The Automobile‘s bridge to the future

Enhancing design, safety and stability for tomorrow‘s future

Smart is inspiring and imaginative

For many drivers, our car has always have been our world. In the past, this delivered us the ultimate automotive lifestyle, thanks to our primal connections to the roar of engine, the squeal of the tires, and the smells of burnt rubber and carbon. The result was a potent cocktail that to many consumers at the time meant one thing. Freedom.

For tomorrow‘s driver, the car experience will be both cleaner and quieter - and yet more than ever, it will provide access to the connected lifestyle, inside your own hermetically-sealed experience zone. This will mean the integration of all your 5G connection requirements, in a safe and harmonious way.

Once it is fully evolved and delivered, this next realm will be the ultimate expression of the internet of things (IoT). And thanks to advances in fields such as augmented and virtual reality, it will help define the driving experience for the next generation of drivers. The result, for this new generation of drivers will again mean one thing. Connection.

Due to its front-row experience working inside connectivity‘s first revolution, the consumer electronics sector, German adhesives leader tesa has invaluable knowledge of the evolving customer and their fast-changing needs, making it ready and able to faciliate connectivity‘s next frontier - the evolution of the car interior to become the ultimate IoT zone, and the next connected lifestyle experience of choice.

An iPad with wheels

The drivers of tomorrow are set to change the automotive game once again. And indeed, it all starts and ends, with technology.

As Marketing specialist Ed Howarth, Managing Director Globabl Clients at OLIVER Agency, observes, for today‘s younger consumers, technology is not only vital when it comes to researching their potential choice of vehicle: “It’s the key to how they interact with the world around them,” says Howarth. “Cars play a key role in keeping millennials connected.”

Ad why exactly is this of such great importance? Simply because these are the next wave of vehicle-buying customers - by 2025, Millennials and Gen Zers are together expected to account for 75% of all vehicles sales.

As such, it pays for us to start thinking of tomorrow’s car as less of a sexy status symbol due to its horsepower, where owners extra points due to what’s under the bonnet. Instead, it is increasingly set to be the interior expeience that will be excite next-generation customers, as the car becomes more

like an extension of a person’s connected lifestyle - similar to an iPad with wheels.

“When pitching to millennials and Gen Z, the automotive industry shoudl focus on technology as a major USP,” advises Howarth.

Welcome to the connected car

As such, this is an excitement moment for development teams from all car manufacturers. The focus is shifting towards making the driving experience a seamless expression of this connected experience - while helping make the driving experience as safe and oriented as possible.

As Charles McLellan of ZDNet writes, “The modern automobile is fast becoming a sensorladen mobile Internet-of-Things device, with considerable on-board computing power.” According to McLellan, the communication systems in tomorrow’s connected car will be devoted to three areas:

1. Telematics: including vehicle location behavior, engine dianostics and vehicle activity
2. Vehicle-to-everything (V2X) communication: covering the surrounding environment
3. Infotainment: connecting the vehicle’s occupants to their media choices

“All of these systems use cellular - and increasingly 5G - technology, among others,” McLellan notes.

The perfect escape pod

Of course, ultimately our decision to buy a car is as much emotional as it is rational. And while our changing times may not have significantly changed our emotional needs when it comes to cars, our chaning circumstances have indeed sharpened today‘s push factors.

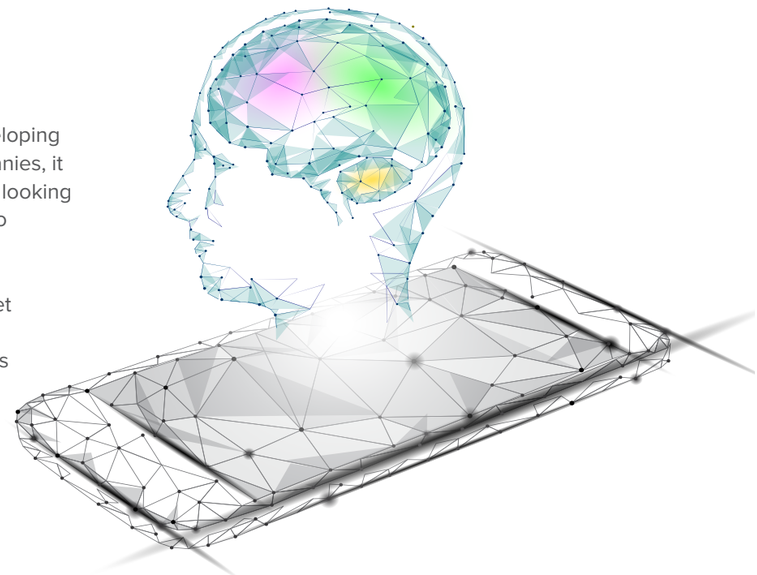
Where once, a generation of consumers bought their car as a means to express their need for personal freedom from the confines of family, society and class, today‘s consumers are finding a more immediate need from car ownership - it provides an escape pod from stresses and strains from today, whether that means escaping the global pandemic, the enhanced family pressures of home-based working, or the constant compromise that is living long-term with parents.

“New research has indicated that car ownershiop is also becoming a crucial depressurisation space and escape for some,” notes automotive writer Lance Branquinho. He quotes research by OnePoll suggesting that 73% of respondents admitted using their car as a means of escape.

Branquinho says freedom is still a key driver for owning a car. But increasingly, that means freedom from reality. “Escaping cabin fever or strained home relations have powered the desire to simply go driving, for the sake of it,” he observes.

Invest in a track record

Given what seems to be a clear and developing market opportunity for automotive companies, it makes sense that companies are already looking to redefine their offering when it comes to leveraging on this diverse set of trends.



Indeed, given we are seeing a new market segment displaying some clear points of difference to past customers, it represents an interesting point of inflection for the automotive industry.

As the market looks to the potential for the Connected Interior to be pivotal to future demand trends, a significant market realignment is in turn possible in terms of demand - in a manner that could well compare to the smart phone market in its infancy. Indeed, as Apple showed upon the launch of its first phone in 2007, we soon even be looking at a car market that is ripe for disruption.

Whatever the case, it makes good sense that companies considering investing in their future blueprint for Conneted Interiors, are also reassessing their development partners carefully. As they help to create the future of human-machi ne interfaces (HMI) in the automotive sector, it makes sense that they in turn look for a global partner that can support them with reliable, cost-effective and contemporary products.

German adhesives leader tesa is one such partner, excited by what it sees as a market ripe for game-changing development partnerships. Its partnership offering for the Connected Interior opportunity is clear: the ability to support automotive partners with the right solutions to connect electronic components and pastic or glass interior surfaces.

Key development partner

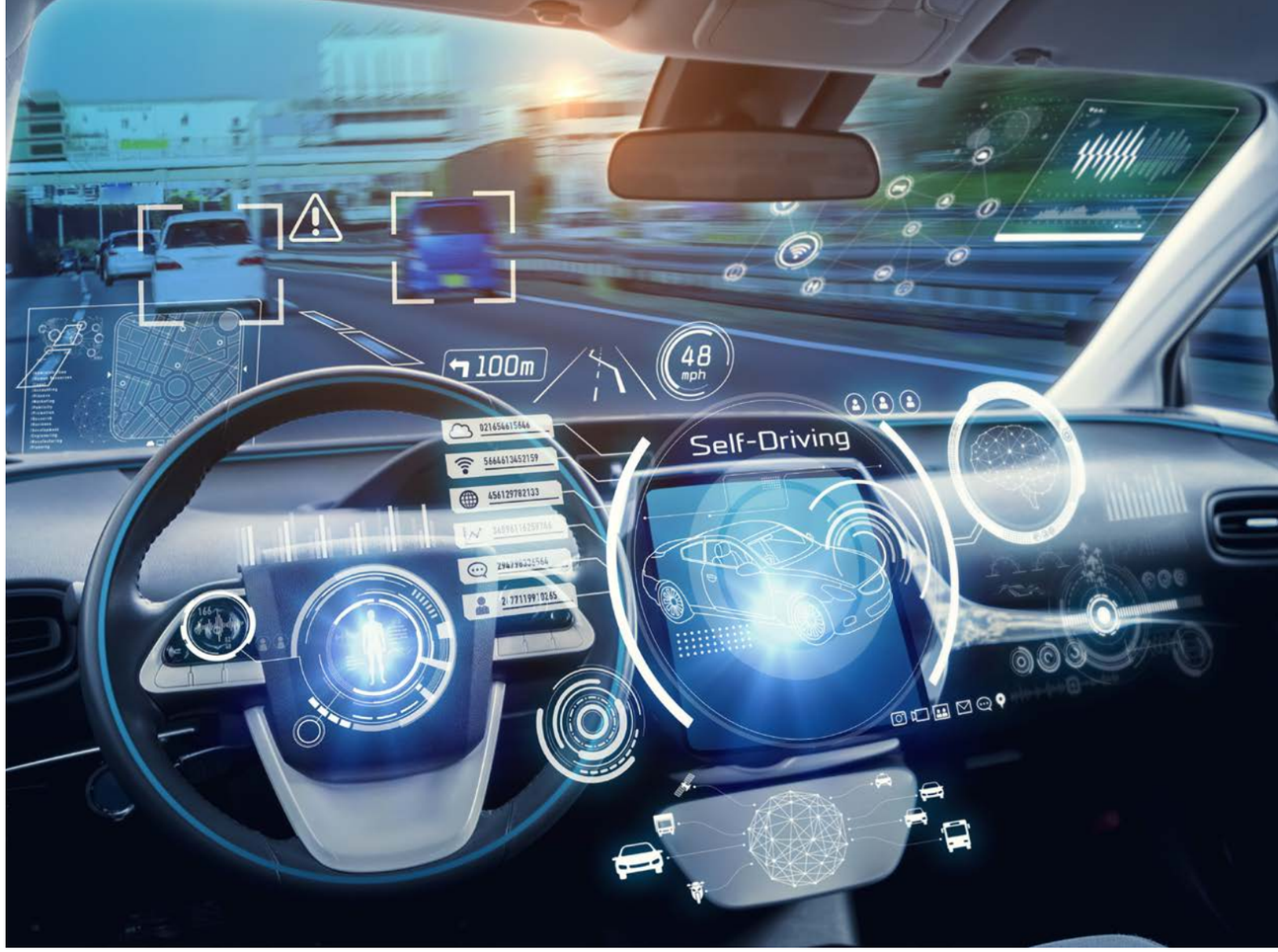
In addressing the creation of multiple interactive displays for the car interior, tesa offers a variety of adhesive-tape solutions that enable clients to create the interior designs and shapes of the future. Likewise, it can ensure smooth and efficient production as well as a seamless appearance - with products that can be constantly adapted to new requirements and trends.

“What makes us special is that we produce and refine our own polymers.“ explains Dr. Jonathan Martens, Global Market Segment Manager, BU Automotive at tesa. This opens up a large variety of options in terms of customization and design trends. And it can provide a perfect bridge towards assisting with the new designs coming into these new Connected Interior spaces.”

Given the rich potential to position and progress the Connected Interior offering along a similar development trajectory to that of other popular consumers devices, tesa can rightly claim a distinct advantage over its nearest rivals - given that it has a proven track record in the consumer electronics sector, which is streets ahead of its competitors.

“We are a strong supplier for both consumer electronics and OEMs [original equipment manufacturers]. That’s why we’re perfectly prepared to be a strong partner when those two worlds are integrated together,”

Dr. Jonathan Martens
Global Market Segment Manager, BU Automotive



Evolving the interior landscape

So how specifically can this help in terms of assisting the development process? “The good thing is that we have a wide of degree of freedom when it comes to design for our tape,” says Martens. “And since we have long lasting experience in tape development, including the in-house polymerization process, we can come in very early in the design process, in order to help a client to ideate and build customized solutions.”

The best innovations typically come when the purveyors of specific technical knowledge exchange ideas at an early stage of the innovation process. Unlike the typical client-vendor relationship, this model sees more of a partnership approach whereby specific problems are tackled together, with a view towards providing innovative alternatives to the tried-and-tested manner of doing things.

As Martens explains, the process typically begins with a client leaning in to find out more about the array of possibilities available around the adhesion process. “Often the enquiry will be, ‘How can your tape polymerization process help us?’ We’ll in turn discuss what’s possible and what’s not. We know about the polymerization and further production alternatives, because it’s us as a company that’s actually in charge of our production process.

Looking to today’s evolving car interior, Martens notes that the number and the size of displays have increased over time. Likewise, the interaction zones in the interior have increased dramatically, and will continue to do so in the future.

In essence, while the exact function of each display may not actually change dramatically in the short term, the most likely evolutions will be design-related, as we see further increases in display size, and more aesthetically pleasing complexity in terms of shapes.

“The manufacturers can also apply different display technology, such as LCD technology and OLED,” notes Martens.

Appetite for disruption

What the driver perceives as a trend towards larger and more integrated display panels and covers, in reality involves several separate panels integrated into a system behind each display. The result in leading-edge Connected Interiors, is an ability to design a huge display panel featuring a large section of curved and undulating cover glass - with seperate panels in turn fixed behind the feature panel.

Martens says that for an automotive customer, the critical question of any adhesive solution provider, is how they can design efficient processes. “The answer is, with our tape solutions, we enable simple and reliable production processes, and can keep to very strict package space requirements.”

Working to a high-specifications brief, tesa provides solutions which allow for the mechanical integration of the display panels behind the covers. These exacting specs can include high temperature requirements, gap compensations, and easy processing.

“We also have an assortment of options for the the optical integrations: whereby we provide OCAs, or optical clear adhesives, which allow for reliable optical integration of the displays, with no color changes over its life cycle.”
He notes that a wide variety of highly specific tape thicknesses are available, for anything up to 500 micro-metres: “We provide OCAs which are pressure sensitive, and others which require a post-UV curing step or an after-lamination UV curing set, plus extremely accurate gap compensation.”

Key to the value proposition, says Marten, is the ability to ensure its answers are relevant and responsive to even the most challenging briefs - a key component to any innovative endeavour.

“At tesa, we have the capability to develop adhesives accordingly to virtually any customer need - including ideas which are driven by these disruptive design changes. That means that we can really act as the bridge between an idea and its execution.”

Solving key design questions

He describes a perfect development scenario as one in which the adhesive strategy becomes part of the design process at an early stage. “We ideally like to work closely with the design team, because a lot of those early key questions will help to drive this process. For our tapes to ultimately simplify the process, we should try and be in the initial conversation with the process engineers.”

A key tested advantage behind the company’s value proposition to its client, is durability of adhesion. Ans conversely, a highly reliable debonding mechanism when called upon. “We have tapes when it comes to the mounting part, that can display a very good reliability and strong mounting performance,” Martens explains. “We can also enable a debonding effect, in the event of a specific trigger.”

As he explains, this can prove an invaluable cost saver, strengthening the company’s proud track record for sustainable processes. “For instance, one of the key design questions at the beginning on the design process is often for tesa to help to enable robust and simplified processing,” he notes. “In most of our competitors’ cases, if the manufacturer does something wrong with one of five separate displays built into the panels, you throw all five away.”

“In tesa’s case, you can actually enable there to a specific reworking of that one display. It’s detaching on demand - the clear target is to reduce the corresponding scrap costs.” As he explains, provision of such a cost lifesaver for the producer is rare among adhesives companies. “You need a detaching-on-demand mechanism for these specific tapes, which means you can rework one specific display without the need to throw everything away - thus reducing the spread costs and your sustainable footprint.”

Optical and mechanical variance is a clear focus for the interactive specifications that go into the Connected Interior system, as Martens explains.

“We have tapes which can be designed with specific regard to their conductive performance. As an example, imagine there’s a trade-off between the adhesion performance of a tape, whereby if there are a lot of conductive particles, this reduces cohesion. We can in turn leverage and customize the tape’s design so that it fits the specific requirements of the customers.”

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Global Market Segment Manager, BU Automotive

Further examples of this customization include the shielding of additional magnetic radiations through the windshield. Likewise, tesa solutions can be used as a grounding mechanism, by leveraging the various adhesion performances of the tape.

“Another assortment of options that we offer is with regards to thermal integration,” says Martins. “It’s similar to electrical tapes - but if you put something into the tape mixing process which very thermally-conductive, it can naturally decrease the adhesion. We can work with the customer to improve that aspect.”

“In the thermal and electrical category, another key competitive strength is the easy converting: or easy punching to the shape you need. And then, pressure-sensitive taping to the punch parts that you need.” This superior to competitor methods, which typically combine far more effort in the processing stage, therefore adding additional cost to the overall process.

Creating competitive advantage

One of the biggest challenges to constant improvement of the Connected Interior is a natural space constraint, particularly given that key driver safety information is mandated by law. To address this challenge, another competitive lead that tesa has in helping to spur design innovation, is the ability to produce adhesive panels within an extremely small package space - thus providing the potential for even more cable-mounting solutions.

Future-first design

Increasingly, tomorrow‘s consumers will differentiate prospective cars less in terms of their potential horsepower, and more in terms of how good their connectivity to the outside world is. And as with any high-end product, many decisions will ultimately be aesthetically based.

Such is the case with the new-look curved and undulating display design inside the Connected Interior. “When you sit on the seat, if the display is very flat you can’t reach the outer part of the display,” explains Martens.

He explains that bringing tesa’s first-hand knowledge of leading consumer electronics companies can be essential to improving the Connected Interior product offering. “Something we’re doing already with the partners, is where we apply our knowledge of both the automotive and entertainment worlds. This is key, not only to be able to understand and design it, but also to empathise with what the customer needs.”

“Typical to the tesa company culture is that we enjoy working with engineers to solve specific problems,” he reflects. “If we have a good offer that fits a specific customer problem, the result can be extremely effective.”

“A case in point we had was where a customer had a big problem with a scrap rate. We talk it through with them, discussing the benefits of reworking it. We tried to help reimagine the production process of a display panel, taking into account several steps in the production chain. When failures occur in the chain, the question to the producer is, do you throw it all away, or can you rework it?”

This discussion looked at a variety of inputs. “We asked, ‘ What requirements do you have? What temperatures does the panel need to maintain in order to survive? And what’s the detail of the reworking? In essence, we can jump in with our specific solution know-how and translate that to our developers and designers accordingly. That’s how we can cooperate at a very early stage to reduce wastage - and customize a solution that’s unique to this client. It’s very powerful,” enthuses Martens.

Let‘s get to work

The sense of untapped potential to help move the Connected Interior space forward, is a constant motivator for tesa. “We have that strong footprint and proof-of-concept from the consumer electronics industry, acquired from our work with household brand names. We’re already enabled solutions for these companies over the years - and we’ve done so in a collaborative way,” says Martins. “We strongly believe that the whole automotive industry is moving towards these working models - and is therefore primed for disruption.”

Today’s consumer brings the connected lifestyle into their car with an expectation of a transformative experience. More than ever, the Connected Interior can become the travel safety, but one that provides a sealed disconnection to certain realities, while you remain supremely connected to the world as you wish to experience it.
As a partner for the Connected Interior, tesa is able to work hand-in-hand with car manufacturers to innovate for tomorrow’s driver, connecting them to their specific hopes and dreams. Due to its close control of the Polymerization process, and the ability to tailor and remake numerous solutions to exact specifications, tesa is ready and enabled be a valuable partner early in the automotive design process - helping its partners to directly answer specific design problems - and create game-changing innovations in the process.

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