



## Decoding the Cabin: What Today's Consumers Expect from Tomorrow's Cars

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Salvatore Grande / Global Display Product Manager



## **Salvatore Grande**

Global Display Product Management  
Marelli Electronics

### Past

- Marketing/Innovation – Tianma
- Innovation – Panasonic Automotive
- PhD in Mechanical Engineering – Joint studies at University of Cassino and Southern Lazio (Italy) and McGill University (Canada)
- Master Degree in Mechanical Engineering – University of Cassino and Southern Lazio (Italy)

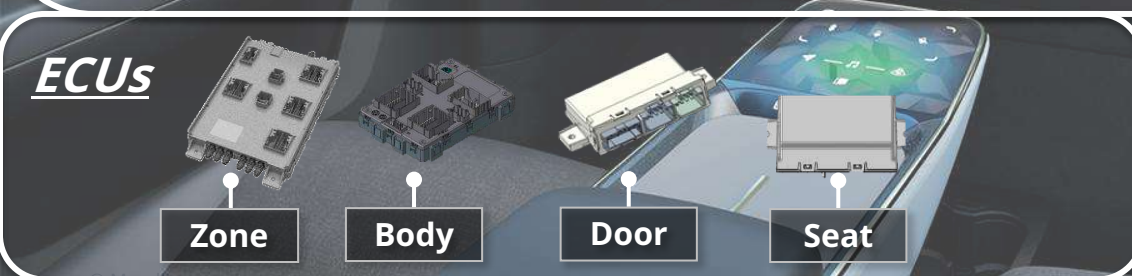
# Electronic Systems – Strategic Product Portfolio



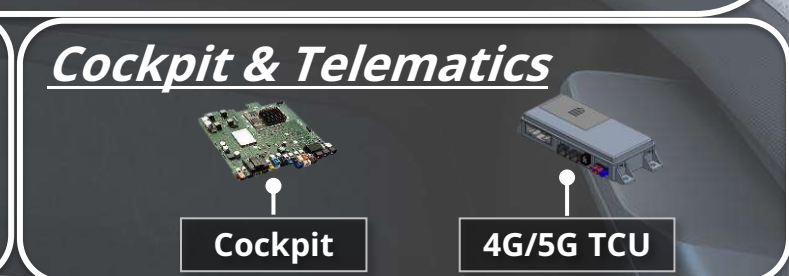
## Displays



## ECUs



## Cockpit & Telematics



# Introduction to the study

## Putting vehicle owners at the center of innovation



The voice of the customer (VOC) is becoming central to how we innovate. This marks a shift in our approach – from a technology-first mindset to one that **starts with real consumer needs, behaviors, and expectations.**

To support this evolution, we recently conducted an online consumer study and in-person clinics with vehicle owners to gather feedback on our latest display concepts.

By understanding how end users **interact with** and **respond to new technologies**, we're better positioned to support our OEM customers in co-creating differentiated experiences that align with **real-world use** and **market demand.**

This presentation introduces the key findings from the study and sets the stage for how we'll use consumer insights to inform and guide sales, marketing, product development, and engineering going forward.



# Summary of the activity



## Objectives

- Evaluate market desirability for Marelli's innovative technologies.
- Identify unique value-added use cases for high-desirability products.
- Compare with existing solutions and gather consumer feedback.
- Assess user experience preferences.
- Prioritize consumer interest in Marelli innovations.

## Key Market research

- Preferred styles on information display
- Customization features
- Embedded application use
- Customer pain-points
- Desirability of new features

## Methodology & Demographics

### Quantitative research:

- Online study with 403 respondents:
  - 200 US
  - 203 France

### Qualitative research:

- 36 participants in US-based focus groups

## Key Product research

Category	Product	Quantitative (Market)	Qualitative (Marelli)
Large Displays	Pillar-to-Pillar	X	X
Displays	OLED Display	X	X
	Passenger Display	X	X
	Privacy Display		X
	Hidden Display		X

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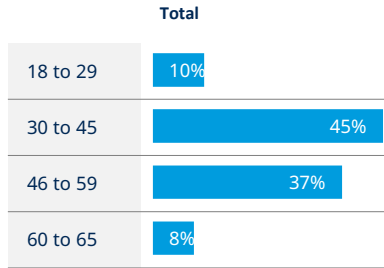
Methodology & Demographics

# Demographics

## Quantitative survey

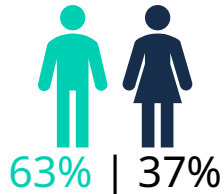


### Age Category

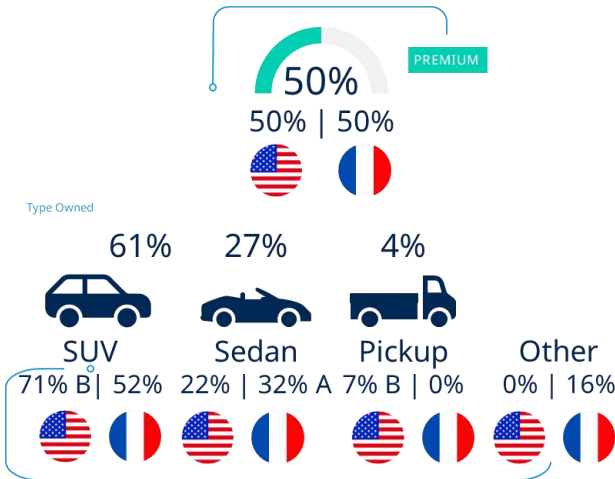


Sample Size: (403)

### TOTAL: GENDER



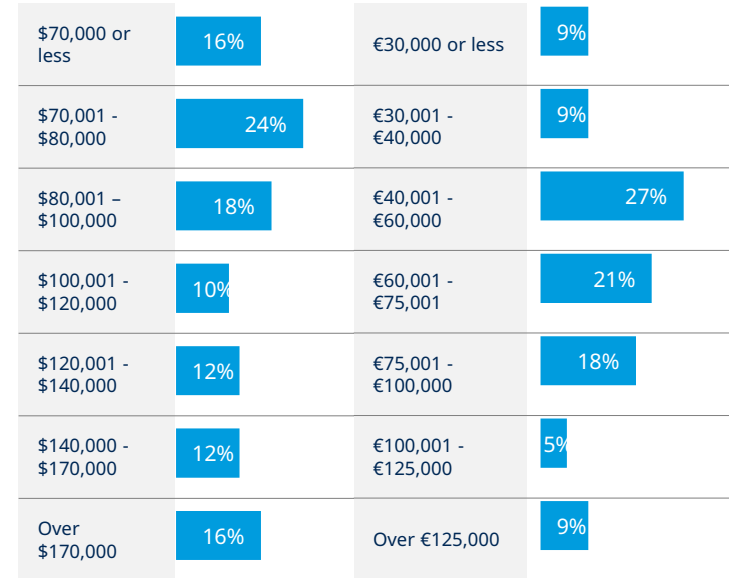
### Vehicle Type Owned



The remaining 16% of French respondents own a vehicle classified as "Other", i.e., a hatchback.



### Household Income



Sample Size: (200)

Less than 0.5% prefer not to answer



### Household Income

Sample Size: (203)

2% prefer not to answer

# Demographics

## Qualitative survey



**Group 1**

**Non-Domestic Luxury Owners**

Infiniti Q605, Q50, QX50  
Acura MDX, TLX  
Genesis GV70

**Group 2**

**Under 30 Years Old**

Ford F-150, Escape, Explorer, Mach-E  
Jeep Grand Cherokee  
Chevrolet Blazer

**Group 3**

**High Tech Consumers**

Cadillac Escalade, XT4  
Jeep Grand Cherokee  
RAM 1500  
Lincoln Nautilus  
GMC Terrain

**Group 4**

**Sedan Owners**

Buick Lacrosse  
Cadillac CT5 (2)  
Nissan Sentra  
BMW 330  
Toyota Corolla

**Group 5**

**Domestic SUV Owners**

GMC Acadia  
Lincoln Nautilus  
Chrysler Pacifica  
Buick Enclave, Envision  
Cadillac XT6

**Group 6**

**Truck Owners**

GMC Sierra (3)  
RAM 1500 (3)

02

Key Market Research

# Legend

**Personalization:**  
ability to customize  
and tailor features




**Balance** between  
innovation and  
practicality



**Safety** and  
Distraction-free  
Driving



**Upgradability**  
of contents





# Embedded Application Use




Frequency of current use when driving		US	France
AM/FM Radio	68%	60%	76%
Embedded Navigation	62%	66%	59%
Head-up Display (HUD)	47%	58%	36%
Satellite Radio / DAB	47%	52%	43%
Vehicle Information	42%	44%	40%
Front Passenger Display	38%	40%	35%
Concierge Services	23%	22%	24%
Vehicle Manual Lookup	17%	18%	15%
Emergency Services	10%	14% B	7%
<i>Sample Size:</i>	<i>(403)</i>	<i>(200)</i>	<i>(203)</i>

Respondents who use these technologies at least half the time, or almost/every time they are in the vehicle.

### FREQUENCY OF USE WHEN DRIVING

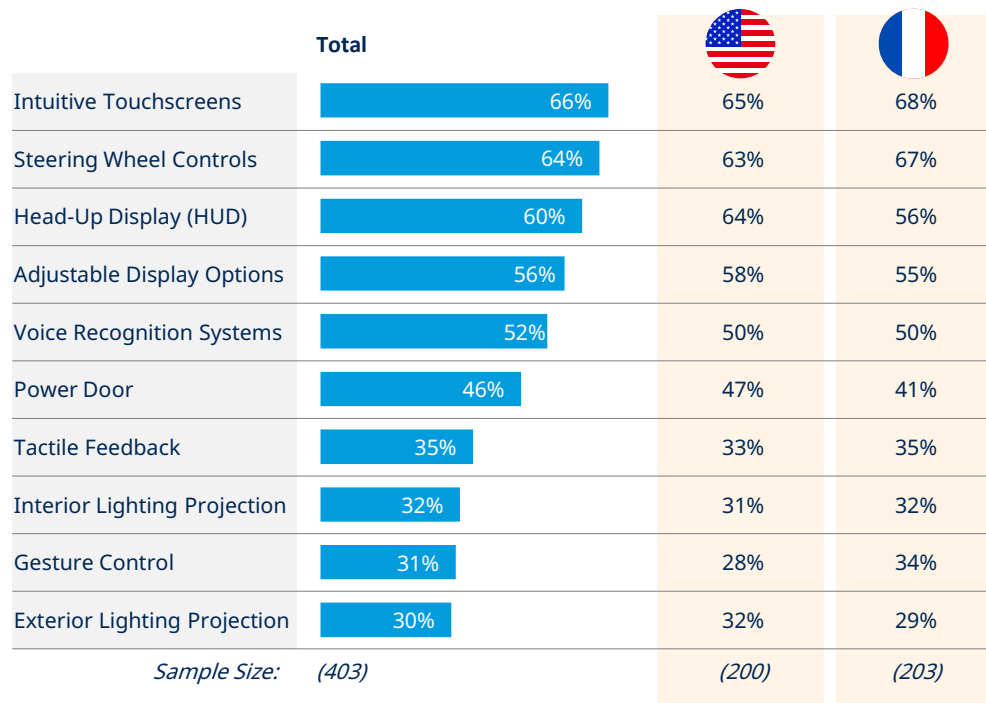
- Media and Navigation** seem to be the most frequently used applications, followed by **Head-up Displays**
- In detail **AM/FM Radio** and **Embedded Navigation** are first to provide everyday functionality,
- Followed by **Head-up Display (HUD)**, with particular penetration in US, and **Satellite Radio / DAB**



# Feature Preference for Next Vehicle

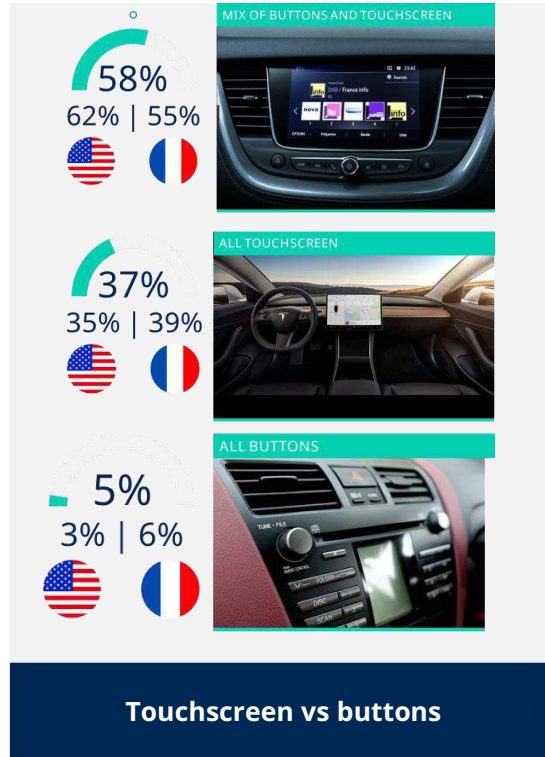
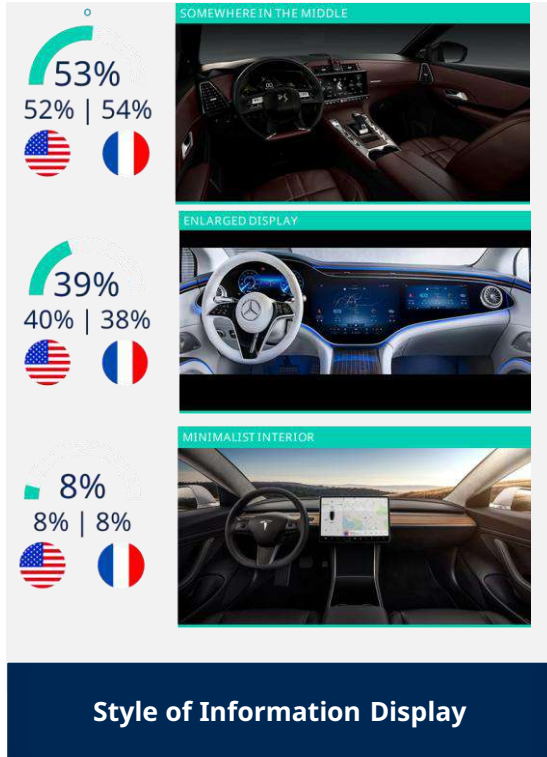


- Intuitive Touchscreens, Steering Wheel Controls, and Head-up Display (HUD) are most often named a top priority but are followed closely by Adjustable Display Options and Voice Recognition Systems.
- Sentiment is very similar between the US and France; some exceptions include exterior and interior lighting projection, power door, and adjustable display options.



If you could include up to five of these features in your next vehicle, which would you choose?  
For feature definitions, please see page 52 in the appendix

# Preferred Styles for Central Information Displays



## BALANCE IS KEY

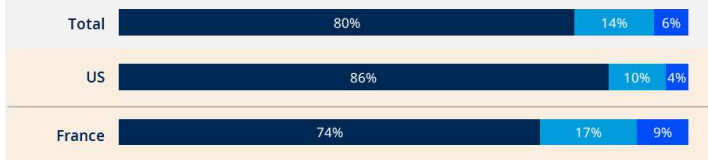
The need is **nonintrusive - not disturbing - easy to use**

- Style: balance between wide all-digital and minimalist
- Interaction: Balance between touchscreen styles and buttons, and new styles.
- We identify a come-back to a mix of digital all-new and necessity of haptic as a market trend.

# Customization Features (1/2)



## Appeal of Head-Up Display (HUD)

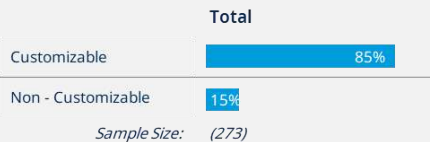


■ High Interest  
 ■ No Interest  
 ■ Low Interest

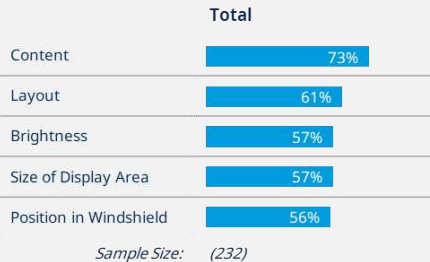
**Strong desire for a head-up display in next consumer vehicle**

## Desire for customization

Among those using Head-up Display (HUD).



Among those who prefer customizable. Multiple mention.



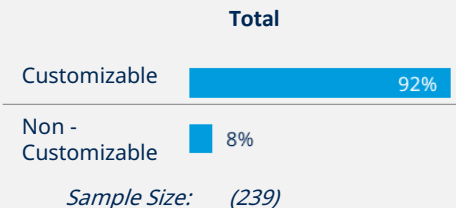
**Ability to customize is important**

## Preferences for ideal cluster

DIGITAL CLUSTER DISPLAY OWNERSHIP



Of those who own a digital cluster:

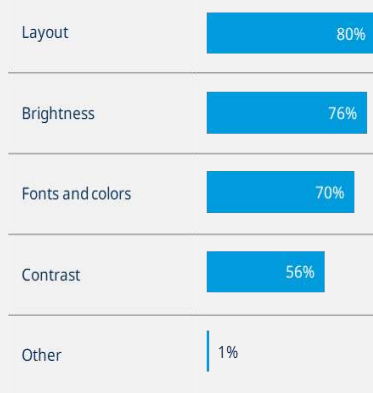


**Strong preference for customizable digital cluster**

# Customization Features (2/2)



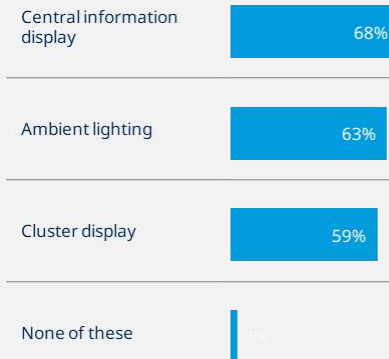
## Preferences for customization of Fully Digital Cluster Display



Sample Size: (220)

Digital Cluster features to be customized

## Ability to customize



Sample Size: (403)

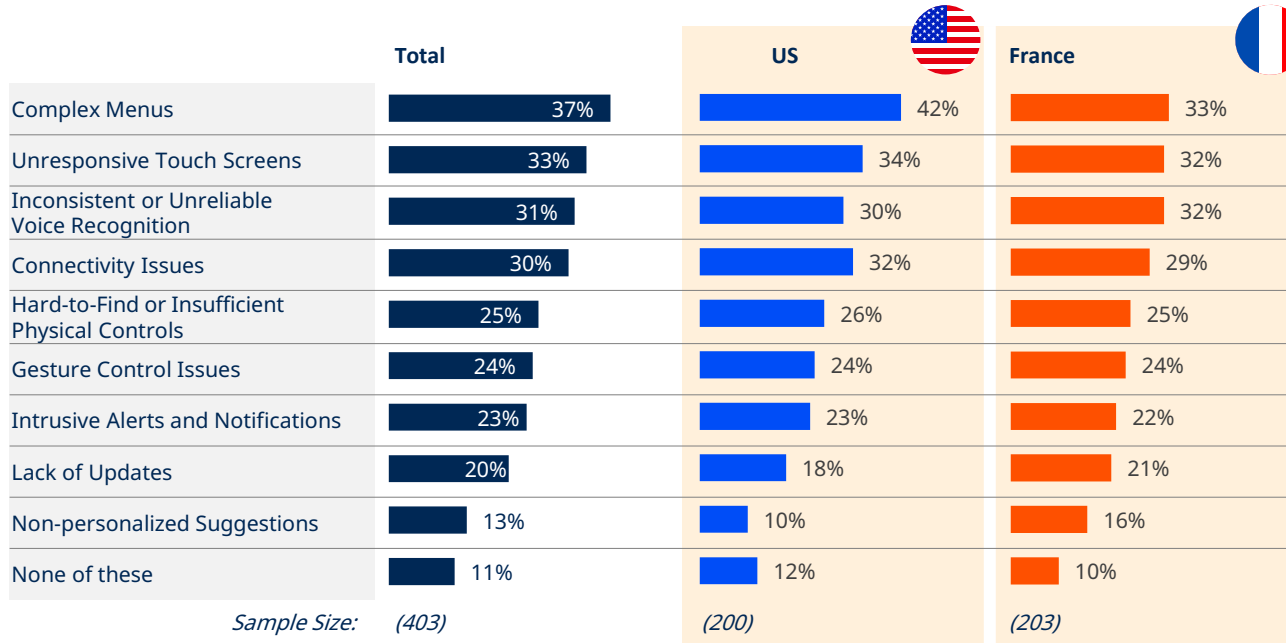
Cockpit elements to be customized

## LET THEM CUSTOMIZE

- A strong majority enjoy the idea of **customization**, with key areas including **content and layout**.
- Most respondents (59%) own **Digital Instrument Clusters**, and prefer them to be larger in size
- For HUD there is a strong demand (85% Total, US 86%/France 84%) for customizability.
- **Central information display** is the most appealing cockpit element to be customized (68% Total, US 76%/France 60%).



# Customer Pain Points



## PAIN POINTS

- The biggest problems respondents are having with their user interface are **complexity of the menu** (Total 37%, US 42%), **unresponsive touch screens**, **inconsistent voice recognition**, and **connectivity problems**.

Please select up to three UX features you feel need to be improved upon most

# Desirability of New Technologies



## APPEAL

- The ability to provide regular software updates to features/function is by far the most appealing technology tested, especially among the US.
- Other convenience and safety related technologies have a similarly high appeal.
- France is especially interested in comprehensive driver and occupant monitoring.



	Total	US	France
Feature/Function Upgradability	80%	86%	74%
New Approaches for Vehicle Access	67%	72%	61%
Augmented Reality (AR) Displays	66%	68%	64%
Comprehensive Driver /Occupant Monitoring	65%	60%	70%
Enhanced AI-Powered Assistants	63%	65%	62%
Advanced Gesture and Touchless Control	61%	65%	57%
	<i>Sample Size: (403)</i>	<i>(200)</i>	<i>(203)</i>

How appealing are these technologies for your next vehicle?  
 Respondents selected 'definitely must have it' or 'prefer to have it'.

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Key Product Research

# Pillar-to-Pillar Display



## Quantitative Findings

- Appealing functional purposes: how **information** is shown and improved **line of sight** (50%)
- Attractive and **High-tech style** (46%)
- Preferred display type: among Pillar-to-Pillar, Traditional Cluster, and Traditional HUD: preference is for **Pillar-to-Pillar** (38%) followed by **Cluster** (36%).

## Qualitative Findings

- The **wide view** offered by HorizonView, **customizable** sections, and the ability to **keep eyes forward** while driving are most appreciated.
- Some with corrective lenses note that it was a bit far away, but most prefer it over a traditional Head-Up Display (HUD).
- Given a choice between HorizonView, a traditional HUD or the Panoramic Display in the Lincoln Nautilus, **most prefer HorizonView.**



Some vehicles are launching with a pillar-to-pillar HUD that replaces the cluster.  
What are some of the things you might like about this?

# Passenger Display

## Qualitative & Quantitative Findings

- Majority show some interest in a Front Passenger Display (PD) **in their next vehicle purchase** (60% Total, US 64%/France 55%), tempered by lack of awareness
- **Entertainment** (64% total, US 74%/France 54%) **and climate control** functions (53% total, US 56%/France 53%) are ideal applications for the PD
- Marelli's answer to concerns about driver distraction: focus group participants liked the **Privacy Display** option, which restricts content on the Passenger display from the driver's view
- Zonal privacy, as opposed to full privacy, was liked by the younger target, less by the older

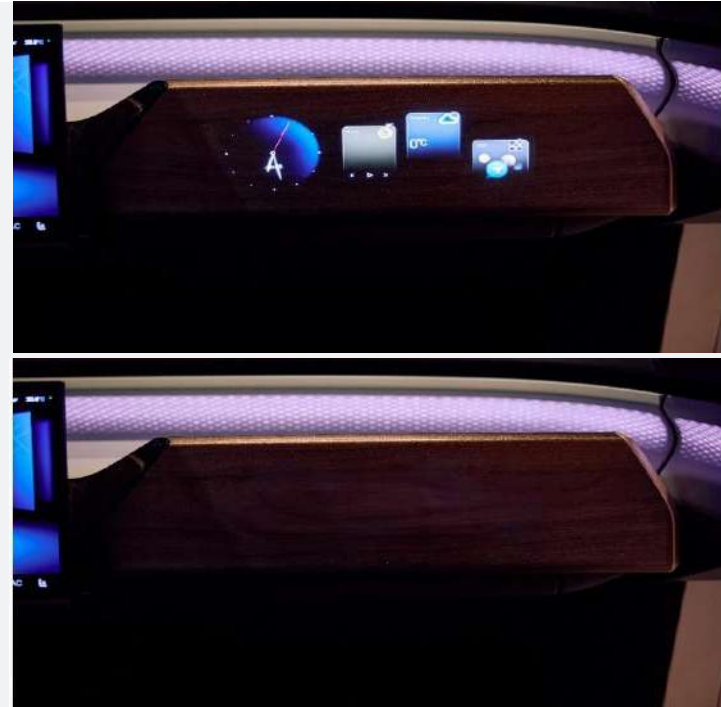


# Passenger Display: Hidden Display

## Qualitative Findings

- Hidden Display: focus group participants like the **clean look when the display is off**.
- Concerns raised about *driver distraction* if the display is visible to drivers, as with a "normal"\* passenger display

\*without Hidden feature



# Central Information Display (CID) (1/2)

## Quantitative Findings

- Amongst the displays to be customized, the CID is the most appealing (68% Total, US 76%/France 60%).
- Interest in the ability to customize is centered mostly around **the layout** (80% Total, US 82%/France 78%), **brightness** (76% Total, US 76%/France 77%), and **fonts and colors** (70% Total, US 81%/France 61%)
- The preferred CID style is a balance between an **enlarged** versus **minimalist** display (53% Total, US 52%/France 54%) and a **touchscreen** versus **buttons** (58% Total, US 62%/France 55%)



## Qualitative Findings

- **Retractable feature** to store the CID was appreciated
- Some wish that the CID position could be **adjustable**
- Prefer the CID shown versus a more minimalist tablet screen only (e.g. Tesla) or hyper-screen (e.g. Mercedes-Benz) , with some **buttons or knobs**



# Central Information Display CID (2/2)

## Qualitative & Quantitative Findings

- Shape-wise, in quantitative (survey), the preference for a **Flat vs Curved CID** went to the **Flat display, (50% total, US 55%)**.
- In the focus group, most consumers preferred a **flat CID** because it is more rugged than a curved option.
- **OLED technology** is highly appealing, especially in the US (79%, US 84%).
- In qualitative, among High Tech consumers, OLED is expected. In general, participants appreciated the OLED CID's **sharp/crisp resolution** and **thin profile**, which gives the interior a modern, upscale, high-end vibe.



# Key Findings - Quantitative

## Summary of Findings – In-Market products



### Head Up Display

- Among current HUD owners, satisfaction is high, making them **desirable features** for future vehicles.
- The ability to **customize**, especially around content, holds strong appeal.



### Front Passenger Display

- There is some interest in including this feature on future vehicles.
- Ideal applications are for **entertainment and climate control**
- There are concerns around **driver distraction**



### Pillar-to-Pillar Display

- Pillar-to-Pillar is the **most appealing display type**, closely followed by Head Up Display (HUD).
- Users appreciate the **information available, style, and line of sight**, with the main concern being the narrow size.

# Key Findings – Qualitative (1/2)

## Summary of Findings – Marelli products



**HorizonView**

- Every participant group ranked this feature as their **favorite or most valued**.
- Drivers appreciate the **wide-open field of vision**, ability to keep eyes forward, and customizable layouts.
- While some felt it was too busy or too low for certain drivers, overall enthusiasm outweighed these concerns.



**Central Information Display**

- The OLED CID is highly appreciated for its **size, location, clarity, modern aesthetics**, responsiveness, and perceived quality.
- Overall positive perception with some concerns about glare, fingerprints, and repair costs.
- **Motorization** appreciated for security and clean aesthetics - some worries about mechanical reliability.



**Hidden Display**

- Consumers like the **clean look** of the Hidden Display **when turned off**.
- Concerns about *driver distraction*, if the display is visible to the driver, are common to all the passenger displays.

# Key Findings – Qualitative (2/2)

## Summary of Findings – Marelli products



**Virtual Assistant -  
MyAvatar**

- Positive feedback about **Leisure Usage** and being potentially useful, especially if **customizable**.
- It is a novel idea, but mostly unnecessary. A “nice to have.”
- Negative side: it may be distracting or intrusive because of the visual character.
- Participants would prefer to have **brief cues only for Alerts**, not for persistent interactions.



**3D Display for rear seat**





- Could be useful in **reducing distraction** from other passengers’ screens (by each having their own) and could be beneficial for children.
- **Privacy mode** was appreciated to reduce distraction and allow **independent rear passenger viewing**.
- Some expressed concerns about the monitors being permanently mounted.

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Conclusions

# Marelli Answer



Consumer Request	Marelli product to support OEM' answer to consumer				
Desire for <b>Personalization:</b> ability to customize and tailor features 	<a href="#">HorizonView</a> display in line of sight as evolution of HUD	■	■	■	■
<b>Balance</b> between innovation and practicality 	<a href="#">Large Surface displays</a> – Seamlessly integrated multi-displays	■	■	■	■
<b>Safety</b> and Distraction-free Driving 	<a href="#">Large Surface displays</a> – Single wide display	■	■	■	■
<b>Upgradability</b> of contents 	<a href="#">Display</a> – Cluster display, Central Information Display , Passenger display	■	■	■	■
	<a href="#">OLED</a> Displays	■	■	■	■
	<a href="#">Hidden Display</a> not visible in OFF state	■	■	■	■
	<a href="#">Display Privacy</a> for passenger	■	■	■	■
	<a href="#">3D Displays</a> on rear seats contents	■	■	■	■
	<a href="#">MyAvatar</a>	■	■	■	■
	<a href="#">Advantage+</a> : decoupled software and hardware to support consumer' Over-the-air (OTA) updates	■	■	■	■
	<a href="#">Zonal architecture</a> and Virtualization to support upgrade of contents OTA	■	■	■	■
	<a href="#">Connected Cockpit</a> delivering connectivity to enable OTA Updates	■	■	■	■
	<a href="#">Affordable 5G</a> delivering high speed connectivity at low cost	■	■	■	■

# Conclusions



The VOC (Voice of Customer) in the automotive industry plays a big role in the definition of the current needs considering the change of consumer behaviors

Balance between design and customization is key

User experience needs to be taken into account from OEMs and Tier 1 to improve simplification of tech usage

Customers appreciate the Privacy Display and Hidden Display products for their discreet and non-invasive functionality

Pillar-to-pillar displays, as an evolution of head-up displays (HUD) are becoming one of the most desired features in the consumer buying process

Feature/Function upgradability is one of the biggest battlefields where to focus



Thanks!