

## People

Meet OPmobility's people inspiring progress and shaping the future of mobility.

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## Technologies

From mega trends in China to improvements in automotive lighting and hydrogen, explore the cutting-edge technologies propelling us into a new era of mobility.

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## Ideas

Discover the paradigm shifts currently redefining the automotive sphere, through interviews on electric mobility and plastic recycling.

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# vides

Feel the pulse of the next generation of mobility



June 2024

## 08 People

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## 20 Technologies

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## 32 Ideas

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## Dear Readers,

The magazine in your hands, Vibes, was launched as Plastic Omnium opened a new chapter in its history, becoming OPmobility.

This first issue is an opportunity for you to see and understand the transformation of our company: a company that is looking to the future without losing sight of its origins. Building on our historic automotive businesses, we're diversifying into electrification, hydrogen, lighting and software, and setting the course in our ambitious strategy for growth in sustainable mobility.

Working alongside our customers, we are taking bold technological risks to help them meet the challenges of new forms of mobility, and this with our enduring commitment to excellence.

"OPmobility" reflects our optimistic vision of a future in which all forms of mobility are conquered.

**Laurent Burelle,**  
Chairman of OPmobility SE



# Plastic Omnium is now OPmobility



**Laurent Favre,**  
Chief Executive Officer



**Félicie Burelle,**  
Managing Director

With its new identity, the Group is marking a turning point and sending out a strong signal about its positioning as a leader at the service of all forms of mobility. Here is an explanation of the significance of this change, with the Group's CEO and Managing Director.

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## Plastic Omnium is changing its name. Why now?

**L. Favre:** Because we felt it was essential to align our name with what we are today. In just a few years, OPmobility has become a world leader in sustainable, connected mobility. With five Business Groups and an activity dedicated to the development of integrated software, we are expanding our customer portfolio to include all mobility players—from automobiles to heavy and commercial mobility. We have also established strong industrial and commercial positions in key regions such as Americas and Asia. OPmobility reflects our transformation!



## Tell us about this new name and your new identity...

**F. Burelle:** OPmobility expresses both the dynamic of continuity and transmission, which is dear to us as a family business, and our optimistic vision of the future. This name means that we target all forms of mobility, and that we are determined to accompany our customers in decarbonization and technological shifts. Our visual identity links us to our roots: it capitalizes on our emblematic logo, designed in 1966 by Raymond Loewy, and which still makes us easily distinguishable today. The Group is therefore building on its origins and looking to the future. I would add that this name change symbolizes the internationalization of our Group, which is present in 28 countries, with an English term that can be understood by everyone. It's a strong brand, relying on innovation to seize opportunities, optimizing tech and providing operational excellence to explore new horizons.

### Is the Group undergoing a revolution?

**F. Burelle:** I would say it's an evolution. This name reaffirms our fundamentals, those of an agile industrial Group, close to its customers and taking bold technological bets. That's what we have always done, and will continue to do. It also reflects an evolution in our strategic positioning. From a supplier of plastic components, we have become a technology partner for mobility.

**"This new name is the expression of a company that is building on its origins and looking to the future."**

**Félicie Burelle,**  
Managing Director

**"With OPmobility, we are taking the next step in our transformation into a leader in sustainable, connected mobility."**

**Laurent Favre,**  
Chief Executive Officer

OPmobility bridges the gap between our traditional automotive activities and our technological diversification. It is this major transformation that our new identity aims to embody.

### How does this new brand support your strategy?

**L. Favre:** OPmobility brand reflects the strategic transformation we have been carrying out for several years now. Changing our name means giving a more accurate perception of the Group's reality and its strategic trajectory to our entire ecosystem: customers, suppliers, partners, candidates, etc. We are moving forward, guided by our purpose, *"Driving a New Generation of Mobility"*, with the support of the Board of Directors headed by Laurent Burelle.

### How have your teams welcomed this change?

**F. Burelle:** With great enthusiasm, and for many employees, with emotion! Many of them had been waiting for this change, considering that our name no longer reflected what we stand for. It's a very emotional moment for me too, by the way. I can't help thinking of my grandfather, Pierre Burelle, who founded this company in 1946, of the remarkable growth we have enjoyed over the past 80 years, and of all the great opportunities that lie ahead for us in the years to come.

# OPmobility, the evolution of an industry pioneer towards sustainable mobility

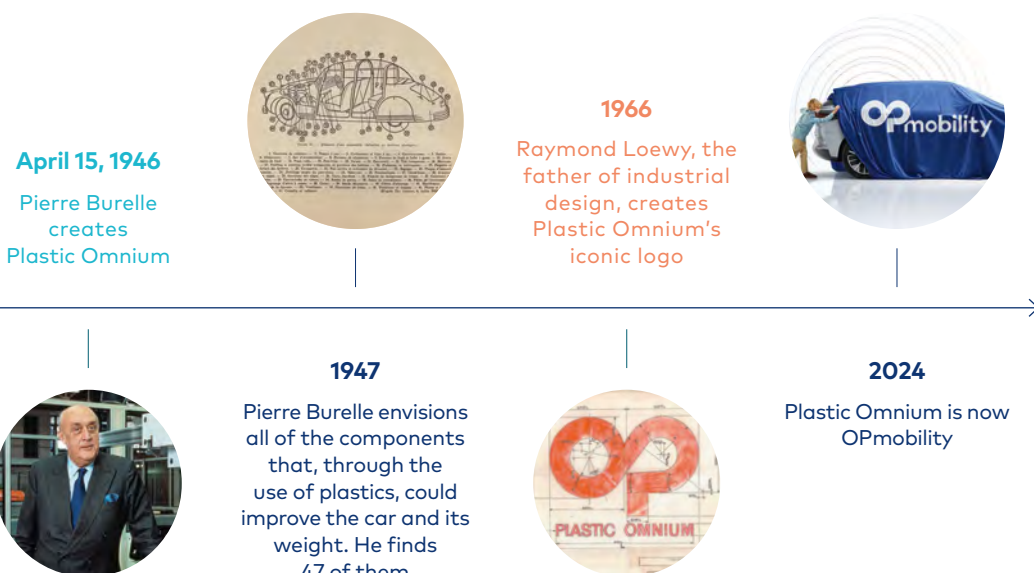
The history of OPmobility is an industrial and human adventure, made up of entrepreneurial passion and innovation. Since it was founded nearly 80 years ago, the Group has constantly reinvented itself to meet the challenges of its time, and become a pioneer in its industry.

In its early days, the company focused on the manufacture of spare parts for vehicles such as the R5 and Solex, BIC pens and radio housings. The turning point in mobility came in the late 1980s, with the mass production of larger parts, notably for the automotive industry. The Group grew with the acceleration of its development abroad, with its first plant set up in Spain in 1970, in the USA from 1994, and in China from 2007 onwards.

Today, OPmobility is a major international group with sales of over €11 billion and 40,300 employees in 28 countries, including five Business Groups<sup>1</sup> for exterior systems and solutions for various powertrains.

Having undergone a profound transformation in recent years, the company is now taking the next step and becoming OPmobility, a brand that embodies both the heritage and the future of mobility.

<sup>1</sup>C-Power, H<sub>2</sub>-Power, Exterior, Lighting and Modules Business Groups







OPmobility

## Behind the brand

"This brand change is a very natural evolution for the Group, which capitalizes on its historic logo and thus affirms its positioning in sustainable and connected mobility", explains Cécile Canet-Teil, Senior VP, Communications at OPmobility. "Nevertheless, it's an important milestone that the Group General Management wanted to celebrate with our teams, from our 450 executives gathered in Paris on March 26 for the occasion, to all our 40,300 employees around the world." She adds: "It's also a tremendous challenge for our multiskilled project teams, who have been working behind the scenes in record time to bring this brand to life."

To publicize its new identity, the Group is launching an advertising campaign in the French and international press, as well as on its social networks, developed with the Group's communications agency TBWA Corporate (see back cover). Cécile Canet-Teil explains: "This is an opportunity for OPmobility to develop its assertiveness, and present its brand new tagline, which perfectly reflects our state of mind: 'Always on the move!'"

OPmobility Group Convention gathering new OPmobility brand worldwide directors for the announcement of the new brand.







# People

Meet OPmobility's people  
inspiring progress and shaping the  
future of mobility.

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industrial makers  
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# Industrial MAKERS

**"Our attention to every detail in our plants is what sets OPmobility apart to ensure flawless Start of Productions."**

**Christian Kopp,**  
Senior Executive VP,  
President Exterior Business Group

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Operating across 28 countries and catering to a wide spectrum of vehicle categories, OPmobility stands as a multifaceted global Tier 1 supplier—one of the largest on a global scale, driven by a commitment to genuine manufacturing excellence.

"An OPmobility plant is an instantly recognizable visual identity, color coding, a common DNA", says Marc Perraudin, Executive VP President H<sub>2</sub>-Power Business Group. "The visual aspect has a strong impact on manufacturing mindset and discipline—not only for us but also for suppliers and partners. It supports our organization's drive for continuous improvement." The efficient use of standardized technology (robots, connectivity, automation) in all our sites is an illustration of our operational excellence worldwide. For Christian Kopp, Senior Executive VP, President Exterior Business Group, this attention to every detail is what sets OPmobility apart: "That's how we ensure flawless Start Of Productions (SOPs)—164 in 2023 without any serious disruption for our Original Equipment Manufacturer (OEMs) clients."



**Mabel Carvajal,**  
Materials planner,  
Modules Business Group,  
Austin (Texas), USA

The Austin plant was built in only six months! When I started here at the freshly opened plant in last June, we had just three months until the start of production. It was such an ambitious schedule and, as you can imagine, there were plenty of challenges to overcome: our team was still being assembled and the facility was more or less empty. As we started to take our first deliveries from suppliers, my colleagues and I were at the forefront to handle the work from planning checks to label deliveries. Despite this tight timescale, our team has shown that it's possible to rise to this incredible challenge, thanks to our collective team spirit!



# Flexibility



**"The core aspect of my work is ensuring that we always have the materials we need to respond to customer production demands, regardless of fluctuations in deliveries from our suppliers. Every day can bring an unexpected challenge!"**  
**M. Carvajal**

**“When Kunshan Lighting plant was acquired by OPmobility, we merged different organizations and started working to build up intra-company connections with the various R&D departments. Now, we work as one team and one company.” E. Lai**



# ROUND UP

When I joined OPmobility in 2022, I immediately felt at ease as part of this international company. Previously, I had often traveled to sites in EMEA and North America to support SOPs, so working globally was nothing new. Within a year, we have built a great team within OPmobility. There are cultural differences—both between countries and between R&D and production teams—but we share a common philosophy of excellence. Down to the lighting systems plant, of course, the scale of tasks I deal with is quite different: leading my team of around a dozen engineers, I am responsible for product launch, ramp up and continuous improvement.

**Eric Lai,**  
Industrial Project Manager,  
Lighting Business Group,  
Kunshan, China





**Marian Pereslenyi,**  
Supply Chain and Packaging Engineer,  
Exterior Business Group,  
Hlohovec, Slovakia

Here at Hlohovec, we are in the middle of a plant transformation as we begin supplying major car manufacturer for electric vehicle platform car production. To provide context, our previous supply contract involved handling 32 cars per hour. Presently, we are striving to increase our output to 60 cars per hour. Today, the electric vehicle model we produce is actually a three-vehicle range, entailing a new level of logistics and process complexity while requiring increased warehousing capacity. So we have completely refitted the Hlohovec plant, dismantling an old paint line to make space for new storage and increasing the footprint of the assembly line to more than twice its previous size.



**E v o l v e**



**"I have to look at our production processes from several points of view, starting with safety: all systems need to be totally safe; then there are capacity and quality considerations. From there, I coordinate with our suppliers."**  
**M. Pereslenyi**



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# Software ENTHUSIASTS

**"By 2030, software will account for 30% of a car's value. Most of the value we create will increasingly involve software."**

**Alexandre Corjon,**  
Executive Vice-President  
Innovation & Software  
at OPmobility

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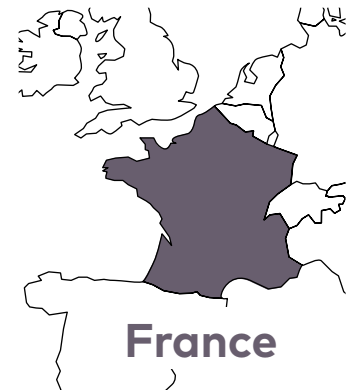
OPmobility has responded, bringing its software development activities together in a dedicated activity: OP'nSoft. We speak to some of the software enthusiasts involved in the thriving evolution of software-defined vehicles.

With 150 employees located in 12 sites worldwide, OP'nSoft liaises with all OPmobility Business Groups and, only one year after its creation in 2023, is already involved with up to 100 projects. "We intend to increase our teams to 250 by 2025," adds Alexandre Corjon. After all, beyond equipping OPmobility products with software solutions, the ambition is to, using DevSecOps (Development - Security - Operations), put in place state-of-the-art software platforms cleared for safety-critical vehicle functions.



**Romain Beurton,**  
Program Manager  
at OP'nSoft,  
Toulouse, France

Before joining OP'nSoft last autumn, I had spent eight years in the automotive sector and was attracted by the breadth of projects within OPmobility. I work in the electrification sector, specifically for larger vehicles such as buses and heavy goods vehicles (HGVs). In software terms, electric vehicles (EVs) require programming all along the drivetrain, from the battery through the motor and the wheels, and heavy-duty applications bring additional complexity here. Due to their size and the amount of power they require, they have packs containing several batteries. A key software challenge is making sure these batteries are reliable and that they are organized in the best possible way.



# Challenges



**"I am fascinated by the role software plays in vehicles, especially now that electrification and hydrogen technologies are developing so fast. It is both exciting and enriching to define customized solutions according to client specifications and type of vehicles." R. Beurton**

**"One of the real strengths of OP'nSoft is that we have both a thriving development team here in India and contact with colleagues based all over the world—and with various departments in OPmobility."**

**Sumana R. N.**



**G r o w t h**



I came to OP'nSoft with four years' experience in automotive software development, and here, in India it's a great place to continue learning in this interesting, ever-evolving, industry. Currently, I am part of the selective catalytic reduction project part of C-Power Business Group. This will reduce emissions produced by diesel cars, but I have also been on hydrogen fuel cell development, and I enjoy getting an understanding of the background behind various automotive systems.

**Sumana R. N.**

Senior Software Engineer at OP'nSoft, Bangalore, India

**Martin Friedl,**  
Technical Team  
Leader at OP'nSoft,  
Wels, Austria

Currently, we are working on a 150-kW module to be used in heavy duty applications. Hydrogen is energy-dense and allows for quick refueling, cutting battery requirements and charging times: without a fuel cell, an electric truck would require significant amounts of batteries, resulting in increased weight and longer charging times. Integrating the stack into a system is where the software challenge lies: in essence, the vehicle system will send a power request to our control unit, and our software manages the fuel cell system to deliver this electrical power to the vehicle drive train.



# EFFICIENCY



**"Wels is quite a small city, and I never thought I would end up working in such an international environment here in my home town. Every day, I am talking to colleagues all around the world about how to test and optimize our software for hydrogen notably. It's very exciting!"**  
**M. Friedl**





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# Diversity DEFENDERS

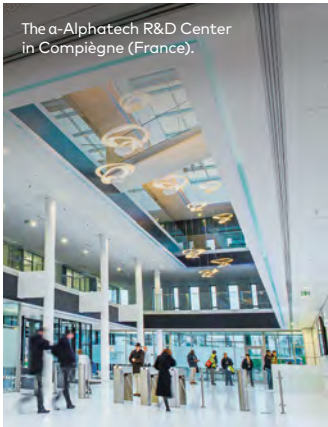
**"At OPmobility, women make up 30% of the global workforce. With women engineers and managers currently comprising 24.4%, we aim to reach 30% by 2030."**

**David Meneses,**  
Executive VP,  
People & Sustainability

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Diversity and inclusion are instrumental to perform and to innovate. Therefore OPmobility is putting in place concrete actions to reach group-wide ambitious objectives. Let's discover diversity defenders, who have at heart to make positive change.

Recognizing that diversity encompasses many dimensions, OPmobility is also fully engaged in promoting cultural and intergenerational diversity among its teams. "We're placing a new focus on integrating local talent into our management teams", adds David Meneses, "and opening up our sites to potential candidates from various backgrounds." Here, too, tackling biases is key: "We have plenty of potential positions for all types of applicants from a wide range of profiles and expertise!"



The a-AlphaTech R&D Center in Compiègne (France).

I have been at OPmobility for over 16 years now. Starting in my native China, where I helped the company go from running four plants in Asia to 11 in just five years on an Information Systems / Information Technology (IS/IT) perspective, I was then seconded to the United States to deploy enterprise resource planning systems. Three years later, in 2018, I moved to Paris to head C-Power Business Group in Europe, and work at a-AlphaTech R&D center, which gathers more than 700 employees from 30 nationalities. Here, too, diversity is a huge part of my everyday work: our IS/IT team is based in 10 countries in Europe, each with their own culture and ways of working.



**Jonny Su,**  
Information Systems & Services Europe Regional Manager, C-Power Business Group

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**Simona Bobinger,**  
Quality Director at Exterior Business Group, Munich, Germany



I have been at OPmobility for 12 years now—and have seen a positive change in culture in the industry in that time. Originally a Program Manager, I was offered my current position as Quality Director for Central Europe region at Exterior Business Group. For me, this was both a step up in the hierarchy and a step sideways into a new area. At first, I wondered whether I would be able to handle it as I'm a mother. I am among the 700 people across 23 countries involved in the WoMen@OP network, which gathers OPmobility associates whatever their gender. We recently held an event within the local initiative in Germany about working parents, and one of the three people talking about combining professional and childcare responsibilities was a male colleague originally from Mexico. That's diversity at OPmobility today!









# Techno- logies

From mega trends in China to the improvements in automotive lighting and hydrogen, explore the cutting-edge technologies propelling us into a new era of mobility.

China, the  
"Big Bang"  
of mobility  
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Automotive  
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# CHINA

## The "Big Bang" of mobility

In recent years, China has undergone a transportation revolution, spearheading innovations in mobility that seem to have no boundaries. From electric vehicles to autonomous driving technology and beyond, the country's advancements and accounting are reshaping the way people move worldwide.

China has swiftly become a powerhouse in the electric vehicle (EV) industry, leading the charge towards a more sustainable future with affordable cars. Over a decade ago, backed by robust government support, strategic incentives, and intensive R&D, the country embarked on an ambitious industrial plan to become the leader in electric mobility.

The result? A monumental shift in the automotive landscape, with China surpassing Japan as the world's leading exporter. In 2023 alone, China produced a staggering 28 million cars,

out of 88 million worldwide.<sup>1</sup>

A competitive advantage driven by "clean cars" amounting for a third of the vehicles' exports in 2023.

NIO, a frontrunner in the Chinese EV landscape and partner of OPmobility, stands out for its innovative battery-swapping technology and comprehensive mobility solutions. NIO's Senior VP, Alan Zeng, highlights the competition in the Chinese market, emphasizing the necessity of continuous development.

"For companies in China, growth is vital. We are comfortable with



challenges." NIO's latest example? Their upcoming 800 V (voltage) system, a next-generation battery platform integrating high-performance components, advanced technology, and connectivity features.

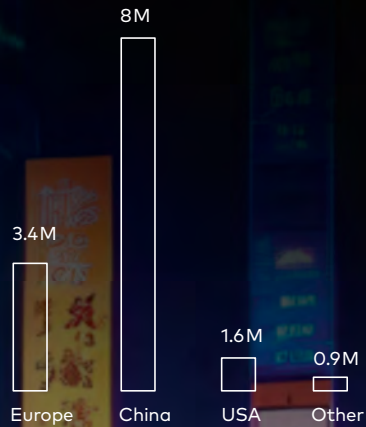
The entire automotive industry is undergoing a transitional period, characterized by volatile volumes as well as an open future. As concerns over pollution and climate change grow, there's also a rising demand for cleaner transportation.

Amidst China's mobility boom, OPmobility strategically positions itself to capitalize on burgeoning opportunities. Mustafa Yesilgoez, President, Lighting APAC, knows the Group counts plenty of strengths in China. "We are a recognized supplier across Asia and our expertise in emission reduction, which allows us to bring technologies and lightweight solutions to car manufacturers, is well known."

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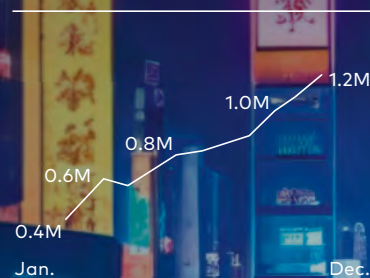
<sup>1</sup>Source: S&P global Powertrain forecast February 2024 – PC+LCV [0-3,5T]

<sup>2</sup>Sources: International Energy Agency (IEA), BloombergNEF, Bloomberg, manufacturer figures, Chinese Association of Automobile Manufacturers



#### China, number 1 worldwide<sup>2</sup>

Electric car sales by country (from 2016 to 2023, in millions)



#### China takes off<sup>2</sup>

Production of clean vehicles (hybrid and electric) in China (2023, in millions)







#### Incredible potential for growth

In 2022, China counted approximately 32 cars per 100 rural households and 51 cars per 100 urban households.

# 28M

China achieved a historic milestone in 2023, producing over 28 million cars for the first time.

Sources: International Energy Agency (IEA), BloombergNEF, Bloomberg, manufacturer figures, Chinese Association of Automobile Manufacturers

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"OPmobility has manufacturing capabilities with 36 plants and four R&D centers in China, including those needed for hydrogen-powered and electric vehicles. We are present across the globe, not just in China, which allows us to better navigate the markets. And we have excellent relationships with local players, developed over our decades-long presence. OPmobility is a global player with innovative products such as front bumpers and clean energy system tanks, but is also investing a lot in new energies, such as hydrogen, and lighting, always incorporating the latest electronics and software," affirms Mustafa Yesilgoez. "We're really working to become more sustainable and invest in the future. We have a responsibility for the environment and for future generations."



**Alan Zeng,**  
Senior Vice President  
of NIO Group & CEO of XPT

**"For companies in China, growth is vital. We are comfortable with challenges."**

# At the forefront of technology

NIO and TusStar, two prominent Chinese tech companies in mobility, are partners and customers respectively of OPmobility through its innovation collaborations. They have shared with us their market insights.



## AI: Revolutionizing Autonomous Driving

China's progress in artificial intelligence is propelling advancements in autonomous driving technology. However, challenges persist, from infrastructural gaps to regulatory complexities, underscoring the intricate balance between technological readiness and societal integration. "From a technological standpoint, we are ready for autonomous driving; it's rather society that isn't", remarks Alan Zeng, Senior Vice President of NIO Group & CEO of XPT. "In Shanghai, the government has opened large test zones outside the city, but we still lack infrastructure, such as roads. Legislation and ethics are also crucial: they determine, for example, whether software should prioritize individuals inside the car or those outside."

## Charting New Frontiers: TusTech's Innovation Ecosystem

Chinese incubator and venture capital fund TusStar, which is part of TusTech, has established an innovation network of more than 190 incubators around the world, spanning more than 80 cities in China. "The accelerated development of new energy vehicles has generated a large number of cross-domain technology needs," underlines Wei Han, President of TusTech and Chairman of TusStar Shanghai. "In China, large enterprises can also adopt new technologies to enhance product performance through open innovation. Companies exploring virtual reality, voice or gesture interaction, and new sensors, or those incorporating new technologies in automobiles, such as language models and artificial intelligence dialogue, have all our attention."

**TusStar**  
启迪之星

# Automotive LIGHTING

## a new era of "enlightenment"

Automotive lights today do much more than simply light up the road. When an oncoming vehicle is detected, they can adjust the beam, optimize visibility or just set the right mood for a ride. Smart lighting technology has revolutionized vehicle illumination, providing enhanced safety features such as automatic high beams.

"A slow revolution of innovation." This is how Kamislav Fadel, Vice-President of Engineering & Innovation at Lighting Business Group, describes the history of automotive lighting. From its beginning, lighting has served to ensure traffic safety for all road users. Early drivers relied on oil lamps or acetylene lamps to make their

vehicles visible at night rather than for illumination. The lighting revolution took a significant step in 1962 with the introduction of incandescent bulbs with inert gas. The real turning point came in the 1990's with the arrival of xenon and LED lighting systems which offered three times the lighting power and much longer lifespans.



"At this time another crucial innovation revolution was under way, giving cars style," emphasizes Kamislav Fadel. "Car manufacturers and suppliers, including OPmobility, learned to develop more aesthetic products while ensuring safety and performance." With the advent of digitized headlights and rear lights, light has evolved into a medium of external communication and interaction, personalizing the design and offering new styling and customization options.

LED technology, once considered a luxury feature, is becoming more and more standard across the automotive spectrum, offering superior energy efficiency, durability, and design flexibility. Beyond LEDs, emerging technologies such as OLEDs (Organic

Light-Emitting Diodes) promise even greater versatility. Today, lighting functions are increasingly software-controlled, with some manufacturers even offering lighting functionalities on demand. Light is becoming smart and can even be used via projections or displays to communicate to other cars or road users. This also requires new, high-tech skills, such as digital electronic validation.

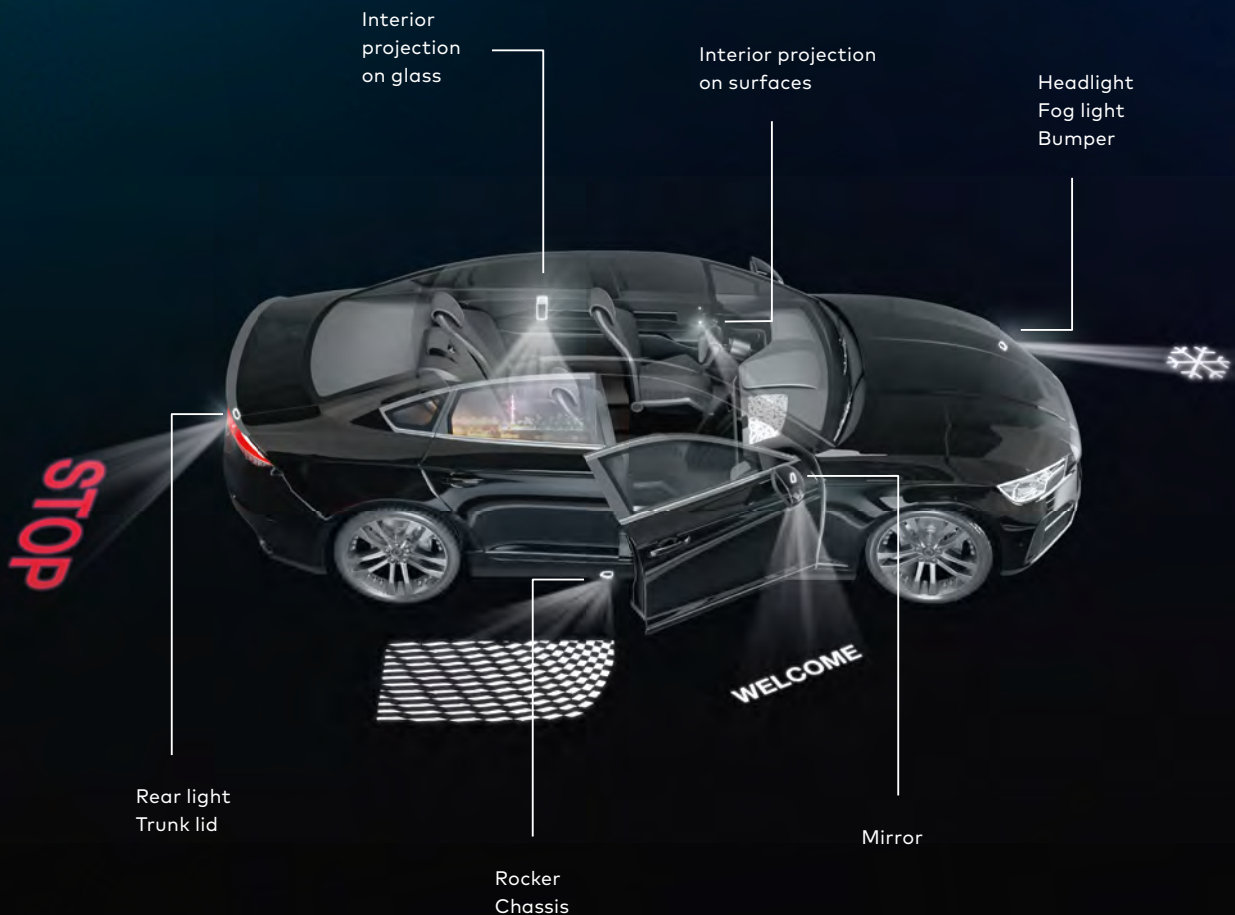
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An example of this lighting innovation in action at OPmobility is the dynamic interior dashboard projection system. This module is composed of several microlens arrays integrating different patterns. RGB LEDs—which, combining just three colors, can create the entire color spectrum—generate a light beam, which the microlenses project onto the dashboard. Featured in the interior of the new MINI Cooper Electric, this dynamic projection system was celebrated with an Innovation Award at CES 2024 in Vegas.

This marks the second consecutive year of international recognition of the innovative progress driving OPmobility's contributions to the transition to a personalized, more autonomous, and safer mobility.



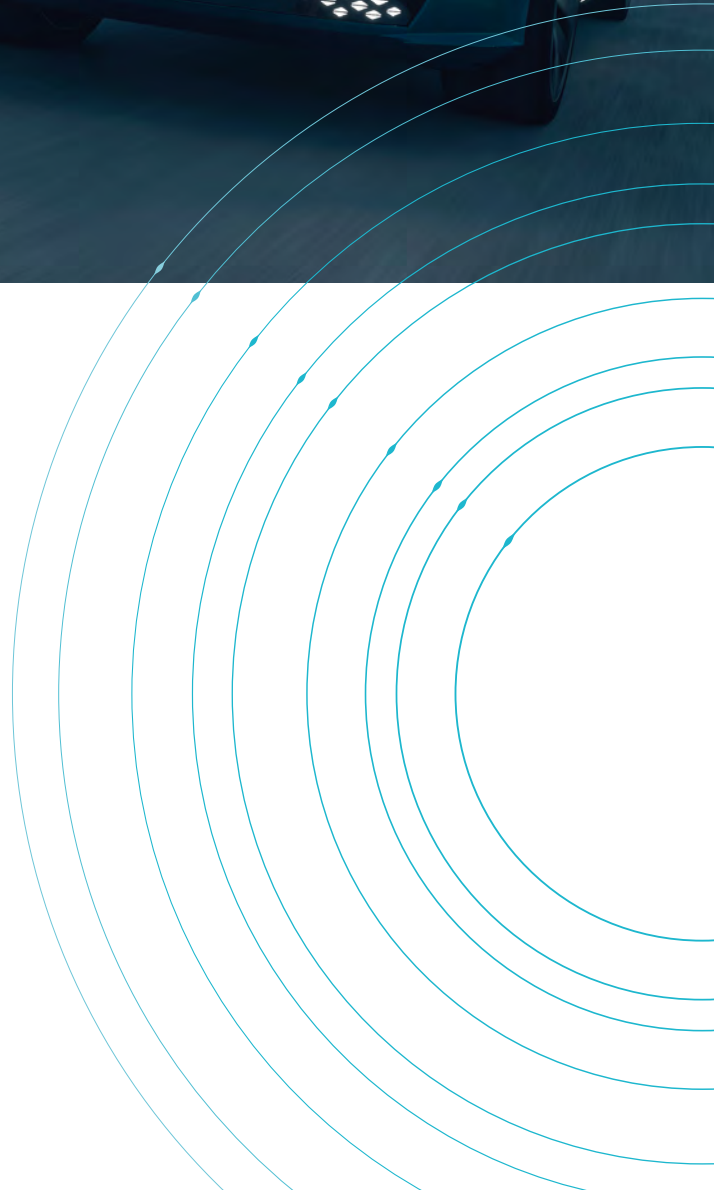


# 26K

The revolution of micro-LEDs:  
26,000 LEDs fit into an area  
the size of a thumbnail

## Spotlight on challenges

"In Europe, the automotive industry faces a complex regulatory landscape, with over 130 regulations, approximately one-third of which pertain to lighting aspects, including both the light sources utilized and the equipment of vehicles", explains Kamislav Fadel. What's more, the transition to LED technologies, coupled with the integration of various software functionalities, introduces heightened complexity, and requires an expanded supplier network.





# HYDROGEN

## on track

Convinced since 2015 that hydrogen will play a major role in the mobility of tomorrow, Opmobility is positioned in this market, thanks to its historical expertise and its position as the world leader in fuel tanks. Today, an ecosystem has been built up covering the entire hydrogen value chain, with a comprehensive, industrialized, and competitive offer, enabling it to address the entire market, from heavy-duty and commercial mobility to passenger cars and trains.

"Fuel cell electric vehicles have their own on-board 'power plant' to make their electricity, unlike battery electric vehicles (BEV)" explains Xavier Ponchon, H<sub>2</sub>-Power Managing Director Europe. Due to a chemical reaction between oxygen and hydrogen in the fuel cell, electrical energy is generated which, depending on system design, can directly supply an electric motor or charge battery modules in the vehicle.

On the road to decarbonizing mobility, carmakers and automotive

suppliers are already taking this decisive turning point towards hydrogen technologies as a low-carbon and efficient way of powering vehicles. Heavy-duty mobility, such as trains, buses, and trucks, as well as light commercial vehicles, are leading the way.

While extending the distance vehicles can travel on a single charge, the technology speeds up refueling—a considerable advantage for fleet operators looking to limit downtime. At the same time, hydrogen



## H<sub>2</sub>-Power in figures:

€100 M 6 sites

investment per year to develop hydrogen products and scale up industrial capacities.

in Europe, Asia, and the U.S.

infrastructures are gradually being developed around the world, enabling hydrogen-powered vehicles to be used.

A challenge of hydrogen mobility is the space needed to store hydrogen in vehicles, even when compressed. The integration of our products depends on the architecture of each vehicle. "The challenge is to make the technology competitive. The key is to design an efficient mass production process alongside the product", concludes Xavier Ponchon.

# A first-class partnership

OPmobility has been working with Alstom since 2021 to bring hydrogen rail to Europe. Its role: to design storage systems that meet the rail industry's very demanding safety and durability standards.

The first trains equipped with OPmobility systems are already in trials and have led to new orders for the Group. Xavier Ponchon, H<sub>2</sub>-Power Managing Director Europe, comments, "Hydrogen is a key solution for replacing today's diesel trains without major investment in infrastructure. As with other forms of mobility, the reduction of CO<sub>2</sub> emissions is required by the end customer. Today's non-electrified railroads account for around 28% of traffic in China, 40% in Europe and 95% in the USA. The market potential is huge!"

Frédérique Kalb, Managing Director Rolling Stock & Components Saint-Ouen at Alstom, is particularly involved in this collaboration, taking up the challenge of sustainable mobility. "At Alstom we are committed to taking up the challenge of sustainable mobility for everyone. We develop innovative technologies and customer solutions for a decarbonized railway, even when networks are not electrified, and we are forerunners of the technology and key building blocks of development. This gives us unrivaled expertise and a unique position to identify the right solution for our customers' needs. This would not be possible without a strong partnership with key suppliers such as OPmobility with whom we partner to design onboard hydrogen storage solutions for railways."





# Ideas

Discover the paradigm shifts currently redefining the automotive sphere, through interviews on electric mobility and plastic recycling.

Will the advent of all-electric mobility actually happen?

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How can we meet the challenge of plastic recycling?

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# Will the advent of all-electric mobility actually happen?



Expert

**"In order to decarbonize mobility we need to develop electric solutions."**

**Alexandre Corjon**, Executive VP,  
Innovation & Software, OPmobility

## Should we be moving towards full electric mobility?

**A. Corjon:** I think we all agree that it's important to develop electric vehicles, of course! But it's more nuanced than that: we shouldn't rely totally on battery-powered electric vehicles, rather we need to seek out the best mix of energy sources and mobility solutions. Hydrogen, for example, is a terrific source of energy. We know how to store and produce it using renewable resources. We believe in the benefits of this form of low-carbon energy, which is why we're developing our hydrogen-related offering, focusing particularly on new storage solutions.

## How is OPmobility approaching the transition to electric mobility?

**A. Corjon:** For several years now, OPmobility has been defining a strategy for adapting to changes in the automotive industry. Today, that strategy allows us to keep pace with market growth, and demonstrates our ability to respond to the resulting commercial challenges. Electrification is driving changes

to our product portfolio. That's why we've created entirely new areas of our business, such as the e-Power activity, to develop a new range of electric vehicle solutions. In parallel, our H<sub>2</sub>-Power Business Group is actively investing in the hydrogen-based electric mobility development process it began several years ago.

## What are the next key milestones for OPmobility?

**A. Corjon:** There are technology shifts that we must be on board with. We've already expanded our product portfolio, but we must continue that trend, particularly in areas that complement our Exterior product range, such as electronic sensors and ADAS, which contribute to passenger safety. Software is another focus for development. We created OP'nSoft for the development of all our software products, but we now need to move towards software as a product of its own right.

The growing importance of software is driving a more global transformation of mobility, with a shift away from a world focused on products to a world focused on use.


 Guest

**"Electric cars will help road transportation to compete more effectively against other modes of transport."**

**Florent Laroche**, Associate Lecturer in Economics at French University, "Lumière Lyon 2" and Transport Economist

### **What are the main issues and challenges facing next-generation mobility and electric mobility?**

**F. Laroche:** Given the challenges related to the rise of fuel prices, electric vehicles have the advantage of costing between three and four times less to run than a combustion-engine automobile. In the economics of transportation, there are two fundamental concepts: time and money. Which is why, despite the development of public transit options, the automobile remains dominant. It saves time, makes everyday life easier and is more comfortable. But the main challenge to democratizing the use of electric vehicles is making them affordable to potential users.

### **How will the increasing take-up of electric cars change the way we use this form of transportation?**

**F. Laroche:** Electric vehicles are becoming increasingly high-tech, with self-driving and driver assistance systems, and integrated interfaces and apps similar to those of smartphones. So the way they're being used is already changing. The main risk is that these cars will quickly become obsolete, and drivers will hesitate to invest in them if they think that the model they buy will be out of date within two, three or five years.

So the main change could be that leasing becomes the norm, rather than outright ownership. It all depends on economics, too. Without a major hike in personal incomes, electric mobility simply won't be adopted by the majority of people.

### **So how do you see the future of mobility options and mobility habits going forward?**

**F. Laroche:** We've seen an explosion in travel over the last decade. This is a very positive trend in terms of our individual right to mobility. Everything points to that trend intensifying over the coming years. Digital technology is changing people's mobility habits as more accessible solutions emerge, and energy resources continue to diversify. That's very positive from the economic perspective, because it means we'll be able to adapt the way we travel to suit our budget. The operating range of electric vehicles is another possible area for development. Once that has been significantly increased, users will find it much more attractive to switch to electric. In the future, electric vehicles will be able to meet this exponential growth in demand for mobility, thereby broadening the range of solutions and making good sense in environmental terms.



# How can we meet the challenge of plastic recycling?



**"Our challenges: how to use less plastic, how to use it better and how to use it for longer."**

**Nicolas Chevallier**, Sustainable Materials Project Director, OPmobility

**Recycled plastic materials present vast opportunities for the automotive industry, thanks to their versatile properties and contribution to emissions reduction. So what are the challenges and opportunities for plastic recycling at OPmobility?**

**N. Chevallier:** Intensifying our use of recycled materials will mean that we'll be able to meet the challenges set by new regulations, as well as customer expectations around the use of green materials, and deliver the OPmobility decarbonization plan in parallel. Our challenges: how to use less plastic, how to use it better and how to use it for longer. Several initiatives support this ambition, including a project of European regulation requiring a minimum recycled materials content of 25% in the plastics used in cars by 2030. As things stand today, only 10% of the plastics used in cars has been recycled, which is still relatively low. Our central challenges are to develop materials that meet all quality and safety requirements, without excessively compromising competitiveness. We also need to promote vehicle end-of-life circularity by supporting the development of recycling channels.

**How is OPmobility helping to drive recycling initiatives forward within the automotive industry?**

**N. Chevallier:** As a Tier 1 original-equipment manufacturer, OPmobility is a key link in the value chain, and we therefore want to play an active role in promoting recycling. We process materials in our own plants, and have a detailed understanding of how suitable they are for inclusion in our end products. We now need to share that knowledge with our partner automakers and materials developers to enable the use of recycled plastics and increase their level of inclusion in our products.

**What are OPmobility's targets for increasing its use of recycled materials?**

**N. Chevallier:** The forthcoming European target of a 25% contribution from recycled plastics will not apply equally to all vehicle components. For exterior components, we will be able to achieve at least 25% by 2030, and probably more, while for tanks, we will be more limited, because of the safety aspects of these products. On other types of component, we are aiming for a recycled content of 30 to 40%, which I believe conveys the strength of our determination to take things to a new level and generate real momentum across the industry.

## How important is plastic to the automotive industry?

**R. Guastavi:** In 2020, 8% of the total annual production of French plastics manufacturers—4.9 million metric tons—was used in the automotive industry. At the other end of the chain, the end-of-life vehicle (ELV) industry processes 190,000 metric tons, which equates to 5% of all plastic waste, and that proportion remains similar across Europe. Although the collection rate for this form of waste is only 35%, compared with 60% for household plastic waste, we expect that level to rise over the next few years. Nevertheless, there are still many challenges to be overcome.

## What recent innovations could have a positive impact on mobility?

**R. Guastavi:** In terms of logistics, there are some original initiatives emerging between insurance companies and auto-service centers, for example, that aim to recover materials from damaged car headlights.

Chemical recycling has also taken off recently, and has the potential to be a major source of innovation for recycling mixtures of plastics, special plastics like Polymethyl methacrylate and Polycarbonate (PC), and materials historically agreed to be impossible to recycle, such as rubbers

and composites. But the environmental impact of chemical recycling remains very high, and should therefore be used only to recover materials that cannot be recycled mechanically.

## What are the environmental and economic benefits for companies that integrate recycled plastics into their production processes?

**R. Guastavi:** This is something that subcontractors need to think through at a very early stage, because the quality accreditation process is a lengthy one. It also takes time to secure the best available sources of recycled materials. Those who start recycling plastics today will have a better chance of being ready to comply with regulations, to meet the needs of their customers and to respond to environmental issues. And although manufacturing technical products from virgin plastic is less costly than transforming systems to incorporate recycled material right now, this trend could be reversed in the longer term due to a series of factors, including dwindling resources and market-driven supply chain tensions for imported components. The rise of ecodesign, strategic partnerships, decarbonization and other trends make this the right time to make the switch to affordable locally recycled materials!

Guest



**"Those who start recycling plastics today will have a better chance of being ready to comply with regulations and to respond to environmental issues."**

**Raphaël Guastavi**, Deputy Director of the Circular Economy Department at ADEME (the French Agency for Ecological Transition)

## Three major innovations presented at CES 2024 in Las Vegas (USA)

**JANUARY** The fruit of OPmobility's collaboration resulting from partnerships with Sonatus, Eyelights and Paravision, these innovations add new intelligent functions—displays, sensors, and lighting—into body panels to enhance the driver experience making it safer, smarter and more appealing.



## Equipping Chinese rail giant CRRC's hydrogen-powered trams

**MAY** Through its PO-Rein joint-venture, OPmobility has won a contract from the world's leading rail manufacturer CRRC to supply type 4 high-pressure hydrogen storage systems. OPmobility, Shenergy Group (China's state-owned energy company) and CRRC MRT Holding Group are also forging a close, long-term partnership to develop hydrogen mobility solutions.



## Inauguration of an R&D center in Pune (India)

**MARCH** This is OPmobility's groundbreaking of its fifth plant and the inauguration of a new R&D center in India, a strategic country for the Group for 17 years, both in terms of workforce size and revenue. OPmobility brings together skilled experts in engineering and in research. Their goal? Advancing innovation and collaboration within the automotive sector, by leveraging leading-edge expertise.

# Our high-lights

Discover some of the events that have marked the past six months at OPmobility, from our innovations to the inaugurations of sites and our R&D center!



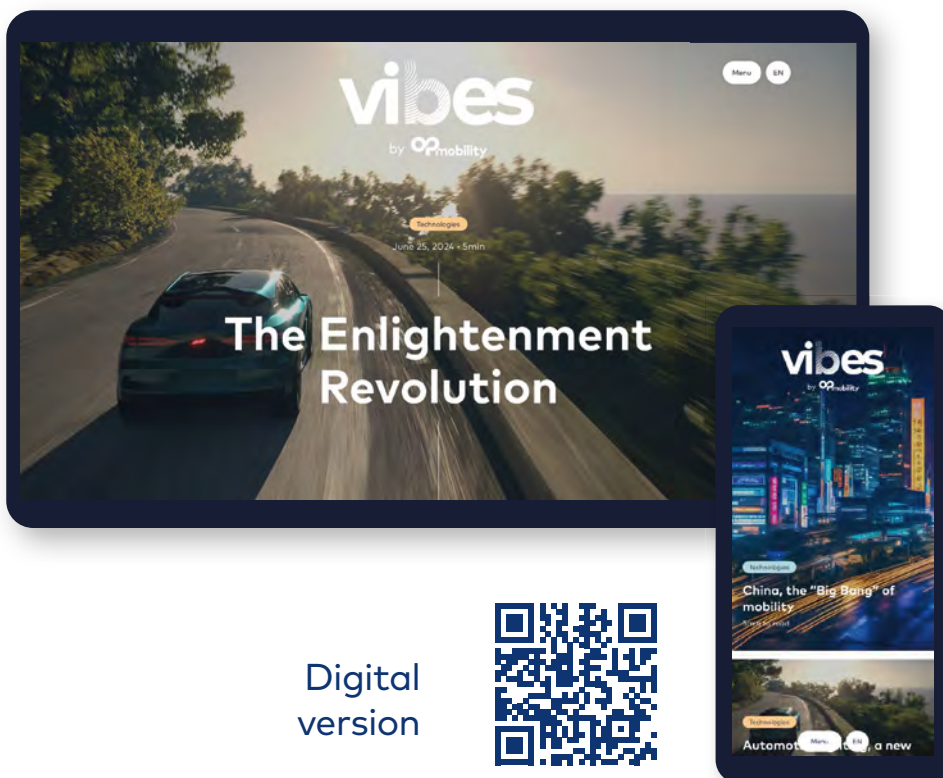
## New module assembly plant in Texas (USA)

**APRIL** Built in only six months, the Austin site addresses a historic order from a key US player in electric mobility. The plant will have an annual assembly capacity of 2.5 million modules, will employ over 400 people by 2025 and will soon be the Group's largest plant by revenue.





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**Many thanks to all the teams who contributed to the creation of this magazine!**

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LET'S SEE  
WHAT THE FUTURE HOLDS.



**Plastic Omnium** is now **OPmobility**. Mobility is central to our society. With innovative technological solutions, **OPmobility** is inventing safer, more sustainable, more affordable and more engaging mobility. New energies, new expectations, new possibilities: tomorrow's challenges are real. **OPmobility** is here to meet them.

ALWAYS ON THE MOVE