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The Dispatcher

In this issue:

The World and Transport in 2030 1-3
Will it really be all electric robot cars delivering mobility as a service?

Dispatch Central 1-4
Volvo Cars Electrifying
NEVS and Microsoft
NHTSA update on Automated Vehicles Policy

SENSORIS 4
Making sense of sensor data

Zenuity 5
A Swedish OEM and Tier One team up

Are BEV Owners Getting a Free Ride 5
Why subsidize $100,000 car owners?

Musings 6
Robotic buses and trams don't go out on strike

There are 30 miles (50 kms) that separate San Francisco from Menlo Park, Palo Alto and Stanford in the heart of Silicon Valley. It's another 8 miles to Mountain View (Google's headquarters) and 15 miles to Cupertino (Apple's headquarters).

Telematics Industry Insights by Michael L. Sena

What the World and Transport May Be Like in 2030

UNCERTAINTY IS TROUBLING for businesses, individuals and governments. If we decide today to build a new plant to assemble cars, and know it will not be operational for two years, we would like to be reasonably certain that people will still be buying the cars it produces when it comes on line, and still ten years later, and preferably at least through the plant's fifteen year amortization period. Yes, anything can happen to change the course of our lives, our businesses and the world in general. To wit, look at what happened in the U.S. last November. No one knows what the fallout of that event will be, including—and especially—those in charge.

Nevertheless, discounting catastrophic or cataclysmic events (like all the earth's volcanos erupting simultaneously), the trajectory of the arrow of history provides a relatively good indication of where we are headed. 2030 may seem like it is a long time in the future and much can happen before we get there, but in the total scheme of things, thirteen years is a virtual drop in the ocean. It is the macro events, the 'Big Stuff', we need to consider. As Richard Carlson suggests with the title of his 1996 book, Don't Sweat the Small Stuff. In one way or another, all businesses, including and especially transport, are completely reliant on four macro factors:

- Where and how we live
- What work we do and where we will do it
- How and where we will purchase our physical goods?
- How we and our goods will get from where we are to where we want to be

In the last issue I wrote about how and where we will purchase our physical goods. In this issue I would like to address the first factor, where and how we will live. A United Nations study projects world population to reach 8.5 billion by 2030, up from 7.5 billion today, driven by growth in developing countries. As you may recall from the previous issue of ***The Dispatcher***, I wrote in the article on the *Paris Agreement* that 'developing' in UN terms is almost every country outside of the U.S., Canada, Australia, Japan and most of Europe. India will have traded places with China as the world's most populous country in around seven years. Nigeria will be on its way to pass the United States as the third most highly populated country. India, China and Nigeria are considered 'developing' countries. So the large bulk of those additional one billion inhabitants of the planet by 2030 will be looking for places to live in Mumbai, not in Madrid. The takeaway from this is that the so-called 'developed' countries, with a few notable exceptions, are either losing population due to not producing enough children or seeing their populations staying basically stable.

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Dispatch Central

Volvo Cars Going Electric

"We are convinced that the future of Volvo is electric…From model year 2019, all Volvo Cars will have an electric motor. This announcement marks the end of the solely internal combustion engine-powered cars."

Håkan Samuelsson, CEO Volvo Cars (5 July 2017)

This means that there will in the future be no Volvo cars without an electric motor, as pure ICE cars are gradually phased out and replaced by either ICE cars that are enhanced with electrified options (hybrids and plug-in hybrids) or pure battery electric vehicles. This is a bold move, but the shift will not happen overnight. Volvo has an almost completely new lineup of cars with petrol and diesel motor options, and these cars will continue to be produced. It will be at least another ten-to-twelve years before there are no ICE-only cars in Volvo's fleet.

I watched a few videos on this hot topic. One was Fox Business. *The announcer commented on Volvo's stock moving higher as a result of the electrifying news. The only problem is that Volvo Cars is not listed on any stock exchange. It was Volvo AB (VLVLY:OTC US Stock Quote) stock that was shown. The world—not just* Fox News*—still does not get it. Volvo Cars is NOT part of the AB Volvo Group. They sold Volvo Cars to Ford Motor Company in 1999 who sold it to Geely in 2010.*

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Dispatch Central (continued)

However, if you have been paying attention to news coming out of Volvo Cars of late you know there has been talk of listing the company on one or more stock exchanges. An announcement like the one made on the 5th of July, paired with the establishment of Polestar, a new Volvo brand for electric vehicles—and the Zenuity JV (see page 5)—can't hurt Volvo's prospects for a successful stock introduction.

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"The underlying shift in the car industry is real: the way in which cars are made and are used is changing. But it is surrounded by a swirl of **hyperbole**. Detroit's firms face a classic incumbent's dilemma. They must show they can dance with the cool kids, while not losing either their wallets or their dignity."

***The Economist**-Schumpeter*
July 8th 2017

*The Economist is not on **The Dispatcher's** mailing list, but someone must be feeding Schumpeter issues. He could have at least referenced the July 2017 edition in which hyperbole was the main point.*

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***NEVS** and **Microsoft** announced a partnership at* CES Asia *in Shanghai held in June. Microsoft's cloud platform will be the foundation for NEVS' connected services. OTA will be the basis for updating and delivering new services. Summer of 2018 is the scheduled release for the 9-3 electric vehicles with Microsoft's platform. NEVS presented its Inmotion concept car, one that is completely driverless.*

It's a busy time for NEVS. It is building a new factory in China where its cars will be produced. It announced recently a major cooperation agreement with Didi Chuxing. On July 13th, NEVS announced that its CEO, Mattias Bergman, is leaving for health reasons. He will be missed.

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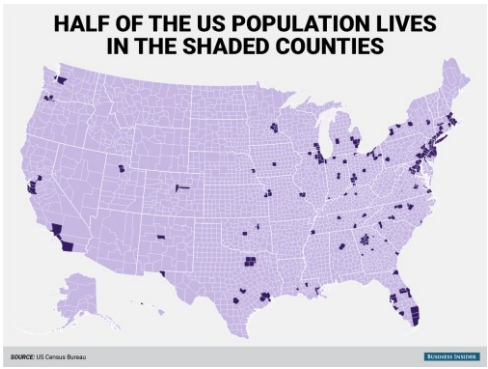
The World and Transport in 2030 (continued from p .1)

In 2030, Tokyo will still be the most populated city with an estimated population of 37.2 million. Delhi will be in second place with 36.1 million, up from 3.5 million in 1970! (How has it coped?) Shanghai will be in third place and New York/Newark will have dropped off the top ten list. But what will it be like to live in these cities?

The *Economist Intelligence Unit* ranks cities as the most and least liveable. The latest result was in August 2016. It ranked Melbourne, Australia as number one, Vienna, Austria second and Vancouver, Canada third. There were no cities in the top ten from the U.S., Africa or Asia. Helsinki, Finland and Hamburg, Germany at numbers nine and ten joined Vienna from Europe; Adelaide and Perth joined Melbourne from Australia; and Toronto and Calgary joined Vancouver from Canada. Number eight was Auckland, New Zealand. Those that have scored best in its survey have been mid-sized cities in wealthier (developed) countries with relatively low population densities. In Australia and Canada, these densities are respectively 3.1 and 3.0 people per square kilometer for the entire country. Melbourne's density is 460 persons per km2 compared to 6158/km2 for Tokyo and 2059/km2 for Shanghai. Here's what makes a city livable, besides low density: low crime rates, available and affordable health care, cultural vibrancy, good educational opportunities, a high quality housing stock and a good transport system. What we can gather from this is those cities that are attracting increasing numbers of inhabitants are becoming less attractive as a result.

None of the most liveable cities is among the top ten places where venture capitalists have been placing their money bets during the past year. Silicon Valley, the penultimate suburban region of California no longer garners the top investment honors. San Francisco, home of AIRNB, TWITTER and UBER, has replaced the area around Sunnyvale, Menlo Park and Palo Alto at the top, pushing Silicon Valley into second place. Just below it are New York, including Brooklyn, and Boston/Cambridge. Seattle, home of Amazon, is in eighth place. These four city regions are ranked below 30th place on the EIU Liveability Index. In other words, they may be successful, buy not that liveable.

I looked at car ownership in the cities where venture capitalists have been investing their money. San Francisco has 1.1 vehicle per household and 30% of households have no vehicle. It's a very different picture in New York City where there are 0.6 vehicles per household and 56% of households have no vehicle. In Boston, it's 0.9 and 36% respectively. Both Boston and San Francisco have large areas where people live in single family homes with driveways and garages. Travel west from Boston to Newton, where many of the executives who work in Boston actually live, and the figures are 1.7 vehicles/household and 6.5% households with no vehicle.



This is a map of the U.S. showing the counties in which 50% of the population lives. It can be read two ways: 1) 50% of the citizens live in highly urban areas (dark color); or, 2) 50% of the citizens live in rural or less urban areas (light color). In other words, one-half of the people are occupying more than 90% of the land area. Is there any wonder why over 50% of the vehicles sold in the U.S. are not passenger cars but SUVs and pick-up trucks?

So 50% of the people in the U.S. don't live in the large city regions, and even in the densest urban regions, with the exception of New York, 60-70% of households own cars. We may need new solutions for mobility in certain areas of high density—although I am not at all sure that the solutions that have been suggested are the most effective—but these solutions will not serve all people in all areas, and certainly not those living outside the high density urban areas. If everyone who lived in the dense urban areas stopped buying cars, there would still be over 50% of the population who would continue to be car purchasers.

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The World and Transport in 2030 (continued from p .2)

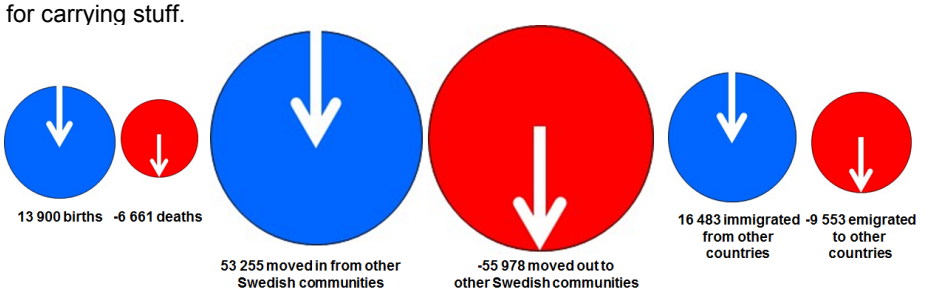
Yes, large cities around the world are growing. According to statistics from the U.S. Census released in May 2016," all but one of the nation's 20 largest cities (Chicago was the exception) saw their population grow last year." Austin, Denver and Houston grew fastest. With the exception of New York City, each of the 15 cities that gained the greatest number of people between 2014 and 2015 were in the South or the West. New York's growth was in the Boroughs of Brooklyn, Bronx and Queens (which were incorporated into the City of New York in 1898). Four of the top five fastest growing cities in the Europe are Nordic: Stockholm, Copenhagen, Oslo and Helsinki. London is number four. Vienna is number six, so two of the most liveable cities, Vienna and Helsinki, are also among the fastest growing.

As a result of the rediscovered interest in living as close as possible to the centres of high-growth, such as cities like San Francisco, Boston and New York, the gentrification of the middle-class districts will intensify. There were some widely publicized protests by residents of San Francisco neighbourhoods who were being priced out of their homes by commuters to Silicon Valley. The protests included blocking the roads for buses provided by their employers, such as Google. Residents of South Boston, for decades a bastion of working class Irish-Americans, have seen home prices rise by 89% from 2000 to 2005 while the percentage of adults with bachelor degrees increased from 30% to 70%. The former residents, priced out of their homes, are moving to the suburbs, where housing costs are lower.

Can we conclude from this that the exodus from city regions to the suburbs of both jobs and families has now stopped and central cities once again will be where people live and work? No, not unless people will be willing to give up everything they have come to value in terms of living standards and will accept being packed into sardine can-sized apartments stacked a mile high. In spite of the highly publicized return to the city of some companies, like GE, it is the urban regions that are growing, not the city centres per se. Living in a central city in the most desirable neighbourhoods will continue to be the privilege of the wealthy and very wealthy.

It also turns out that we need to look at the large city growth picture at the pixel level, not as a bird's-eye view. All three of Sweden's largest cities have grown, but their increases are a result of two factors: a higher birth rate compared to the death rate, and a high level of immigration from foreign countries. The number of people who moved into Stockholm from other parts of Sweden is lower than the number who have moved from Stockholm to other Swedish communities. Why do they move out? The same old reasons: When younger people build families and need more space, preferably with a yard, and that space is too expensive in the city, they find it further out. Many of them had moved in during or after their university studies and had grown up in single-family houses in the suburbs. "It felt natural to return," they said to the DN reporter. Another detail is that many of those non-foreigners moving in are retirees who have sold their homes and have extra cash to spend.

Visions of young professionals dashing around in robotic cars gobbling up mobility as a service are, to put it kindly, a bit fanciful. There are many changes that cities could and should be making today whether or not SAE Level 4 or 5 cars ever get permission to roll around on their streets. Cities are going to have to 'retool' to accommodate the increasing number of electric cars. Having only recently removed parking meters, will the poles return as power outlets for charging batteries? Ugh! Build large, underground car parks at intermodal facilities around the cities and remove all on-street parking. Is it really practical to have full-sized cars and trucks taking up space on city streets even if they are electric? Think small and low-speed with modular pods for carrying stuff.



On the 4th of October, 2016, the Swedish daily newspaper, Dagens Nyheter, printed a story titled: 'The moving van is now headed for the suburbs'. The diagram, reproduced above, explains why the population of Sweden's capital city grew by 11 527 in 2015 while 2 723 more Swedes moved out than moved in.

Dispatch Central (continued)

Update on NHTSA's Federal Automated Vehicles Policy *in the works*

THE PRINCIPAL PILLARS of the Obama administration's U.S. Department of Transportation's NHTSA Federal Automated Vehicles Policy, proposed on 20 September 2016 (see ***The Dispatcher****, October 2016), were the establishment a pre-market approval authority, like Europe's type-approval regulatory body, that would certify vehicles as roadworthy when operating in various automated modes, and to define the jurisdiction of the Federal government over vehicles driven by software, while confirming jurisdiction of the State governments over vehicles driven by humans. Also proposed in the Policy was the authority for NHTSA to issue a cease-and-desist order to force vehicle manufacturers to remove unsafe vehicles from the roads and a post-sale authority to regulate software changes made to vehicles that were already certified.*

The game changed on the 20th January when a new President was sworn in and both the DOT Secretary, Anthony Foxx, and the NHTSA Administrator, Mark Rosekind, who served at the pleasure of the Democratic President, relinquished their jobs. Foxx was replaced by Elaine Chou and Rosekind was succeeded by Jack Danielson in an 'acting' position. Danielson served as Executive Director under Rosekind.

Thus far, DOT and NHTSA have not made any recommendations on modifications to the Policy proposed by their predecessors. Both the Senate and the House have conducted hearings and met to prepare legisla-

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Dispatch Central (continued)

tion, which is totally in line with the process proposed by Foxx and Rosekind. Also, industry representatives have responded to requests for comments and testified before congressional committees.

Unsurprisingly, the industry has objected to all proposals for the Federal government to have any oversight of their technology, but welcome all restrictions on individual States creating their own laws on the design and testing of self-driving cars. Equally unsurprising, Republican legislators support the industry view. The leader for the Senate's efforts is John Thune, Republican from South Dakota, Senate Committee on Commerce, Science and Transportation Chairman, and for the House's efforts it is Greg Walden, Republican from Oregon, Chairman of the House Energy and Commerce Committee.

Both the House and Senate bills that are under development will expand NHTSA's authority to grant exemptions to the current Federal Motor Vehicle Safety Standards (FMVSS). Today, NHTSA can grant exemptions for up to 2,500 vehicles to companies/organisations wishing to test automated vehicles. The proposed change would increase this number to 100,000. The bills would prohibit States from creating their own laws to regulate automated vehicles. California and New York have taken the lead in developing restrictive laws, and industry representatives have asked that these be relaxed.

Not all members of the U.S. Congress are happy with a laissez faire attitude toward automated vehicles. Senator Ed Markey, Democrat from Massachusetts, is a member of the Senate Committee on Commerce, Science and Transportation, and he believes the Federal Government should set strict regulations for the operation of automated vehicles if they are also connected. He, along with Senator Richard Blumenthal, Democrat from Connecticut, have reintroduced the ***Security and Privacy in Your Car Act*** *that would force the auto industry to "ensure robust cybersecurity protections are built into the designs, construction and operation of these transport technologies." (As they should be.Ed)*

SENSORIS: Making Sense of Sensor Data

SENSOR INGESTION INTERFACE SPECIFICATION

IN THE WORDS of its developer, HERE TECHNOLOGIES, the problem SENSORIS addresses is "how to convert oceans of sensor data generated by cars into useful services." The oceans are just small ponds today, three of them, one for each of HERE's owners: Audi, BMW and Daimler. Nevertheless, the amount of data generated by the increasing numbers of sensors on vehicles—cars and trucks—will only grow, and HERE, its owners and partners and others working with vehicle data communications understand that they must be ready when the rivulets turn into torrents.

HERE published the SENSORIS specification in June 2015 in a document titled Vehicle Sensor Data Cloud Ingestion Interface Specification (v2.0.2). It describes the purpose of SENSORIS thusly:

Vehicles driving on the road are equipped with a magnitude of sensors. These Sensor Data may be transferred over any kind of technology from the vehicle to an Analytic Processing Backend. Between individual vehicles and the Analytic Processing Backend, an OEM-, or System Vendor-Backend may be located as a proxy. The Sensor Data Interface Specification defines the content of Sensor Data Messages and their encoding format as they are submitted to the Analytic Processing Backend. However, the specification may be used between other components as well.

In the case of HERE and its OEM partners, data is sent from the vehicle to the respective OEM telematics platforms. This data includes safety, security, diagnostic and other data categories, including data of interest for analytical processing and service delivery. The OEMs filter out the sensor-specific data and send this on to HERE's Analytic Processing Backend, its *Open Location Platform*. If it was just HERE working with willing OEMs, there would be no need for an open standard, but all that would lead to is other spheres of OEMs with their selected analytic processing backend systems and a proliferation of sensor data transfer formats.

HERE has been here before, with the *ADAS Interface Specification*, and together with the other partners in the original ADASIS consortium, it chose the same path as it has now selected for SENSORIS, which is to turn over the management of the SENSORIS standard operation to ERTICO where an official Forum has been created in which members will interact to further develop the standard. Dietmar Rabel, head of HERE's autonomous driving product management said of the decision to open the specification: "Our goal was always to find a home for this specification that is open, accessible to all and global. (This) can only work if all cars can speak and understand the same language."

There are currently twenty-six members in the SENSORIS Forum, including OEMs Audi, Daimler, Jaguar Land Rover and Volvo.

Does the industry really need yet another standard? Couldn't sensor data simply be added to one of the current ISO/CEN/ETSI/SAE or industry standard activities? A state-of-the-art document prepared by the C-ITS[1] claims that "…comparing the current SENSORIS specifications with existing standards, many elements are already provided by ETSI message formats (CAM) and (DENM)." The ETSI specification, *ETSI EN 302 637-2: ITS Vehicular Communications*, references as one of its principal sources the Car 2 Car Communication Consortium, with many of the same members as SENSORIS—although not HERE nor any other mapping/location information companies that are now part of SENSORIS.

In my view, the ETSI specification is oriented toward single real-time messages from and to vehicles, which is what the C2C[3] is concerned with, while SENSORIS is focused on delivering a much finer grain of data in massive quantities that can be used for both real-time and batch processing.

In any case, what SENSORIS is working to standardize is not covered in ADASIS or TPEG or NDS. These four groups, along with both ISO and CEN, are coordinating their respective efforts within the Open Auto Drive Forum to ensure that there is compatibility across all of the standards. SENSORIS has determined that it has overlaps with the other standards in ecosystem reference architecture, naming conventions and attribute metadata.

In the next issue of The Dispatcher we will look at the ISO TC 204 WG3 Reference Architecture compared to the OADF Reference Architecture.

Zenuity: An OEM and a Tier One Team Up

ZENUITY IS THE NAME of the joint venture between AUTOLIV and VOLVO CARS (the Volvo owned by Geely). The name catches your attention right away. It would be too easy to see it as a combination of 'Zen' and 'ingenuity'. The company that helped with creating the JV's brand identity, UNCLOUDY & CO (Göteborg), had a more complicated justification for the name. 'Zen' is obvious, and it implies calmness, and aiming at enlightenment by direct intuition through meditation. The 'u' is for 'you the user'. The 'it' is IT, information technology. And the 'y' is 'Why?', with the answer: Because the world needs what we will produce.

VOLVO CARS and AUTOLIV own equal shares in ZENUITY. AUTOLIV will make a total investment of around €115 million, including both cash and assets. VOLVO CARS is not putting in any cash, but will contribute intellectual property and human resources. Both companies have transferred patents for driver assistance systems and software for self-driving cars. Employees from both companies are now employees of ZENUITY, with the goal of having up to 600 employees on board by the autumn in offices located in the new headquarters in Lindholmen, Göteborg (pictured), Linköping, Munich and Detroit.

The idea behind ZENUITY is to use the technology developed by both JV owners for their own advanced driver assistance systems (i.e., VOLVO CARS for its own vehicles and AUTOLIV for use by all of its OEM customers, including VOLVO) as the basis for developing new, more advanced ADAS for increasingly autonomous driving applications. These new systems will, of course, be used in Volvo Cars, but they will also be offered for sale to other vehicle manufacturers. The company's goal is to have its first products available for sale by 2019.

This is the 'what' and 'how', but what about the why? The history of AUTOLIV, beginning life in 1953 as Lindblads Autoservice AB, a car and tractor repair shop, is full of mergers, JVs, acquisitions and being acquired (e.g. by Electrolux in 1980). It took the name AUTOLIV in 1968.This JV is a natural for AUTOLIV, giving it, at a minimum, access to all of the Geely-owned companies. AUTOLIV was 25th on the 2016 Automotive News list of global OEM parts suppliers, so it needs partners and ready customers to be able to compete with the likes

Zenuity's new headquarters located adjacent to Lindholmen Science Park in Göteborg. It is leasing the building from Skanska, the owner and builder.

of BOSCH, DENZO and CONTINENTAL. ZENUITY provides both.

But why would a car company hook itself up with one supplier to develop key technology, and why would it then offer the results of the collaboration to its competitors? Aren't Tier Ones supposed to be kept on their toes, constantly competing for the business they receive by offering better products at lower prices? That's how things used to be, but not anymore. HERE's acquisition by three competing car companies is one example of such a change. VOLVO CARS is too small to make the kinds of investments that will be needed to develop increasingly autonomous driving safety systems. The same was true twenty years ago when it was still part of the VOLVO GROUP and needed to develop the connectivity portion of its telematics solution. VOLVO GROUP created a JV with ERICSSON and the Swedish Telecom and the result was WIRELESSCAR. It had s similar mission, to provide solutions for the JV partners while also selling solutions to the entire industry.

By the way, the go-to-market in-vehicle telematics system developed in parallel with the creation of WIRELESSCAR was built by an AUTOLIV division that was sold in 2009 to French auto supplier ACTIA and now operates as ACTIA NORDIC.

To add another twist to the story, ZENUITY will work together with NVIDIA. As part of the agreement, AUTOLIV, VOLVO, and ZENUITY will use NVIDIA's AI car computing platform as the foundation for their own advanced software development.

It will be interesting to follow the progress of ZENUITY, and we wish them all the best.

Are BEV Owners Getting a Free Ride?

Some might think so. These cars use the same roads as non-BEVs, but they pay only a fraction of the costs for building and maintenance of the roadways.

In Sweden, where your Editor lives, a person who can afford a €100,000 BEV (let's say a Tesla Model S), receives a €5000 rebate at purchase, and an exemption from the annual vehicle tax worth approximately €2250 over five years. Up until 2012, BEV owners paid no congestion charges in Stockholm, which added up to around €2,000 per year for a regular commuter. They still find special parking places reserved for so-called 'environmental cars'. Not bad, eh?

Then there are all the direct and value-added taxes on fuel the BEV owner is not paying, part of which pay for roads as well as public transport. A fuel-efficient ICE vehicle owner will pay around €4 per 100 kilometers, or €600 per year in Sweden's so-called energy and carbon dioxide tax when purchasing fuel. A BEV owner does not buy fuel, but will pay one-sixth of that for the electricity it will take to drive the vehicle.

As the number of BEVs increases, the burden on the remaining non-BEVs increases to keep the infrastructure available. Sooner or later something will have to give. If BEVs are better, buyers—rich or otherwise—should not need incentives to buy them. A Tesla Model S takes up about twice as much space on the road as a Nissan Micra ICE, so, in theory, the owner should pay twice as much as the smaller vehicle to use them.

What justification can there be for subsidizing a big, expensive car? Whether or not the BEV is actually contributing a real reduction in CO_2 depends mainly on where and how the electricity is produced that is used to charge the batteries. Does someone who can afford a €100,000 really need to be incentivized? What do you think?

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"If there is disagreement, it should be known. Otherwise people don't know what you think."

James Watson
Nobel Laureate 1962

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Footnotes:

1.Berndt, Sandro, et al. State-of-the-Art Analysis of C-ITS Deployment (April 2016)

The ***Minnie Van*** courtesy of Honda. Honda Motors took an Odyssey minivan and gave it a Minnie Mouse look as part of this year's Disney D23 Expo. It will take part in the *Disney's Mickey and the Roadster Racers* special in California to support a new TV series by the same name. It is a 'madcap car-racing adventure' for preschoolers that premiered in January, 2017.

Musings of a Dispatcher: Robot Trams Won't Strike

THIS YEAR'S ITS EUROPE Congress was in Strasbourg during the week of the summer solstice. It is a beautiful and historic city, and it is also the second home of the European Union. As I learned from locals, at this time of year it can be very hot. When I arrived on Monday afternoon, the temperature was hovering just under 40^0 Celsius. Wearing a suit and tie in order to be properly dressed for the evening's formal activities, I took a taxi to the *Palais de Congres* on Tuesday. On Wednesday I decided to take the tram. I was able to wear more reasonable clothes for the temperatures that would equal those of the day before. I was out early, at 07.30, and bought a return ticket. It seemed that there were fewer trams than I had seen on Monday evening from my vantage point at an outdoor cafe. The number of people on the platform was increasing. Almost half an hour passed, and when the tram arrived, it was nearly full. I squeezed in and it slowly left the platform. It moved at a snail's pace and seemed to linger more than normal at each station. The journey took twice as long as advertised.

As I approached the entrance to the Congress, I met someone I had sat next to at dinner the evening before. She lives in Strasbourg and explained that today there was a strike of tram and bus workers. "They always take advantage of an event like this with more people depending on the trams to go out on strike," she said. Fine, I thought, I could live with a slowdown because I would not be in a hurry to return to the hotel that evening. At 13.45 I received an SMS from the ITS organizing committee saying that all tram and bus service would stop at 14.00 and if we needed to get anywhere we would need to walk or take a taxi. So it was not just a slowdown. Walking the four kilometers in the heat was not an option, and waiting to take a taxi at the close of the day would probably mean standing in line in the same heat. I decided to get out while the getting was good, and left the Congress at 14.00.

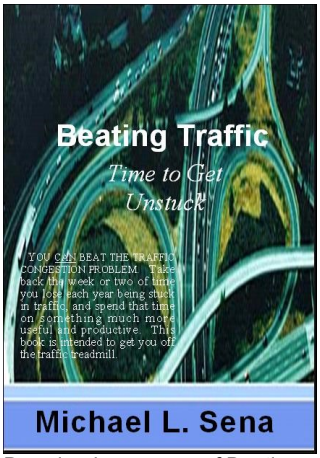
As I sat in my hotel room on Wednesday evening, which happily had a well-functioning air conditioning system, I wondered how all those folks who were travelling with me on the tram that morning got home from wherever they were going. Did they take taxis or walk or call for help from someone with a car? Did the union leaders who called the strike and the bus and tram drivers tell their families and friends to stay home because even if they got to work, they would not get back? Why wasn't there a notice about the strike when I bought my round-trip ticket that morning, the other half of which was wasted? I would be willing to bet there were a number of visits to the hospital emergency wards that day due to people experiencing heat stroke or other maladies resulting from an unexpected forced walk in the intense heat.

Cities that allow public services to be disrupted by strikes, and unions that call them, are shooting themselves in the collective foot when they do everything they can to force people out of their cars and then cause them so much pain by suddenly removing their means of travel. Of course, if they warned everyone of the strike beforehand, the impact would be significantly less. People would have been able to plan their day or would have simply stayed home. Hospitals and schools and other public services would have been able to engage private services to accommodate patients, students and others needing assistance. The transport union and its member drivers would not have had the same bargaining power to push through their demands. On the other hand, they would have the grateful and sympathetic citizens of Strasbourg on their side when they pleaded with the city not to replace them with robots, who would never leave their passengers stranded at the wrong end of their journeys or cause them discomfort. Give that some thought the next time you plan a strike when it's $+40^0$C.

About Michael L. Sena

Michael Sena works hard for his clients to bring clarity to an often opaque world of vehicle telematics. He has not just studied the technologies and analyzed the services. He has developed and implemented them. He has shaped visions and followed through to delivering them. What drives him—why he does what he does—is his desire to move the industry forward: to see accident statistics fall because of safety improvements related to advanced driver assistance systems; to see congestion on all roads reduced because of better traffic information and improved route selection; to see global emissions from transport eliminated because of designing the most fuel efficient vehicles.

This newsletter touches on the principal themes of the industry, highlighting what is happening. Explaining and understanding the how and why, and developing your own strategies, are what we do together.



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