intertraffic world

2018SHOWCASE

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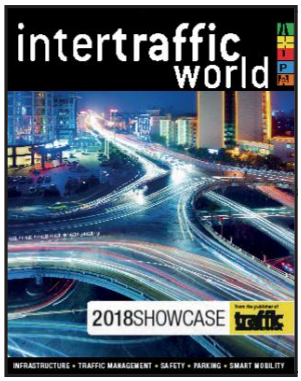

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Welcome

In November 2017 Intertraffic returns for its second show in Mexico City, in March 2018 for its biennial event in Amsterdam, and in May it will be back in Beijing. This magazine will help you track down some of the highlights at those events, as well as bringing you insight from experts from across the industry and predictions for the future of mobility.

One of the much cited benefits of the coming autonomous vehicle revolution is predicted to be the extra free time it will create for all of us as we ride to our destinations. While the vehicle itself worries about where we are heading – and not crashing – we will be able to work, play and relax in our cars – or so the thinking goes. But how realistic is this dream?

I've been putting it to the test in recent weeks as I carshare with a co-worker on our one-hour commute. Each morning and evening every other week, while Vladimir is driving, I can get my laptop out, balance it on my knees, and use the time to get some magazine work done. In fact I'm writing this as we – oops, hang on – take a corner rather sharply. Never before have I felt so connected with roads while writing!

So after a fair few weeks doing this, what's the verdict? Well… I'm still being productive, so working in a car is certainly not impossible. However, I'm being spurred on far more by urgent deadlines than by it being in any way an enjoyable experience. Potholes, speed bumps, tight corners, steep hills, overtaking maneuvers, roundabouts and adverse weather all intrude into my 'mobile office'. Far too often I have to grab the laptop to stop it sliding into the footwell. And ultimately, particularly when riding in the dark, mild motion sickness becomes the biggest limiting factor in maintaining meaningful levels of concentration. It's a far cry from the smooth, calm experience I've had when working on a train. So yes, though working in a car is possible, is it desirable? Is it pleasant enough for our future selves to view as a real advantage of autonomous vehicles? Possibly not.

> "Though working in a car is possible, is it desirable? Is it pleasant enough for our future selves to view as a real advantage of autonomous vehicles? Possibly not"

I've realized that the reason you don't often see passengers in vehicles tapping away on their laptops is because it's not that pleasant. On the other hand, on the weeks when I am driving I do lament the 'lost' hours. And one would hope that with advances in the interior design of vehicles, and given the potentially much smoother driving style of autonomous systems over human drivers, that some of the unpleasantness I currently experience will become a thing of the past. Perhaps the desire to work in autonomous vehicles will also put pressure on road builders to increase the quality of infrastructure, so roads will become smoother, straighter and wider. That's something that is currently happening in Mexico, as you can find out on page 42. Projects like this are certain to be discussed as Intertraffic returns to Mexico City on November 15.

But even given this best case scenario for our future 'mobile workstations', could the ultimate result be that, rather than leaving the office earlier each day, workers will simply be expected to get more done, due to the extra hours they have available? Indeed, history has shown that whenever technology has created more time, we are particularly good at filling it, not with more relaxation or fun, but with more stuff that simply *must* be done, thereby increasing, rather than reducing, stress.

The unforeseen consequences of autonomous vehicles are a key topic covered by transportation consultant Luis Willumsen in his excellent paper *Taming Automated Vehicles*, which you can read on page 254. The preparations that road authorities must make for the coming revolution are laid out by Louis Hendriks in his innovative ITS Timeline, which is guiding transportation planners in the Netherlands and beyond – see page 12. Elsewhere in this year's *Intertraffic World* you'll find more highlights to watch out for at Intertraffic Amsterdam 2018 and other events around the globe. The world of mobility is changing, and Intertraffic will help us all to predict, prepare for and adapt to those changes.

Tom Stone
Editor

From the publisher of

The personal touch

Intertraffic's **Richard Butter** reveals the show highlights to watch for in Amsterdam (and around the world) over the next 12 months. Look out for him if you're at an Intertraffic event – he's always happy to chat with old friends, and make new ones

Intertraffic Amsterdam is back! How will 2018 be different from 2016?
After the success of 2016, our 2018 edition will be much bigger. We expect it to grow by around 20%. It will be the best way to get a fully comprehensive overview of the traffic technology and related automotive industry, all under one roof. We are expecting close to 800 exhibitors in Amsterdam.

We will also launch a new startup event for smart mobility: ITSUP! will give startups the opportunity to pitch innovative solutions and connect with suitable partners. Because the event has partly been made possible by sponsors, startups pay a participation fee of only €495 (US$580).

Hall 8, meanwhile, will be totally dedicated to the growing topic of smart mobility, reflecting the transformations happening in traffic technology and automotive industry, whereby cooperation and connections are key. The latest products and services, mobility projects, trends and innovations related to smart, safe and sustainable mobility will be on display. The hall will feature numerous stands, two theaters and an indoor demonstration area.

What are you, personally, most looking forward to in Amsterdam?
Firstly, meeting old friends again on the show floor. We do meet a lot of participants in between the Amsterdam shows, at our events in Mexico, Istanbul and China, but to see them all again in Amsterdam is always a pleasure. And, of course, I'm looking forward to the launch of the startup event, ITSUP. We have worked hard to bring it alive and are confident it will bring startups, traditional participants and visitors another level of innovation and may lead to new types of cooperation.

What makes Amsterdam the ideal location for the event?
For me, Amsterdam is still one of the most beautiful cities in the world. RAI Amsterdam is easy to access via the highways and it takes only a few minutes to get to and from Schiphol Airport. Furthermore, the Dutch government is looking at new technologies

to solve challenges in the area of transport, the environment and safety. The Netherlands wants to take the lead in new initiatives like the Internet of Things and connectivity, and the country is a unique testing ground for smart mobility solutions. That's why the government is supporting development in many ways, from providing testing facilities to adjusting rules and regulations.

It's all part of what makes Intertraffic Amsterdam the largest, most prominent traffic technology innovation platform in the world.

How is the industry changing?
The industry is evolving rapidly. Several disruptive technologies are entering our traffic technology industry. Connectivity, electrification, Mobility-as-a-Service and autonomous driving are the significant ones, in my opinion. The latter is stimulating unexpected collaborations between telecommunications, IT and auto manufacturers. They are all fighting for the next big thing.

What will be the biggest challenges for the industry over the next two years?
The European Commission is really stimulating the development of autonomous driving, which should lower the number of casualties and lead to less congestion. So the car of the future will literally be the 'driver' of the industry. OEMs, Tier 1 suppliers, ICT, telcos and big data will all come together in the car. Interesting times, because these developments offer us all big opportunities.

Intertraffic Mexico is now in its second year. In what ways has the event grown?
In 2016 the inaugural Intertraffic Mexico show was a landmark event in a new dawn for Mexican transportation, becoming a runaway success, and attracting more exhibitors and visitors than even the most optimistic predictions. No surprises, then, that the event is back again this year, bigger and better than before.

What should attendees particularly look out for at Intertraffic Mexico 2017?
Alongside the exhibition hall, there will be keynote addresses in the venue's auditorium from some inspiring and visionary speakers. One speaker whom we are particularly looking forward to is Diana Zhou, market strategy manager for Hyperloop One – the only company in the world to have built a full-system prototype for Hyperloop, the futuristic airline-speed train concept.

What other Intertraffic events should we be adding to our diaries?
Besides Intertraffic Amsterdam, we're really looking forward to our inaugural show in Indonesia from October 31 – November 2, 2018. It's a new show organized with trade show experts at Tarsus and will be co-located with the existing Indonesia Infrastructure Week. It is a great opportunity because of the huge infrastructure agenda. The Indonesian government plans to spend more than US$400bn on infrastructure before 2021. Also planned for 2018 are Intertraffic China (May 28-30) and the third edition of Intertraffic Mexico (November 13-15). ■

Richard Butter is director of traffic technology at RAI Amsterdam and is responsible for Intertraffic worldwide events, www.intertraffic.com

Leading Europe into the future

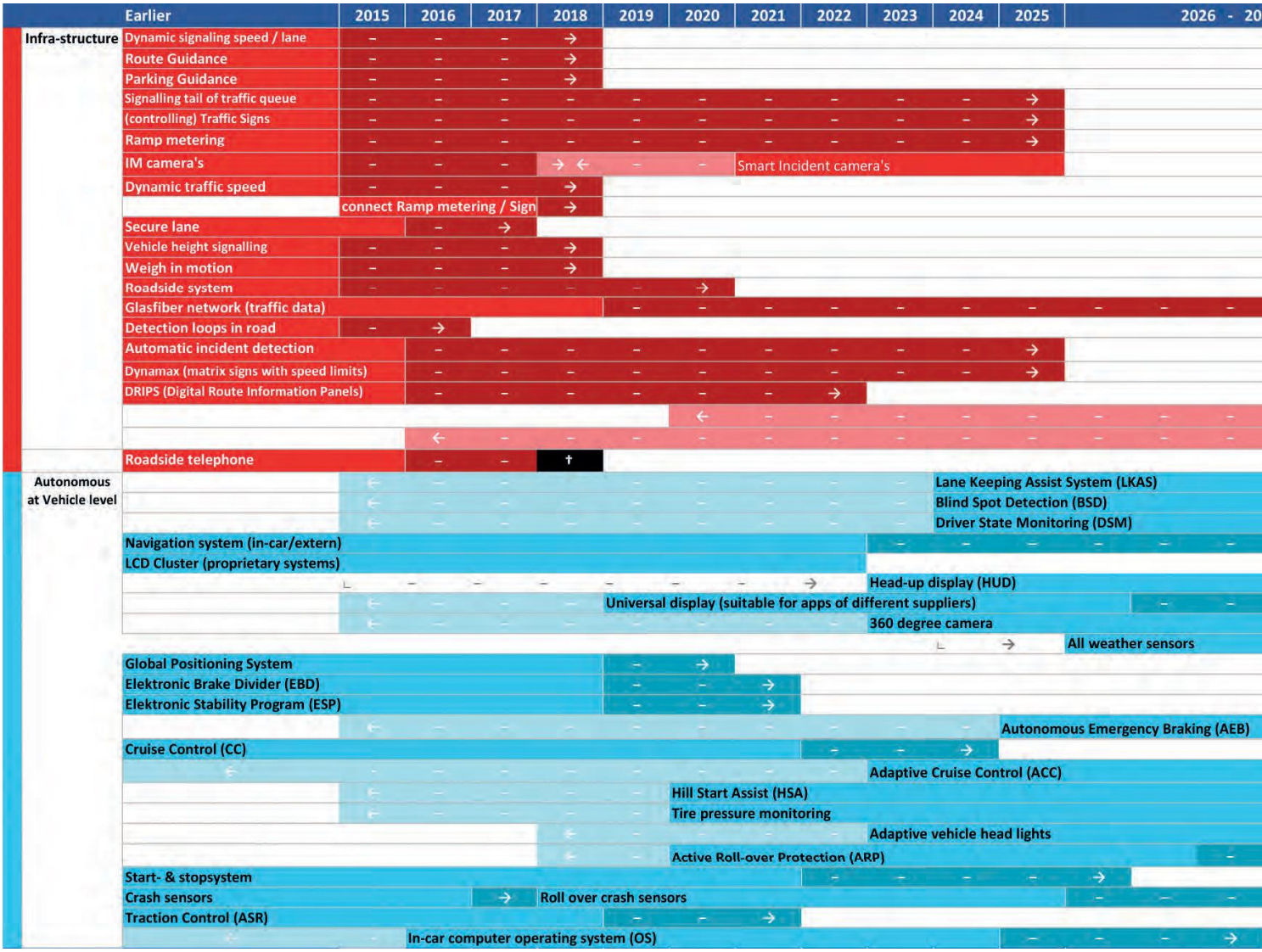
The Netherlands' national road operator, Rijkswaterstaat, has created an innovative and dynamic ITS timeline, which is helping transportation professionals across the continent deploy and prepare for the bewildering array of new traffic technology that is now being produced and planned

Words | **James Gordon**

The ancient Greek philosopher, Plato, may have coined the famous phrase, 'Necessity is the mother of invention', but perhaps it is the Netherlands, with its low-lying geography and densely packed towns and cities, that has inspired the groundbreaking ideas and extraordinary feats of innovation that have done most to advance his concept in the modern day.

But if Dutch engineers have found a way to tame the powerful North Sea storm surges that threaten its flat geography, Rijkswaterstaat (RWS), the national road network operator in the Netherlands, is battling to prevent an equally potent man-made tempest, largely comprised of technological uncertainty and lack of visibility, from making landfall. These disruptive winds that batter and bombard the Netherlands and the rest of the world are being driven by the unrelenting pace of innovation and the ceaseless march of automation. The eventual result? Positive change in the form of a smart mobility revolution, dominated by intelligent self-driving cars, roadside infrastructure and linked together by real-time data. However, what is far from clear is when this integrated transportation system, with smart

Rijkswaterstaat's Leading Innovation Timeline

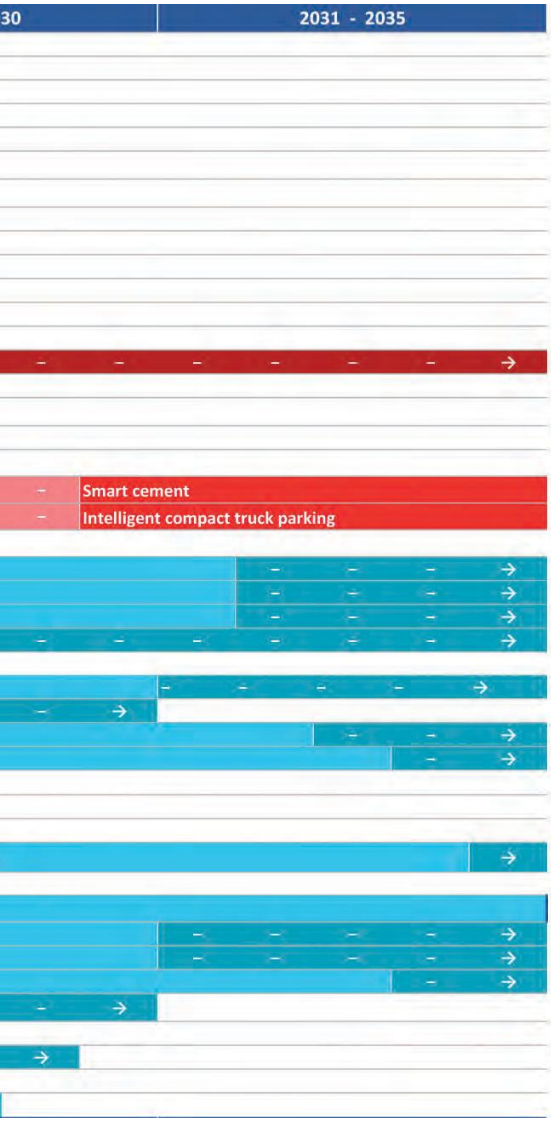


infrastructure and intelligent vehicles at its very heart, will emerge.

It is a conundrum that Louis Hendriks has been grappling with for three years, and one that inspired him to create the first Leading Innovation Timeline (LIT) in 2015. Since then, RWS has created a new version of this remarkable visual tool every year, each aiming to chart the major breakthrough technologies like intelligent transport systems (ITS) that are likely to have the most seismic impact on traffic management between now and 2035.

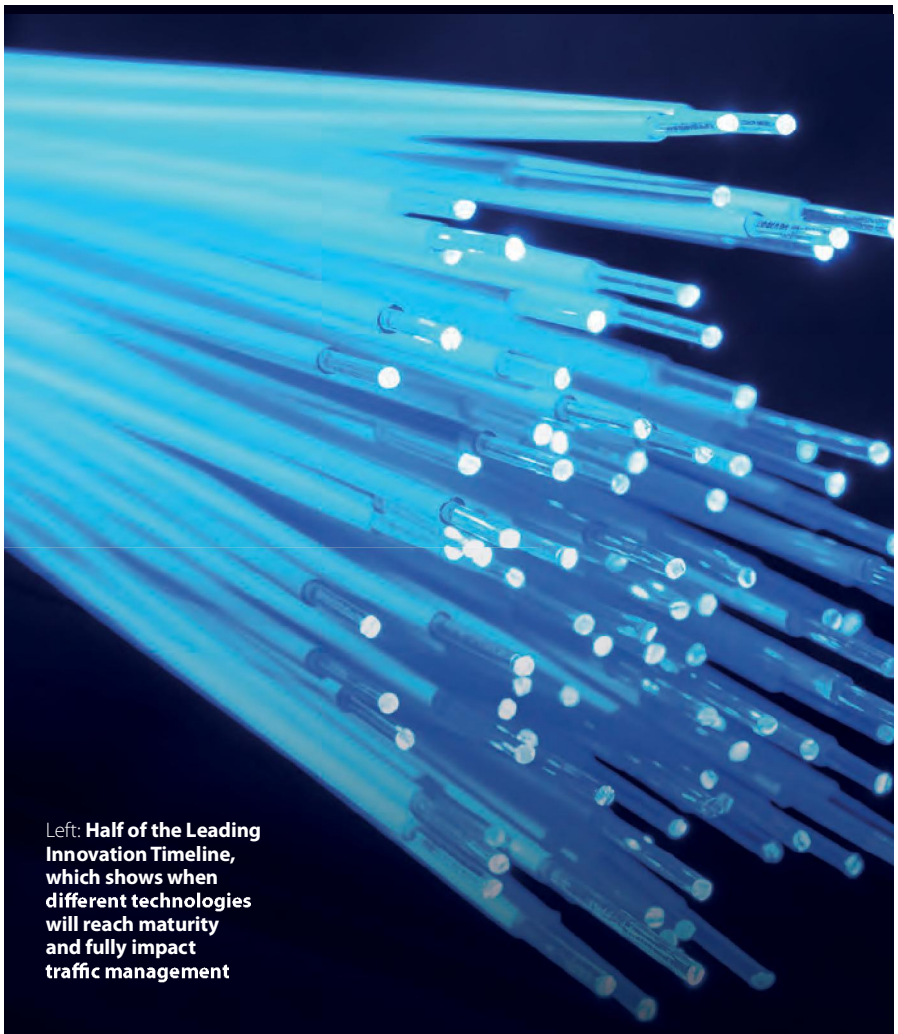
Explains Hendriks, who is RWS's international traffic advisor and also chairs its ITS team, "The concept of embedding an integrated transport system on Dutch roads is very different to the real-world implementation. Just because a technology is commercially available, for example, it doesn't mean that it will bring about immediate and radical transformation. Change doesn't happen overnight. And this paradigm shift won't occur all at once. It will be a slow and iterative process. But, most importantly, no one really knows what exactly will alter, when it will occur, and how exactly it will affect the world of traffic management. How,

> "The concept of embedding an integrated transport system on Dutch roads is very different to the real-world implementation of these technologies"
>
> Louis Hendriks, international traffic advisor, Rijkswaterstaat, Netherlands



therefore, are traffic managers and road operators expected to anticipate these changes and plan for the future? The LIT is an attempt to tackle that unpredictability head-on and to provide a clear, concise and powerful real-world road map for the future."

The 2017 timeline, which contains key data and expert input both domestically and from road operators who participate in European ITS Platform (www.its-platform.eu), focuses on 10 of the most significant Information Communication Technologies (ICT), citing not just the date they will become available commercially, but also listing the tipping point when their effect



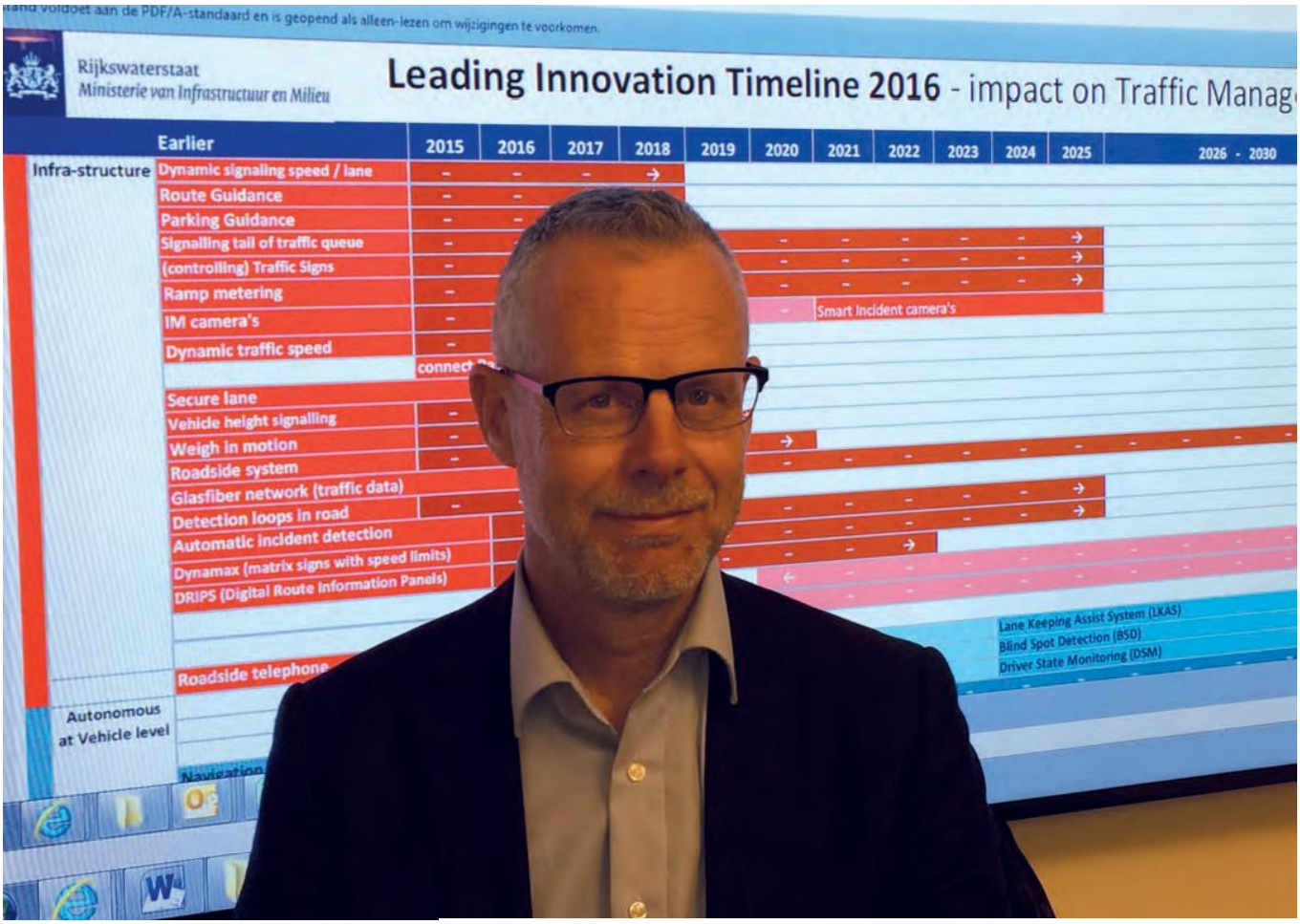
Left: **Half of the Leading Innovation Timeline, which shows when different technologies will reach maturity and fully impact traffic management**

Waiting for the fiber future

They fill so many newspaper column inches that you could be forgiven for thinking that self-driving cars already dominate our roads. They don't, and full vehicle automation safe enough to be deployed on public roads is still many years away. Louis Hendriks, who has worked for the Dutch road authority RWS for over two decades, explains the building blocks that have to be laid down first before the dream of autonomous vehicles becomes a reality. So what will the basic infrastructure look like?

"The cars of tomorrow will communicate with each other and the roadside infrastructure in real time using wi-fi and 5G wireless networks," says Hendriks. "But this golden age of 'floating data' is dependent on hundreds of thousands of meters of glass fiber cable embedded with sensor technology being laid along major transport arteries. Without it, the connected driving revolution cannot happen.

"Currently, all five of the Netherlands traffic management centers are linked with fiber-optic cable, but installing it along side roads and motorways, where it will have the greatest effect, requires precise and intricate engineering as each of the sensors have to be amalgamated into the cable, which is both time-consuming and costly."



will be truly felt right across the field of traffic management.

The myriad challenges featured in this insightful and organic blueprint include the different levels for automated driving systems, V2I landscapes, V2V technology, and big data. It tries to predict the burden each is likely to place on the shoulders of Europe's national road operators.

But how exactly did Hendriks and his team formulate the 'impact and disrupt' dates for each intelligent transport system?

Says Hendriks, ''We sought the opinion of over 100 experienced practitioners both in Holland and abroad, gathering arcane data and forecasts from experts belonging to the Dutch National Traffic Centre, the European ITS Platform, and also consulted members of the ITS corridor projects such as Arc Atlantique and Next-ITS.

''Having reached a consensus that 25% of road users would need to adopt a technology before it can affect real change, we were able to highlight the year that a new technology delivered a penetrative impact on traffic management, traffic flow, safety, and the environment. Not only this, the timeline also enables us to forecast future progress, and most importantly, map out the significant S-Curves, in that it provides road operators with an unprecedented insight and visibility on the events and the technologies that not only advance, but can also stymie the progress of innovation on the timeline.''

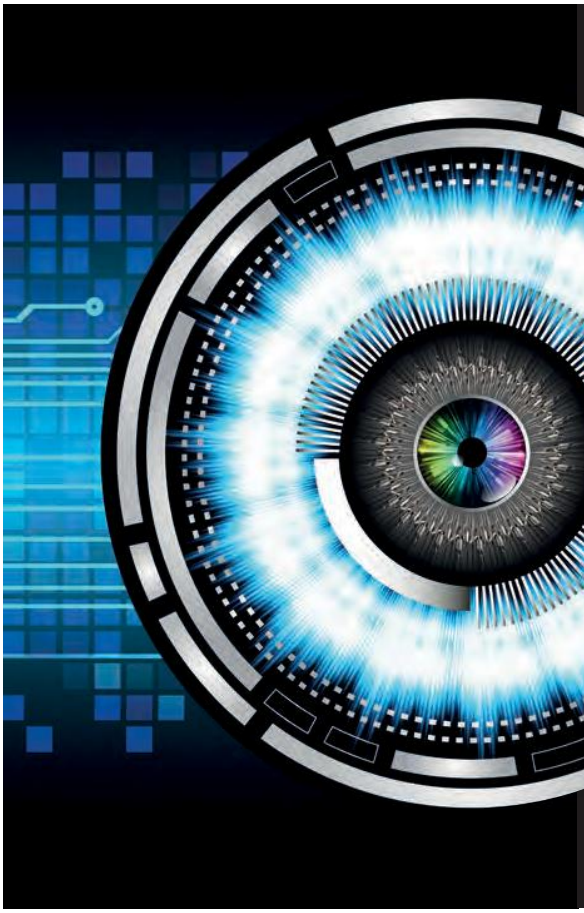
> "In the future, academia and trail-blazing innovation hubs, such as the Dutch Smart Mobility Embassy, can advance the timeline by conducting and facilitating real-world research trials"
>
> Louis Hendriks, international traffic advisor, Rijkswaterstaat, Netherlands

Future focused

While providing heightened clarity and an enhanced range of vision for traffic managers and road operators, a better understanding of the future is the project's main objective. Hendriks also thinks that the Innovation Timeline could play a crucial role as a collaborative and unifying force for change within the industry.

Hendriks says, ''We work closely with the public, private and knowledge sectors – all of whom provide unique and esoteric skills. In the future, academia and trail-blazing innovation hubs, such as the Dutch Smart Mobility Embassy, can advance the timeline by conducting and facilitating real-world research trials and participating in pilot projects that deliver game-changing quantum leaps.

''Secondly, in the Netherlands, the Ministry of Infrastructure and the Environment is a key stakeholder in this



Intelligent cameras

They may not be any different to look at from normal roadside infrastructure, but Holland's traffic enforcement cameras are about to get a significant technology upgrade.

With the technology of tomorrow set to harness the power of the Internet of Things, artificial intelligence and machine learning, many of the cameras in the Netherlands, which are largely used for incident management purposes and to police peak-hour lanes, are now set to become 'intelligent cameras'.

In the Netherlands, thanks to the LIT, which has been further reinforced by RWS's multi-stakeholder approach, the software requirements for these next-generation cameras have already been factored into the overarching plan.

"Important research and development work has already begun on how best to incorporate cutting-edge software needed to create a network of smart cameras," says RWS's Louis Hendriks. "And thanks to the LIT's enterprising philosophy, we believe that by 2021, smart cameras will be capable of filtering through vast reams of data much more quickly than a human is able to, and will alert traffic management centers to incidents in real time – not after they have happened, but as they are unfolding. Not only will these intelligent cameras save lives and cut congestion, but in the long run they may also deliver sizeable cost savings to local and central government."

project. The Ministry is eager to promote the use of next-generation technology in cooperation with EU member states, the European Commission and vehicle OEMs.

But why is forging an alliance between international governments so fundamental to the success of the timeline?

Hendriks replies, "Because many of the technologies being developed now and in the future go far beyond the limits and scope of a national road operator. Take the self-driving vehicle revolution, for example. It will require a new legal framework to be enshrined in law, and a set of standards and regulations to match.

"But most of all, it will change the way we think about cars. The traditional car ownership template may be replaced by a leasing model. As a road operator, while we can offer the weight of our knowledge and experience, we rely on law makers to take the lead on important policy issues regarding the future of transportation."

However, in the interim period before fully autonomous SAE Level 5 vehicles hold sway – currently predicted for around 2040 – how can this prescient document be used to help road operators negotiate the complex traffic environments where both SAE 1 and 2 level cars, and human driven vehicles are part of the landscape?

"With Dutch drivers owning eight million vehicles and with 400,000 new cars sold each year, each with an estimated lifespan of 10.2 years, it will take two decades before the effects of partial automation technologies begin to show," says Hendriks. "Therefore, mixed fleets is a reality that road operators globally will have to plan for throughout the next 20 to 30 years.

"While there is a real risk, that if not managed properly, mixed traffic could negatively impact both congestion and road safety, conversely, mixed fleets can also affect positive change, in that vehicles are able to communicate in real time with motorists driving non-equipped cars, which may help prevent accidents." ■

> "As a road operator, while we can offer the weight of our knowledge and experience, we rely on law makers to take the lead on important policy issues regarding the future of transportation"
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> Louis Hendriks, international traffic advisor, Rijkswaterstaat, Netherlands