

The background features a dark, textured grid pattern of small dots. A prominent diagonal shape, colored in a vibrant red-orange, cuts across the frame from the top-left towards the bottom-right. The text is overlaid on this background.

HOW CMF IS EVOLVING IN THE ERA OF DIGITAL INTERIORS: TACTILE + DIGITAL

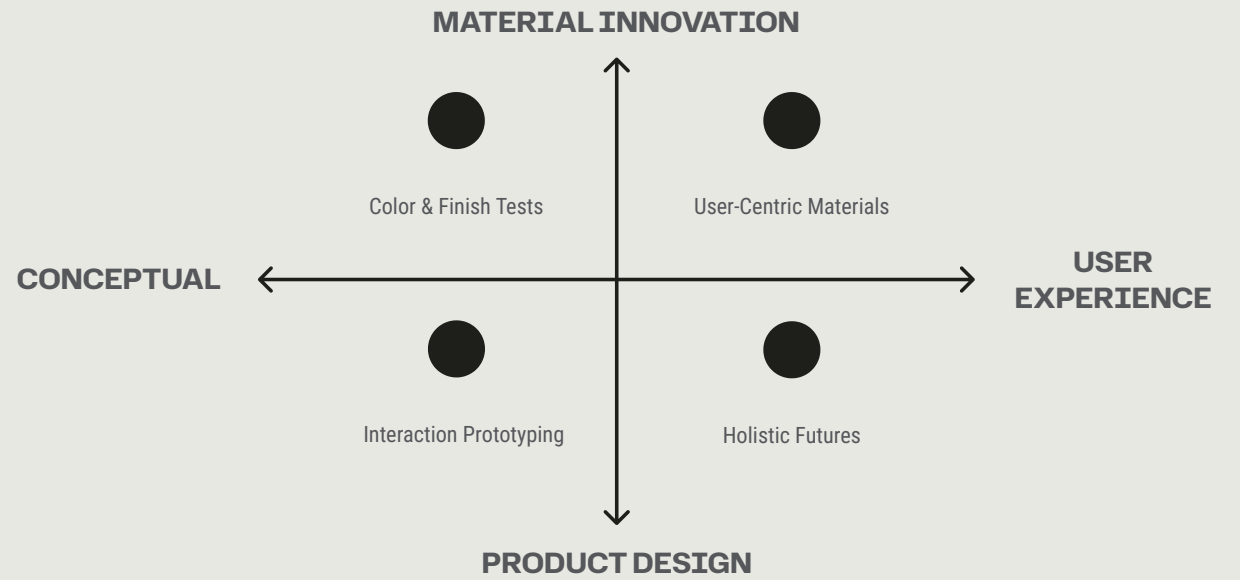
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R&D CMF Designer / Martur Fompak International

CMF—COLOR, MATERIAL, FINISH—HAS ALWAYS BEEN ABOUT PERCEPTION AND QUALITY. BUT TODAY, IN A WORLD OF DIGITAL COCKPITS AND SOFTWARE-DEFINED VEHICLES, CMF IS NO LONGER STATIC.

IT HAS BECOME INTERACTIVE, MULTISENSORY, AND DEEPLY CONNECTED TO HOW USERS EXPERIENCE TECHNOLOGY INSIDE THE CAR.

WORKING IN R&D, OUR ROLE IS NOT ONLY TO DESIGN WHAT EXISTS TODAY, BUT TO PROTOTYPE WHAT INTERACTION COULD BE TOMORROW. CMF IS ONE OF OUR MOST POWERFUL TOOLS TO DO THAT.



FROM AESTHETICS TO INTERACTION

WHY CMF IS EVOLVING

Traditionally, CMF was often the final layer—color and material choices applied after engineering decisions. Today, that logic is reversed. Digitalization, autonomous driving, and user expectations shaped by smartphones have pushed CMF to the front of the innovation process.

The interior is no longer just a driving environment—it's becoming a living space, a workspace, and a digital environment.

CMF must respond to this shift.



CMF AS AN INTERFACE

MATERIALS THAT COMMUNICATE

In digital interiors, CMF is an interface.

A surface tells you where to touch, how hard to press, and what kind of interaction is expected—often without text or icons.

Texture can suggest movement, softness can suggest comfort, and precision finishes can suggest performance. This is non-verbal communication, and it's extremely powerful.



TACTILE + DIGITAL

WHY TOUCH STILL MATTERS

Touchscreens gave us flexibility, but they removed tactility. Humans rely heavily on touch for confidence and reassurance.

By combining tactile qualities with digital systems—haptics, pressure sensitivity, hidden interfaces—we can bring emotion and intuitiveness back into digital interactions.





HIDDEN-TO-REVEAL INTERFACES

SEAMLESS SURFACE

Calm and minimal until activated

INTERFACE APPEARS ONLY WHEN NEEDED

Functions revealed through backlighting or material translucency

A growing CMF trend is the hidden interface—surfaces that appear calm and minimal until activated. Through backlighting, laser etching, or material translucency, functions are revealed only when the user approaches or touches.

This reduces visual clutter and creates a sense of magic, while reinforcing a premium and calm interior experience.

HAPTIC + EMOTIONAL CMF

VIBRO-TACTILE FEEDBACK

Flat surfaces that feel physical through vibration and resistance

PRESSURE-SENSITIVE MATERIALS

Surfaces that respond to touch intensity

ADAPTIVE LIGHTING

Dynamic illumination that responds to context

MODE-BASED COLOR AND MATERIAL BEHAVIOR

Warm tones for autonomous mode, sharp contrasts for sport mode





HAPTIC FEEDBACK ALLOWS FLAT SURFACES TO FEEL PHYSICAL. A VIBRATION, RESISTANCE, OR PULSE CONFIRMS AN ACTION WITHOUT THE USER LOOKING AWAY FROM THE ROAD.

Lighting and color are becoming emotional layers. A calm autonomous mode might use warm, diffused materials, while a sport mode uses sharper contrasts and cooler tones.

In R&D, these surfaces are perfect experimentation platforms—they let us test how much feedback is enough, what feels premium, and how touch, light, and color influence trust and emotion in digital systems.



EXPERIENCE-LED CMF DESIGN

CREATING NEW IN-CAR EXPERIENCES

Instead of starting with materials, we start with experiences. We define scenarios: driving, relaxing, working and then design interactions.

CMF becomes the translator between user emotion, technology, and physical form.

This is where new, meaningful experiences are created.

CMF AS AN INNOVATION TOOL

CMF IN R&D: WHY IT MATTERS

In R&D, CMF is not about final production—it's about asking questions. What if a surface could guide behavior?

What if materials could adapt to mood? What if interaction was invisible?

CMF prototypes allow us to test future ideas quickly and communicate vision across design, engineering, and management.



RESPONSIBLE CMF INNOVATION

SUSTAINABILITY & RESPONSIBILITY

Innovation must be responsible. Digital interiors risk becoming material- and energy-intensive. R&D CMF teams must explore mono-materials, bio-based solutions, and long-lasting interfaces that age well over time.



THE FUTURE OF CMF

The future automotive interior will not be defined by screens alone. It will be defined by how surfaces feel, respond, and communicate. **CMF is becoming the emotional and sensory bridge between humans and digital technology.**

And in R&D, we have the unique responsibility—and opportunity—to shape that future.

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A talk by Ana Bravo / Martur Fompak International

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