DrivingVisionNews.com
Automotive lighting and driver assistance technologies

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Editorial

Lighting's New Focus At The Tokyo Motor Show

The Tokyo Motor Show is just closing, and we're bringing you the seven main takeaway points from the lighting perspective. This week's newsletter presents first info on the event, and you can download our complete 2019 Tokyo Motor Show Report presenting the lighting on display by car makers and their suppliers. The main thing is that lighting is adapting to comport with the branch-out, or fork, in how vehicles will come to be used: shared mobility and pleasure-driving.

So as a first takeaway, two specific lighting use cases have to be studied and understood:

• Mobility: heavily city-centric. Lights will be used for seeing the road and the pedestrians and cyclists on it, just as today, and newly will be used for communicating with people and other vehicles and infrastructure. This set of usage modes seems to be the priority of the lighting makers, and I think what Japanese car makers and their suppliers showed at Tokyo will be soon used throughout the world. Lighting differentiation will be more important than ever.

• Driving for the sake of driving—not exclusively, but mainly outside of built-up areas, using the latest new technologies like glare-free high beam. Styling and high-tech lighting performance and appearance will figure prominently with this set of use cases..

A second important takeaway is to do with interior lighting. We have seen at Tokyo a lot of lighting innovation not related (or not directly related) to autonomous driving—especially interior lighting. We'll explore those technologies in our DVN Report, and more in depth in the special report on interior lighting we will publish soon.

Don't forget, the DVN Lidar Conference is coming up in less than a month! It's to be held 2–3 December, with a very interesting program and VIP speakers from automakers and lidar and lighting suppliers. If you haven't yet registered, write in or reserve your seat!

Sincerely yours,

DVN President

In Depth Lighting Technology

Tokyo: The Future Through Japanese Eyes

The theme of this year's Tokyo Motor Show was "Open Future", and the show has been reinvented to provide visitors with a vision of a future mobility society; to this end, the show's scope has been expanded to encompass sub-themes like "The Excitement of Cars", "Future Homes," and "Future Towns."

Seven DVN Tokyo Takeaways:

1. The show was almost entirely Japanese. Daimler and Renault were there, but that's about it for non-Japanese automakers, and those two European companies didn't launch any world-firsts at the Tokyo show; it really is a regionally-focused event. As such…

2. The cars shown catered for the needs and wants of a densely-populated country with few onshore energy resources. So there were lots of EVs, small and really small cars, and retro-styled car concepts.

3. The auto usage development path is forking; splitting in two: city mobility with small cars, and driving pleasure with bigger ones. Lighting to meet new use cases have to be studied and understood.

4. Japanes makers presented interesting cars and technologies,with some very imaginative innovations.

5. Clean mobility is presented and seen as a high priority. Cleaner engines, electrics, and hybrids dominated the show; most of the presentations and communications were focused on EVs. Automakers are facing tightening emissions restrictions in many markets—in Europe, for example, makers will have to pay huge penalties if they violate the 95 g/km CO_2 threshold in 2020—and buyers increasingly prioritise a reduced climate footprint.

6. Communication by lighting is gaining traction. Ichikoh and Koito put forth strong presentations with a variety of concepts.

7. Interior lighting is going from strength to strength. There were a lot of concept cars with a great deal of interior lighting innovation on display. The Toyota-Lexus cars were one notable example.

Here's a loo at some of the particularly interesting cars we saw at Tokyo this year:

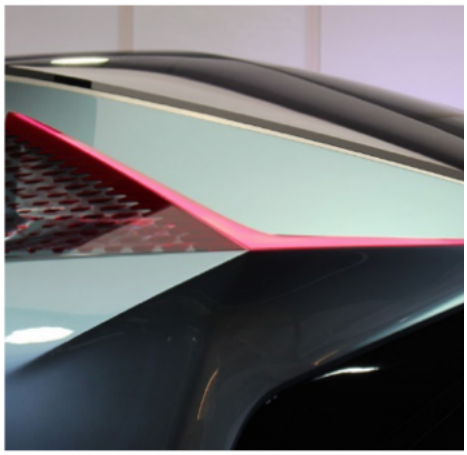
Daihatsu WaiWai

The WaiWai is a "comfortably spacious, perfectly-sized mini-van, a 3-row/6-seater with a spacious interior the maker says encourages users to go out and have fun. Additional openness is provided by the sunroof.

Isuzu D-Max

Isuzu are striving to appeal to diverse customers by offering a wide range of variations of this newly modernised truck. They're working to leverage their core business operations to increase sales and take a lead in the LCV market.

Lexus LF-30 Concept



The LF-30 embodies the "Lexus Electrified" vision put forth by the company. It was presented as a look ahead to the cars of 2030 with features such as a new-concept cockpit based on a human-centred design philosophy and a steer-by-wire system. The exterior design, too, is said to suggest what a Lexus EV of the 2030s might look like.
The window glass, which contiguously runs from the front to rear, and the wing-shaped headlamps form the contours of the car.

Mitsubishi Mi-Tech Concept
It's a small electric SUV concept.

The front end adopts MMC's new Dynamic Shield front design concept, which has a satin metal look to the central "grille", and copper accents to subtly hint at the car's electric powertrain.
T-shaped headlamps are embedded in the front end to emphasize a distinguishing outward appearance. The rear styling evinces a big, bold hexagon carved from a metal ingot. It's got T-shaped tail lamps that echo the front light design.

Nissan Ariya Concept
Nissan showed their Ariya Concept, an twin-motor electric crossover with powerful acceleration, comprehensive driver assistance technology, and a big shift in the direction of Nissan design.

The Ariya presents an electrified V-motion signature "shield" up front, visually striking rear light blades, short overhangs, and an interior that feels more like a lounge than a conventional vehicle.

Subaru Levorg Prototype
Subaru showed their new second-generation Levorg for the first time at Tokyo. Subaru say they envision "a future that everyone can

enjoy driving at the full, at their will", and the Levorg prototype is definitely firmly in an era where autonomous driving technology is widely spreading.

Suzuki Waku SPO
Here's a plug-in hybrid small coupé with old-style wing mirrors (for many years, Japanese regulations required this type of sideview mirror). It is a personal compact PHEV. The lighting is full-LED, and there's a screenlike "grille" that might resemble a robot's face.

Toyota Granace

The large radiator grille embellished with metallic accents flows seamlessly into the headlamps, which project in vertical and horizontal directions, providing the van with expressive, sophisticated eyes.
Woodgrain decorations flow from the back of the front seats toward the side trim. The LED side colour illumination is gently lit.
The Granace comes standard with the latest version of Toyota Safety Sense, featuring improved sensing functions that make use of the pre-collision safety system that detects pedestrians during the day and at night, as well as cyclists during the day.

Toyota Tokyo (2020 Version) e-Palette
The e-Palette is Toyota's first vehicle developed specifically for autonomous MaaS applications. It reflects Toyota's ongoing transition to a mobility company and combines electrification, connected networks, and advanced driving technologies to support new shared mobility businesses and business models.
The e-Palette is equipped with a specially-designed automated driving system that includes control hardware, software, and advanced sensors such as cameras and lidar. Combined with high-accuracy 3D mapping and an operation management system, e-Palette will achieve low-speed automated driving at SAE level 4. Both front and rear lamps mimic eye contact to inform pedestrians of vehicle actions—we're not sure these particular configurations are necessarily intuitive, understandable, or optimal, but they do demonstrate the concept.

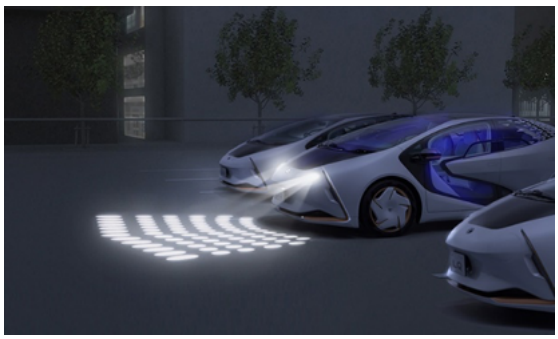
I am running

After you

Toyota LQ Concept
Toyota say their LQ leverages advanced technology to build an emotional bond between car and driver.

It uses the roof and floor mat areas as an intuitive communications platform to share information between the vehicle and passengers. Embedded lighting displays different colours to indicate automated or manual driving mode, and lights up different foot wells to indicate which passenger the car is addressing.

It can also communicate information such as road surface conditions to people inside and outside of the vehicle using the DMD in the headlamps The system can activate one million tiny embedded mirrors to project complex figures on the road ahead.



The dashboard displays use OLEDs. The advanced instrument panel design wraps around the driver.

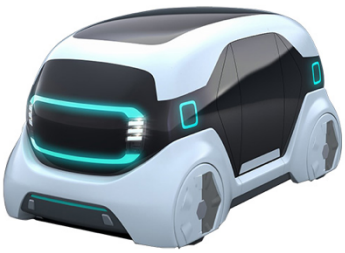
Toyota Mirai Concept
The totally redesigned Mirai concept portends a major step forward for FCEVs and the potential of a hydrogen-based energy stream. It's got significantly greater range and improved driving performance compared to the first Mirai, and an elegant, sporty design that offers increased passenger room.

Toyota Yaris

New headlamps feature LED technology, including turn unitary turn signal/DRL units.

KOITO

By installing sensors (lidar, cameras, millimeter-wave radars) into headlamps and rear combination lamps in the four corners of the vehicle, next-generation lamps detect objects 360° around the vehicle at an early stage.
KOITO also provides pedestrian-to-vehicle communications by promptly informing drivers or pedestrians with necessary information by using “Lights.”



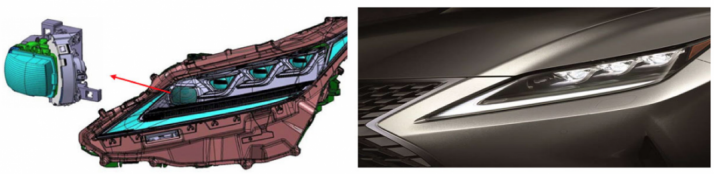
Signal Lamps for AV
AV marker to indicate that the vehicle is running in autonomous mode.

AV signal to indicate signs to inform that the vehicle to move or giving a road to pedestrians.

Road projecting lamps help pedestrian to vehicle communication with facial recognition linked inforamtion. For example,in the ride-fhailing service,the lamp recognises the road and displays reservation information on the vehicle body and on the road.

BladeScan ADB Headlamp System
By turning on/off 12 LEDs and controlling the rotation of the blade mirrors.
BladeScan ADB ensures high-resolution light distribution equivalent to the use of hundreds of LEDs while minimizes shading area.
BladeScan ADB helps driver to early detect pedestrians, this contrbutes to reduce traffic
accidents.

Light distribution performance : As BladeScan ADB enable to light vicinty of vehicles ahead.,they help driver detect pedestrians at an early stage.



Lexus RX

Koito’s road projecting headlamp support vehicles’ driving by projecting information on the road,which is linked to the vehicle’s navigation system. It is also expected to promotes pedestorians’ awareness.

By using DMD with more than one million micromirrors,road projecting headlamps control light precisely,and projects figures or letters on the road.

Ichikoh

Ichikoh exhibited a full-scale mock-up of “Communication Lighting”, a system that indicates the intention of the car by using lights instead of the driver's hands and face. It will be the lighting as HMI (Human Machine Interface), employed to exchange information between human and vehicles in the automated driving society. Using about 400 LEDs, Communication Lighting indicates the movement (intention) of the car to surrounding drivers and pedestrians by using light sign during automated driving instead of the driver’s eye contact and gestures.

Ichikoh also displayed about 10 types of scenarios such as “Thank you” for oncoming vehicles and “You can go across” for pedestrians and verify whether the intention of the vehicle is conveyed to visitors.

to owner

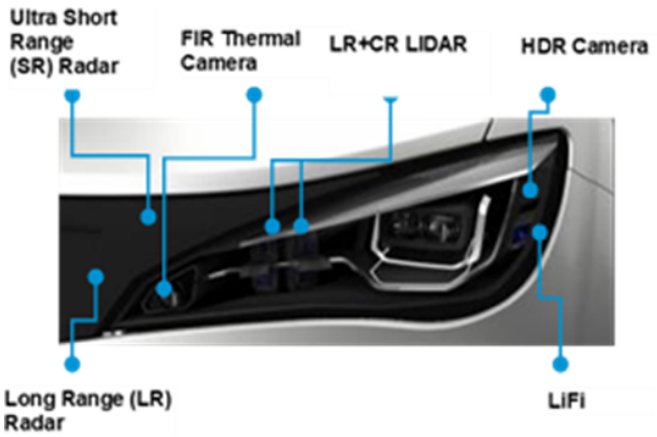
an alert of semi-hidden bike

ou signal

king signal

Marelli

The company's slogan, "Powering Progress Together", is emblematic of a focus on helping their customers confidently navigate and succeed in an unprecedentedly changing industry.
Marelli is introducing products and services in the areas for Autonomous Driving, Connected Systems, Electrification, and Green Technology.



Marelli presented the latest iteration of their Smart Corner™, wherein sensors for autonomous driving are integrated in the headlamp: light-detecting devices using infrared cameras, lidars, and short and long-distance radars) into headlight and rear light units, which are used to create maps of the surrounding environment to support autonomous driving.

Lighting News

Instrument Systems at Productronica: Wide range of measuring systems

Light measurement is a major topic in production; Efficient production throughput thanks to innovative light measurement technology,
Instrument Systems has assembled a wide range of measuring systems according to the motto: “Efficient production throughput thanks to innovative light measurement technology” at Productronica in Munich, 12-15 November 2019
These include applications for production lines and EOL control that can be used in various industries ranging from automotive and consumer electronics to lighting technology.

Instrument Systems are presenting the newest generations of our proven measuring systems with 2D imaging colorimeters, spectroradiometers and integrating spheres that were designed to meet the current specific needs of the automotive and display industries. Tailor-made solutions for precise laboratory measurements, fast quality controls and reproducible results will help to achieve an efficient production throughput.

Koito Lights for GaN EV

Koito say their lightweight, power-saving laser high-beam headlamps, LED low-beams, and other lamps will be used in the “GaN Vehicle,” the first electric concept vehicle developed by Nagoya University that emphasises Gallium Nitride devices. Nagoya University launched a project with the Ministry of the Environment in FY2018, "Technological Innovation to Create Society and Lifestyles for the Future" and succeeded in developing the in-vehicle traction inverters for GaN.

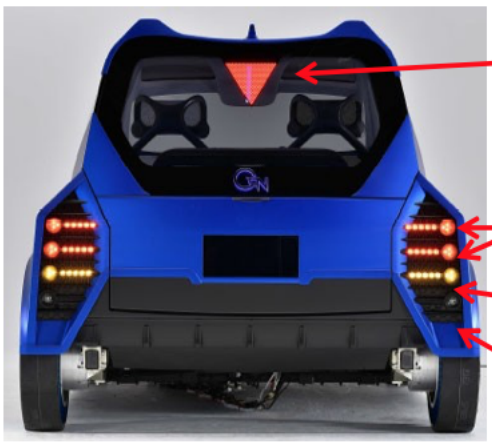
The application of GaN to next-generation environmental vehicles reduces carbon dioxide emissions and is expected to contribute to a low-carbon motorisation society in the future.

As GaN devices feature higher efficiency and output than conventional semiconductors, the GaN-based Koito lamps are smaller, lighter, and take less power than they otherwise would.

A total of 9 KOITO lamps have been used in the "GaN Vehicle," including 7 lamps with circle mark "O".

Front

- **Laser High-beam Headlamps**
  Compared to the LEDs, laser high-beam headlamp improves distant visibility while achieving super power-saving and compactness.
- **Side Turn Signal Lamps with Integrated Camera**
  Integrated linear light-emitting side turn signal lamps with camera for electric mirrors and achieved compactness.
- **Turn Signal**



High Mounted Stop Lamp (Red LED)
Ensured drivers' visibility by using transparent and bendable LED film.

Tail and Stop Lamps (Red LED)

- **Turn Signal Lamps** (Amber LED

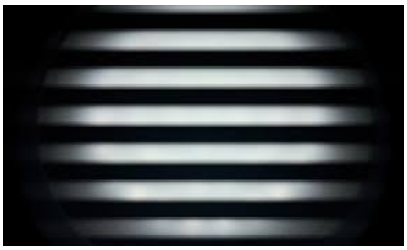
STMicroelectronics, Audi in Car Lights Pact

STMicroelectronics, in partnership with Audi, are working toward next generation innovative automotive exterior OLED lighting solutions.

The current coöperation expands the relationship and builds on Audi's creativity and success in automotive lighting solutions and ST's broad expertise in automotive semiconductors, and specifically controllers and drivers for automotive lighting applications.
The next-generation lighting design will enable more customised and animated lighting patterns, by controlling and diagnosing hundreds of individual OLEDs.
In addition to the flexibility to give unique design styling to Audi cars, the animated patterns will provide additional value in safety to customers.

In the recent ISAL demonstration presented by Audi, ST contributed a complete plug-and-play system to control and continuously adjust the brightness of the numerous individually-energised OLED pixels by means of an innovative high-speed automotive communication layer, specifically adapted by ST for lighting architecture and embedded in the actuator IC.

LED Flicker Suppression for Safer ADAS, AVs



SmartSens, a Chinese supplier of high-performance CMOS imaging systems, have released proprietary LED Flicker Suppression (LFS) technology they say can help make AI-enabled ADAS and AV much safer.

With the new technology innovatively implemented, SmartSens' CMOS image sensors can effectively mitigate the dangers that often accompany 'LED flicker'.

Since LED driver units often use PWM signals, LED lights actually flicker at frequencies imperceptible to the unaided human eye. For CMOS image sensors that have very fast shutter speeds, mismatch between exposure time and LED pulses could lead to sensors picking up inaccurate visual signals.

ADAS and AVs increasingly rely on CMOS image sensors. Accurate readings to correctly assess road conditions and position are prerequisite for AI systems to compute optimal next steps. This means automotive CMOS image sensors must adapt to modern traffic signal systems by being able to distinguish between the on and off states of LEDs. While various CMOS manufacturers have introduced their own solutions to this issue, SmartSens have opted for a more distinct approach, using their proprietary QCell technology to effectively mitigate LED flickering. Beyond simply solving the LED flicker issue, this solution has the added benefit of increasing a sensor's sensitivity and dynamic range, making it ideal for dim or fluctuating lighting situations such as the openings of carports and tunnels.

Koito Results

In the Japanese auto industry, the production volume increased year on year due to the robust sales of newly registered vehicles. The global automobile production volume decreased year on year due mainly to the decreased production volume in North America, Europe, China, ASEAN countries and India.

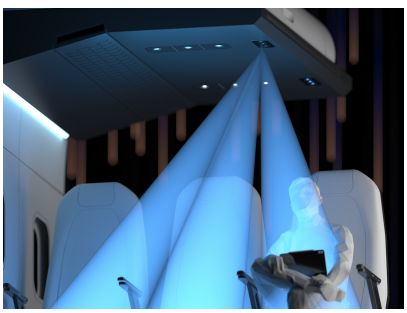
In this climate, the Koito Group's net sales for the first half increased 1.6% year on year to ¥399.0bn, led by an increase in new orders in the mainstay automotive lighting equipment segment.

• Sales in Japan increased 6.6% YoY to ¥187bn.
• Sales in North America decreased 3.3% to ¥92bn due to a decrease in automobile production volume and the effect of currency exchange.
• Sales in China decreased 3.4% to ¥46bn due to a significant decrease in automobile production volume.
• Sales in Asia decreased 2.8% to ¥51bn. This was mainly attributable to the decrease in automobile production volume and the completion of current round of new vehicle stage effects in Thailand and India.
• Sales in Europe decreased 5.9% to ¥18bn. This was mainly attributable to the decrease in automobile production volume and the completion of current round of new vehicle stage effects or the end of production of some ordered products in this region.

Although Koito implemented rationalisation in Japan and overseas, operating income decreased 10.3% year on year to ¥41.7bn, while recurring profit decreased 12.5% year on year to ¥42.7bn. This was attributable to increased R&D expenses and depreciation cost for capital investment to meet new orders.

For the fiscal year ending 31 March 2020, while new orders and the market transition to LED automobile lamps are expected to expand, net sales are expected to decrease due to the decrease in automobile production volume and the effect of currency exchange. Operating income, recurring profit, and profit attributable to owners of parent are all expected to decrease due mainly to the decrease in net sales, expansion of R&D expenses, and an increase in depreciation cost for capital investment to meet new orders.

Signify Team Up to Bring LiFi on Flights



Signify announced a new partnership for the industrial scale-up of its LiFi technology with aircraft manufacturer Latécoère. The two companies have signed a memorandum of understanding (MoU) on Signify's Trulifi technology. The partnership also include South Korea's aerospace and defense specialist Huneed Technologies, for data communication electronics and software.

LiFi enables a superior onboard connectivity experience in terms of bandwidth, latency and stability. Another advantage of LiFi is that it doesn't interfere with sensitive equipment and that the connection isn't affected by the airplane's movements. LiFi also results in less cabling, and together with an infrastructure upgrade to low-weight fibre solutions, will reduce the airplane's weight and fuel usage.

Signify launched their Trulifi systems earlier this year, and have installed around 100 projects worldwide. Trulifi combines energy-efficient LED lighting with a reliable, secure and high-speed two-way wireless connection, with speeds of up to 250 Mbps for both the downlink and the uplink.

Signify and Latécoère aim to transform the cabin experience for passengers by providing them the latest technology in connectivity. At first, Trulifi will be used for the connection of the media players in the headrests. In the next phase, LiFi will enable passengers to connect

their personal devices to the onboard media and Internet, but also interact with each other and have the same connectivity experience on board as on the ground.
Meanwhile, Huneed Technologies will join the partnership for the development and production of the passenger distribution unit and fibre optic router.

HUDs with LED/Laser Are Trending Up

Head-up displays can be improved through advanced LED technologies. A HUD system usually include a picture generating unit (PGU) consisting of an LED array, a thin film transistor production display, a lens system, and beam splitter. The units projects images and the images are reflected through folding mirrors and magnified on the windshield or a screen.

Currently there are three types of HUDs for the automotive market: combiner, windshield, and AR. Combiner HUDs have been largely supplanted by windshield HUDs, and the application of AR HUDs is expanding in high-end automobiles.

AR HUDs are better than windshield HUDs because of a longer virtual image distance (VID) which is around 7.5 to 15 metres, and a wider field of view (FoV) that enable drivers to focus on the frond road without the need to change vision and attention to the windshield. Power LEDs or laser lights are critical for HUDs as they need to deliver light that is bright enough for drivers clearly see the projected images and information. Suppliers of the light source components of HUD include Osram Opto, Nichia, and Epistar.

Pedestrian Detector Performance Varies—A Lot!

Pedestrian deaths on U.S. roads have been trending the wrong direction, climbing over the last few years, even as overall traffic safety improves. Over 6,000 pedestrians were killed by traffic violence in 2018—the worst count since 1990.

Pedestrian detection systems with automatic emergency braking are meant to stop the vehicle if it detects a pedestrian in its path. A new study by the U.S. Insurance Institute for Highway Safety (IIHS) found a wide range of efficacy among systems on the market. They tested 19 current/latest-year versions. 13 avoided pedestrians entirely, or at least managed to reduce speeds significantly—leaving six that didn't.

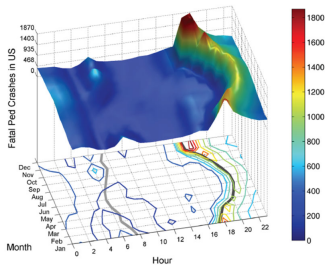
The best-performing cars included the Audi A4, BMW 3 Series and a particular version of the Mercedes C Class, Ithe Nissan Maxima and the Volvo S60. But the systems in the Chevrolet Malibu, Ford Fusion, Hyundai Sonata, and Kia Optimadid not reduce speeds in some or all tests.

The IIHS testing scenarios included an adult crossing the road, a child darting out from behind an obstacle, and an adult walking near the edge of the road—situations that account for more than half of all pedestrian deaths. All tests were conducted during the day and on dry roads, as those are the only scenarios for which automakers currently commit their technology, according to IIHS President David Harkey.

As we reported not long ago, tests by AAA recently found many systems fail badly when tested at night—which is when 75% of pedestrian fatalities occur.

IIHS's Harkey called on automakers to also develop better headlights to allow systems to spot pedestrians at night, though only by a circuitous route could automakers be blamed for the American Government's slow, seemingly thoughtless, halting progress toward approving ADB.

Annual Pedestrian Hunt Begins



US Fatal Crashes: Pedestrian

By Daniel Stern – DVN Chief Editor

Most of North America turned the clock back an hour this past weekend—an annual ritual which, despite many baseless folk explanations, actually serves to cull the pedestrian herd so it doesn't grow too large.

But In all seriousness, pedestrian deaths spike high every Autumn in direct coincidence with setting back the clocks to "standard" time, and the higher death rate remains until the clocks are set forward in Spring to "daylight saving" time. The effect has been robustly demonstrated and quantified in numerous studies done round the world, such as this one in Australia. Contrary to popular misunderstanding, the increase is not briefly temporary and it's not primarily because people take awhile to get used to the change, it's primarily because during the winter (clocks back) time regime there are more pedestrians and more cars on the roads together in darkness. That is: no matter what the clock says, there are more drivers and more pedestrians in the afternoon-evening than in the morning, so when more of the afternoon-evening is dark, more pedestrians get killed.

A 2001 UMTRI study (fig. 1 & table 4 especially) goes into great depth on the causal relationship between setting the clocks back and killing more pedestrians. UMTRI's Michael Flannagan says, "There is a lot more pedestrian activity in the evening than in the morning, so shifting all activity earlier relative to the sun [as the summer/clocks-forward regime does] is a net benefit." Which suggests keeping

“summer” time year round would be a good idea, and moving the clocks forward from there in winter to counteract the inherently earlier nightfall might be better still.

At great long last, there's coördinated effort toward an end to the inertial madness. Most of the Pacific Time Zone (Canadian Province of British Columbia + US states of Washington, Oregon, and California) is seriously considering shifting to year-round Daylight Saving Time —that is, they'd stop setting the clocks back every Autumn. Unfortunately, US states can't quit goofing around with the clocks unless they get permission from the Federal Government, which is presently undergoing turbulence and finding itself in a fair amount of disarray, so permission to leave the clocks alone will probably be keeping company with that NCAP lighting upgrade in limbo for the foreseeable future.

So, how about a multi-purpose outreach effort educating the public on the elevated risk and effective countermeasures, such as all kinds of better (and better-maintained) car lights? From headlight aim and bulb selection to lighting options on new cars to enforcement against improper lighting modifications and noncompliant aftermarket gadgets, there’s something almost everyone can do or talk and educate about, to countervail the winter-time danger. The idea isn’t new; Talmu (later Coreflect), a Finnish maker of car lights and reflectors, have been making “personal safety reflectors” for pedestrians since the 1950s. They’re required by law for pedestrians at night in Finland and some other countries, and are a common anchor point for annual safety educational and promotional campaigns, for example this one by the Finnish Embassy of Australia. This year Nissan in Canada handed out "Glow Guards"—self-adhesive personal retroreflectors meant for use on Halloween costumes while out after dark trick-or-treating. That's a fine start, and there's so very much more to do. Everyone must step up—who's first?

Driver Assistance News

Volkswagen Golf 8's New Lights Look Familiar

The eighth-generation Volkswagen Golf has narrow headlamps that manage to simultaneously tie the car to past Golfs while presenting as new and up-to-date. All versions of the car have LED lights.

Consumers Still Skittish on AVs: Survey

Consumers don't trust AVs yet, despite increased marketing and development of self-driving vehicles. That's according to J.D. Power, whose recent survey indicates the 100-point "Mobility Confidence Index" is 36 for AVs, and 55 for EVs.

“It was a little surprising to find consumer sentiment about self-driving vehicles and electrification has stayed flat, but it shows that consumers are really steadfast in their opinions about new mobility technologies right now, regardless of how close they are to being available for purchase,” said Kristin Kolodge, executive director of driver interaction and human machine interface research at J.D. Power. “This isn’t necessarily bad news for automakers; rather, it shows the areas where consumers need to be better-educated and gives manufacturers the chance to correct their course on the path to eventual production.”

A report issued by AAA earlier this year found that 71% of people were afraid to ride in a self-driving vehicle.

“Charging, cost and range are unavoidable challenges for battery-electric vehicles when compared with traditional vehicles,” Kolodge added. “Automakers should focus as much on developing some overriding advantages instead of just working on minimizing the disadvantages. Consumers don’t know what to ask for but there are all sorts of possibilities. The first automakers to solve this will have a huge advantage.”

General News

Merged FCA–PSA Will Be World's № 4 Automaker

Peugeot's Supervisory Board and Fiat Chrysler's Board of Directors have each unanimously agreed to work towards a full combination of their respective businesses in a 50/50 merger. Both boards have given the mandate to their respective teams to finalise the discussions to reach a binding Memorandum of Understanding in the coming weeks.

Discussions have opened a path to the creation of a new group with global scale and resources owned 50% by Groupe PSA shareholders and 50% by FCA shareholders. In a rapidly changing environment, with new challenges in CASE mobility, the combined entity would leverage its strong global R&D footprint and ecosystem to foster innovation and meet these challenges with speed and capital efficiency.

- The combination would create the 4th largest global OEM in terms of annual unit sales (8.7m vehicles)
- At its inception, the combined company would realize among the highest margins in the markets where it would operate, based on FCA's strength in North America and Latin America and Groupe PSA's in Europe
- The combination would unite the groups' respective brand strengths across Luxury, Premium, Mainstream Passenger Car, SUV and Trucks & Light Commercial – making them stronger together
- The merged entity would bring together the companies' extensive and growing capabilities in the technologies shaping the new era of sustainable mobility, including electrified powertrain, autonomous driving and digital connectivity
- Dutch parent company Board would have balanced representation and a majority of independent Directors. John Elkann as Chairman and Carlos Tavares as CEO and member of the Board

Honda, Hitachi Form New Global Mega Supplier

Honda have agreed to merge three affiliated suppliers with Hitachi Automotive Systems to create a new global mega-supplier and better leverage R&D resources for developing next-generation technologies.

The agreement combines Honda affiliates Keihin, Showa, and Nissin Kogyo with Hitachi Automotive Systems into a new company that will manufacture everything from electrified vehicles, electronic control units, and chassis parts to electrical systems, engine components, shock absorbers, brakes, and steering systems.
The new company, which will tentatively be called Hitachi Automotive Systems (HAS) will have combined annual revenue of $20bn and a workforce of 75,000 people, Hitachi Automotive CEO Brice Koch said while announcing the deal at an evening news conference. "The automotive market is seeing a major transformation," Koch said, citing new pressures to develop electrified drivetrains, autonomous driving systems and safety technologies. These requirements from the market require strong stronger technologies, require a more global footprint and require much more talent to come together".

Japanese media said the new entity will leapfrog rival suppliers to be Japan's third-largest automotive supplier behind Toyota Group's most favoured Denso and Aisin Seiki. HAS will have a customer list spanning Nissan, Ford, General Motors, Toyota, Honda, Suzuki, Subaru, Mitsubishi and Mazda.

By combining, the companies aim to secure № 1 or -2 market share positions in certain segments. Koch said the new company will be a global № 1 in electrification and in the top two for chassis control, and will also have a top position in safety systems with sensors and control units.

Under the agreement, Honda will first take full control of the three suppliers and merge them into one company, then integrate them with Hitachi Automotive into the new company. Hitachi will own 67% of the new company, while Honda holds 33%.

GM Strike to Cost Nearly $3bn

General Motors say their third-quarter net income fell 8.7% from a year earlier to $2.3bn, including a billion-dollar hit from the first two weeks of the UAW's strike. GM say they expect the 40-day strike, which ended shortly ago after workers ratified a new four-year contract, to reduce 2019 earnings by about $3bn.

In their new contract with the UAW, GM committed to paying higher labour costs through wage increases, lump-sum payments, and other bonuses. The automaker also pledged to invest $7.7bn in U.S. plants and $1.3bn in joint ventures outside of the national agreement.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