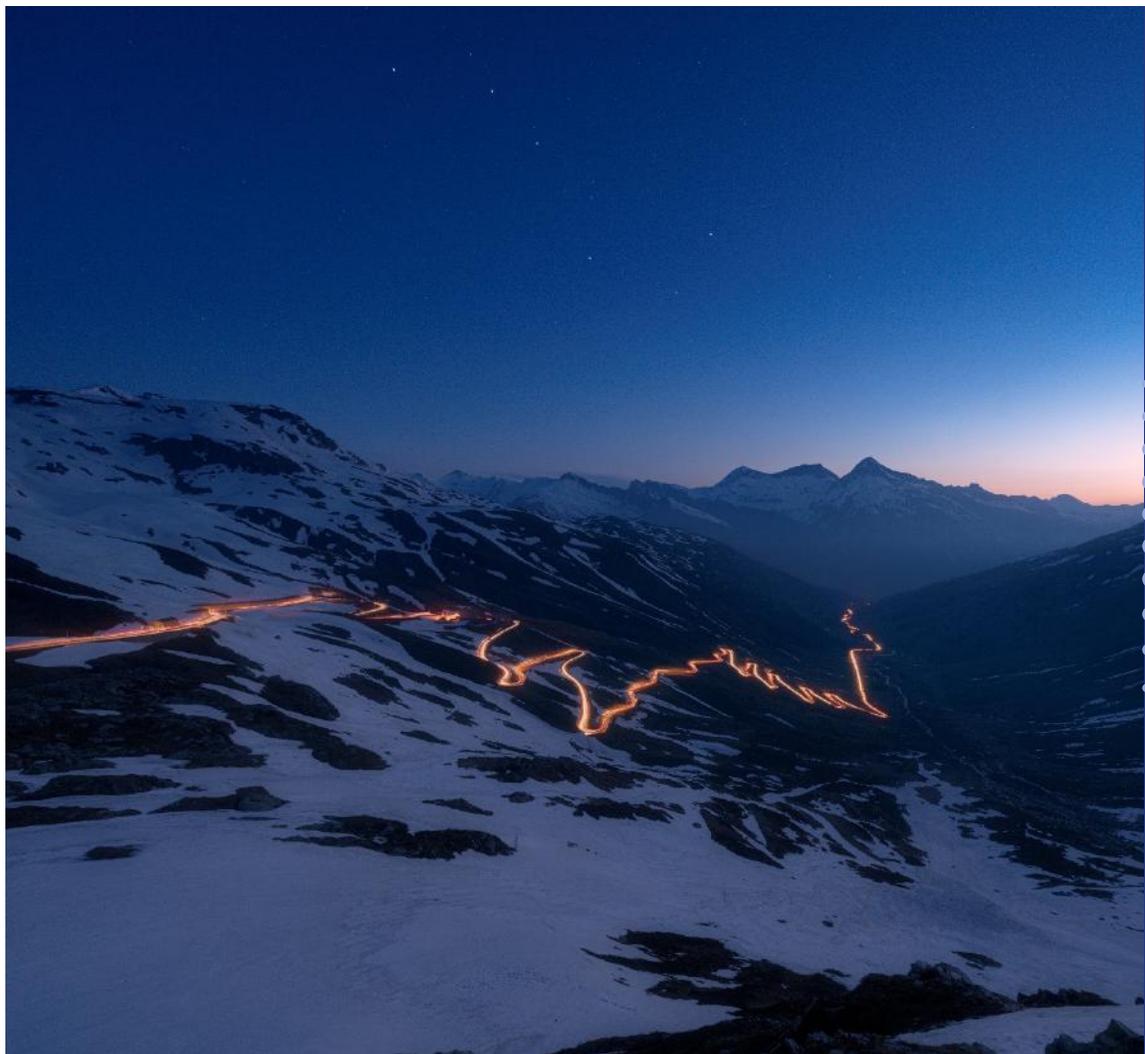


SYMBOL PROJECTION

- WHERE TO PROJECT
- ANIMATIONS
- DISTRACTION

- WHICH SYMBOLS
 - STANDARD OR NEW ?
 - UNDERSTABLE
 - PRIORITY
 - USEFULNESS

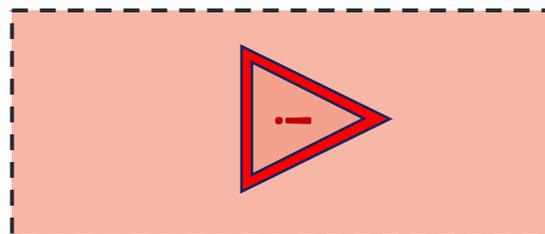
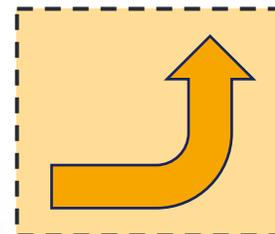
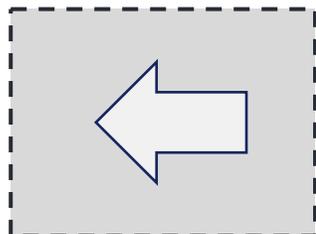
- VISUAL POLLUTION RISK



AROUND THE CAR

汽车周围的新灯

汽车周围的新灯



Light around the car:

- **Extension of functions:**
 - Turn indicator
 - Back-up light
 - Rear fog
- Door opening warning
- Danger nearby
- Carpet light

- **Communication with light** is a complex task, bringing together different domains up to now quite distinct: Lighting, ADAS, Head-up displays, Signalization, User experience
光通信是一项复杂的任务。它涵盖了许多领域，不仅是照明
- **Guiding lines** are well adapted to head-lighting, but many optimizations must be made, mainly: positioning, potential camera interferences, dynamic shapes, intensities and contrast
线条是最有趣的功能，但必须格外小心以避免干扰
- **Symbol projection** are also interesting, but the best compromises must be determined concerning their contents, standardization, priority, risk of distraction.
符号的投影可能也很有用，但我们必须选择最佳的符号，创建标准并避免分散注意力
- **Projections around the car** can bring new opportunities to increase safety and better visibility levels to standard and new functionalities
在汽车周围投影可以提高能见度和安全性。他们是新机会



THANK YOU FOR YOUR ATTENTION

谢谢您