

# Ergonomics in Automotive Reading at USER INTERFACE DESIGN

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# Ergonomics in Automotive

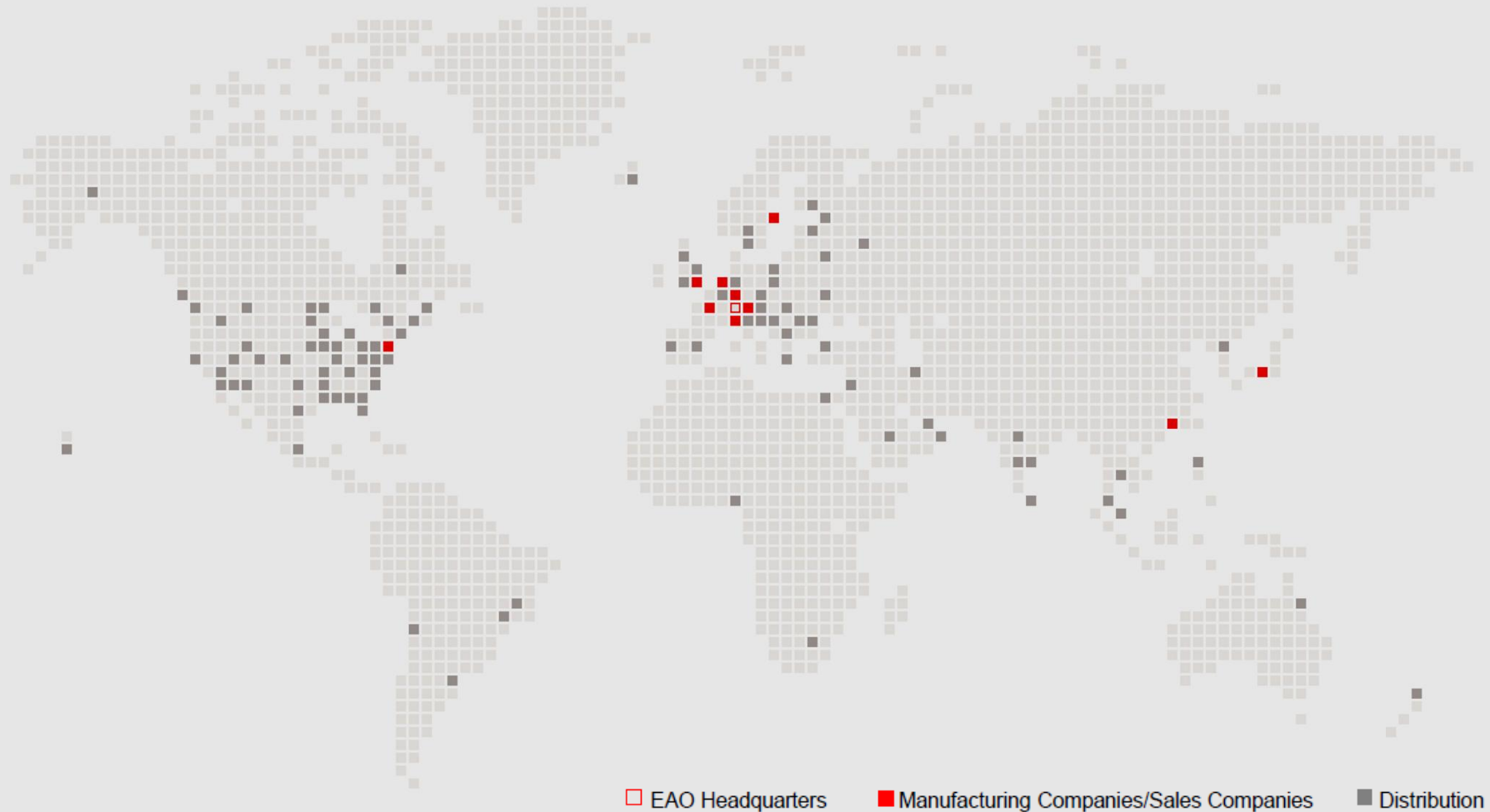
An "operator environment" that everyone uses regularly, if not daily: the cockpit of your car. In a nutshell, EAO Automotive, the expert in Human Machine Interfaces, guides you through various operator designs and reveals important ergonomic aspects in the car. EAO also captivates consumers through current trends, and today will raise a piece of the veil of technology for the (near?) future.

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# EAO Worldwide –with over 50 distribution regions



# EAO Market Segments



Transportation



Automotive



Heavy Duty &  
Special Vehicles



Machinery

... plus others



# EAO Automotive GmbH & Co. KG

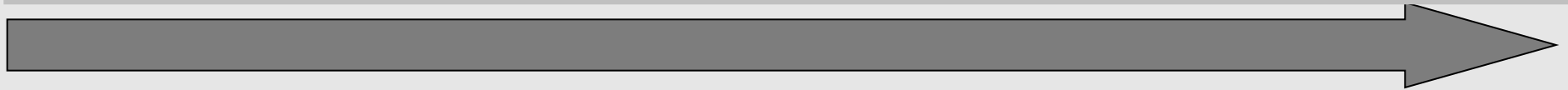
**Part of EAO Group**



Expert manufacturer.  
since 1943.



# Evolution of HMI in Automotive



1910

1930

1950

1970

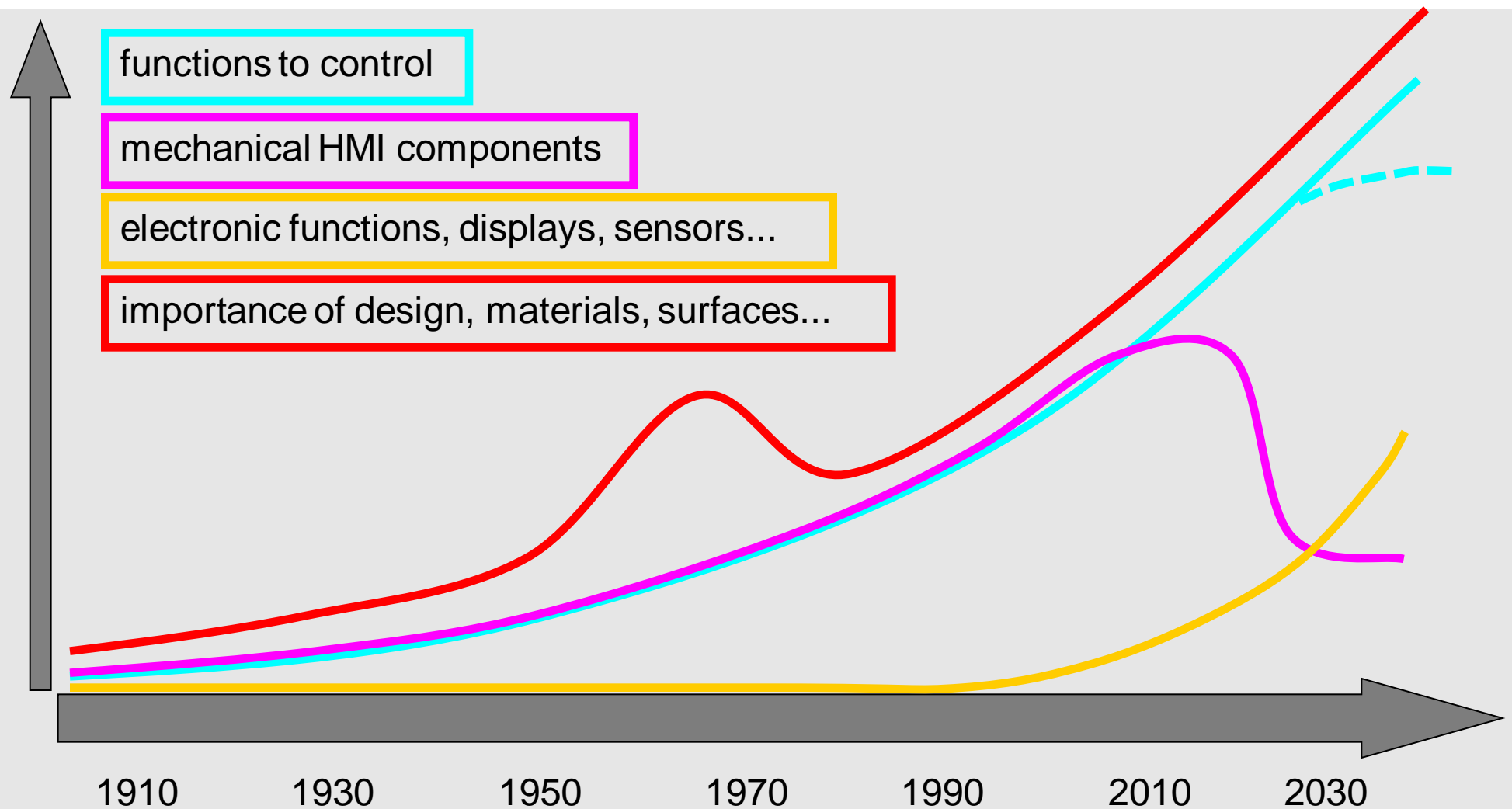
1990

2010

2015

.....

# Evolution of HMI in Automotive



# Evolution of HMI in Automotive

importance of design, materials, surfaces...

American cars of the '50s and '60s



European cars of the '70s

1910

1930

1950

1970

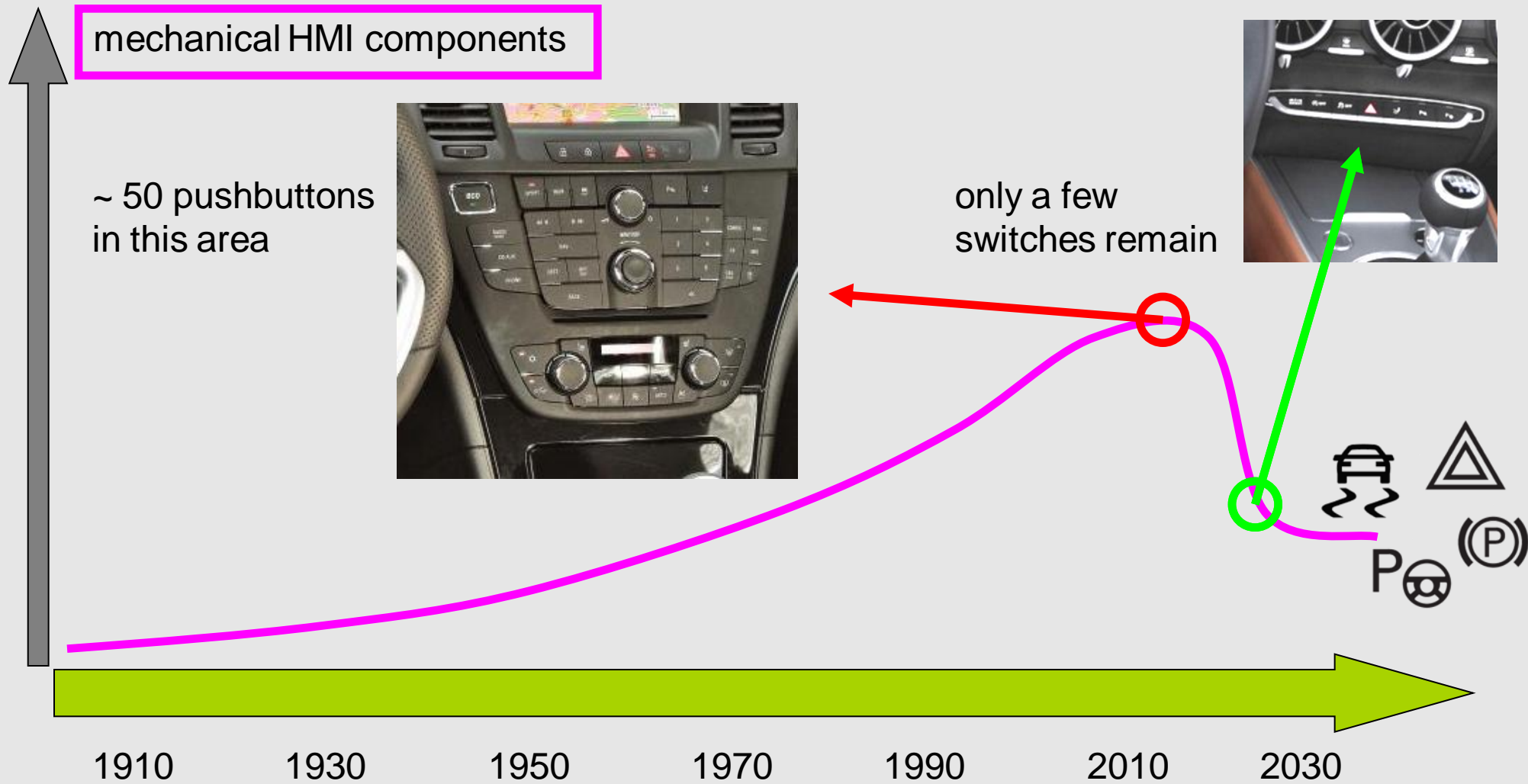
1990

2010

2030



# Evolution of HMI in Automotive



# New Technologies in Automotive HMI

Currently established substitutes for conventional buttons:



smartphone link

gesture recognition



touchpad

speech input

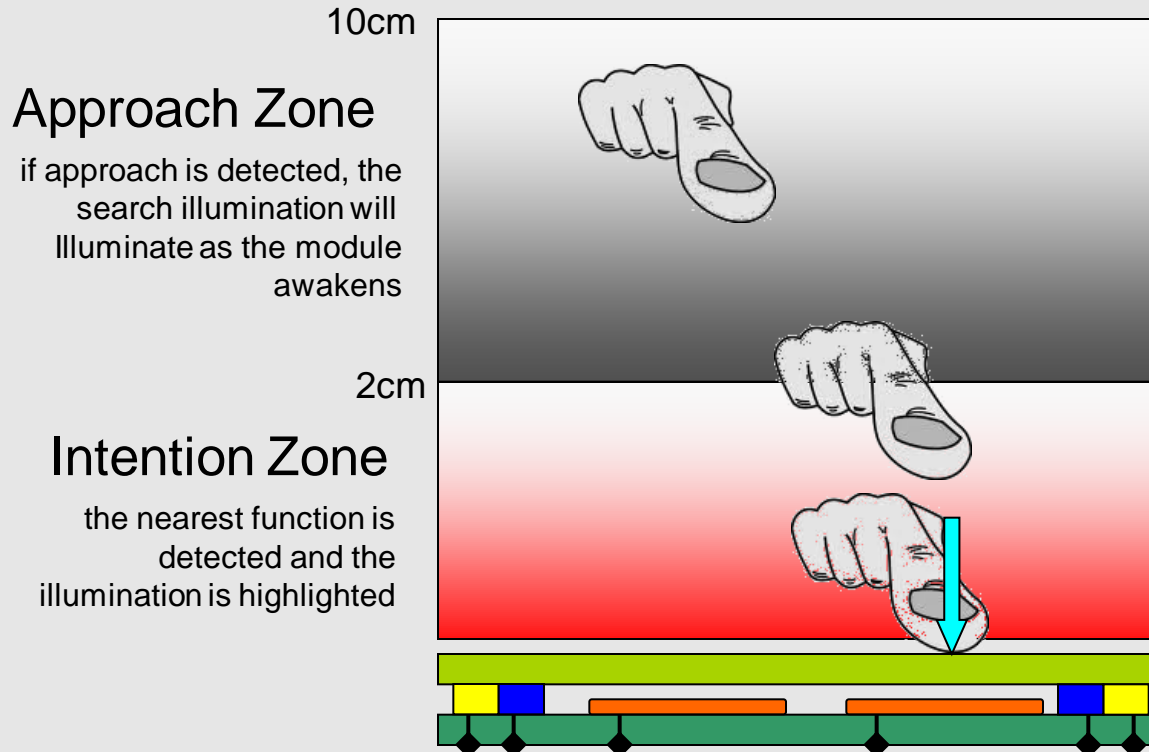


# New Technologies in Automotive HMI - Sensor Module

Prototype in review with potential customers:



# New Technologies in Automotive HMI – Sensor Module



The function is activated when a precise force is then applied



# Other trends for the future

## Black Panel Effect

- Nothing is visible if the system is inactive
- 3D shapes with high value materials

prototype EAO



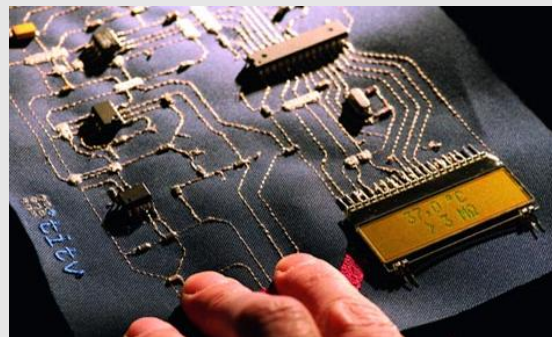
Audi concept car

# Other trends for the future

## Smart Textiles



- with LED
  - > new possibilities for ambient lighting
- switches and sensors including,
  - > ex. seat adjustment switch in the fabric
- electronics and displays
  - > various applications



# Autonomous Driving

The question mark of the future : How will **autonomous driving** influence HMI in the car?



new class of car :  
"driverless taxi"  
no driver

HMI eliminated



new class of car :  
"lounge on wheels"  
drivers activity strongly reduced

HMI reduced to a minimum



added functionality on  
classical car :  
drivers activity still required

HMI still the same or slightly  
modified

# Autonomous Driving

New transportation for students :  
autonomous driving car "Wepod"  
campus of University of Wageningen, Netherlands





# Imagine

You're leaving the airport and you're in a hurry to pick up your rental car to get the meeting,  
...and then you get this:



Maybe, you need some minutes to start the engine,  
... you will be very confused,  
..... you have to search for the manual,  
..... and then you miss the meeting!



## Therefore my opinion...

Interior design will become more and more important, embedding the HMI components.



New HMI technologies will be used for comfort, multimedia, and social media functions.



Steering wheel, footbrake, stickshift, and a handful of mechanical pushbuttons for basic functions will survive the next decade or longer.





Your Expert Partner for **Human Machine Interfaces**