15 March 2015
Volume 2, Issue 3

The Dispatcher

Special interest features covered in each issue:

- Autonomous and Self-driving Cars
- Big Data
- DSRC versus Wireless Communication
- Connected Vehicles – V2V and V2I
- Third party services for eCall

Individual Highlights:

In the next issue:

- Uber buys deCarta
  The Economist called deCarta a 'start-up' in its little notice on the acquisition of the company by Uber. As Telcontar and then deCarta, the San Jose, CA-based company has been around for a couple of decades—hardly a 'start-up'. We'll take an in-depth look at the prospects for this marriage.
- Automated parking and payment.
- Cars and trucks as robots

Telematics Industry Insights by Michael L. Sena

Antediluvian just isn't what it used to be

ANTEDILUVIAN MEANS 'OLD FASHIONED'. The literal translation from its Latin roots is 'before the flood', and the flood it refers to is, of course, the biblical inundation of the earth when the only life forms that survived were those that could swim or those that accompanied Noah on his ark. In the world of automobiles, a short twenty years ago, an antediluvian vehicle was one that could be fixed by a mechanic without the necessity of connecting it to a computer to read trouble codes and download software. Today, an antediluvian vehicle is one that lacks the ability to connect on-board systems to either the Internet or to a telematics service provider capable of delivering safety, security and convenience services. Tomorrow—in perhaps five, ten or more years—an antediluvian vehicle may be one that cannot roam around on its own, picking up and dropping off riders during its tours, stopping only to replenish whatever fuel its keepers have decided it would use.

There has been a considerable amount of press coverage for self-driving, autonomous vehicles. This subject is one of the issues I cover in **The Dispatcher** because it is important that you know what is happening beyond what you see in the popular press. However, it is not the most important issue at this particular time. The most important issue is unnecessary legislation.

Continued on P.2

The specter of neutering on-board connected devices by the European Commission

Directive 2010/40/EU of the European Parliament and of the Council on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport (7 July 2010).

Priority area IV: Linking the vehicle with the transport infrastructure

1. The definition of necessary measures to integrate different ITS applications on an open in-vehicle platform, based on:

-the definition of an open-system architecture which defines the functionalities and interfaces necessary for the interoperability/interconnection with infrastructure systems and facilities,
-the integration of future new or upgraded ITS applications in a 'plug and play' manner into an open in-vehicle platform.

What is Apple's Core?

IF YOU WERE THE HEAD of a company sitting on a $178 billion pile of cash, what would you do with it? Going into the car manufacturing business isn't the first idea that pops into my head. Average profit margins for automakers is around 5%, and net margins are half that. GM had a profit margin of 2.53% in 2014 on sales of $155 billion. BMW's was 9.6%; Volvo's was 1.7%. Apple's profit margin was 24.16% for the same period on sales of $183 billion. So why am I mentioning cars and Apple in the same sentence? It seems that Apple has been caught poaching engineers from battery-maker A123. A123 delivers batteries to electric vehicles, ergo, as the deductive[1] logic goes, Apple will be building electric cars.

I believe that for Apple to enter the automotive manufacturing, sales and repair business, it will have to completely change its very successful business model. Apple has its cash hoard because of this model, which involves creating a virtuous link between information that it can deliver to devices that it designs, has manufactured and sells, both through its own outlets and through VARs.

Continued on P.2

A Crack in the Google Glass

"After failure of **Glass***, investors want return to firmer financial footing"*

International New York Times
Monday February 16, 2015

Maybe you missed it, the short notice on the back pages explaining that, due to less than stellar consumer response, the much heralded Google Glass is being withdrawn from the market.

Forget whether you think it was a good idea. Apparently, Google's major investors are taking this as a sign that the company does not walk on water and turn breadcrumbs into loaves of bread. They want it to concentrate on what makes money. A bigger question is whether the billions it is spending on self-driving cars falls into the category of extraneous and expendable.

Failure and Google are two words not usually associated with each other, and if one searches for Google Glass one finds more articles on how Google is going to come back with an even better product than articles recounting why its first one, well, failed. Google is in the advertisement brokering business, from which 90% of its revenues are generated. Like Apple, it has a splendid business model that it has executed superbly. Eyeglasses, no matter how cool their developers and Google management thought they were, do not fit into this model. Now, with growth in its core business slowing (revenue growth last year was at its lowest since 2009), investors, primed by financial analysts, are suggesting to the company that it provide more substantiated relationships between the money it is spending on space flights, hovering skateboards and self-driving cars and the eventual returns that can be expected. There's nothing unusual with this, unless of course you have gotten too used to playing in your own sand box.

Antediluvian (Continued from P.1)

It is not the ITS Action Plan in itself that is the problem (although reference to 'open in-vehicle specifications is naïve); it is the interpretation of it by at least one organization that appears to have an excessive amount of influence, The Fédération Internationale de l'Automobile (FIA). Its deductive logic[1] is as follows: Vehicle safety messages are standardized (as recommended by the Directive 2010/40/EU); vehicle status is a message; therefore, vehicle status messages must be standardized. Here is what it recommends:

"A telematics platform is not just a technical unit to be fitted in a vehicle, but it also includes the business architecture, the business model, governance, the certification regime, and organisational aspects. A standardized architecture will stimulate consumer demand and will enhance the market penetration of in-vehicle services and applications, bringing benefits both to the consumer and industry.

It calls on the European Commission to *"take action to allow for the implementation of an open platform, by promoting a standardisation process relevant to open telematics platforms keeping in mind stakeholder interest, in particular their freedom of choice."* Car manufacturers and system developers, ignore this development at your peril. There is a better way. I have written about it. It is standardizing at the back end, the TSP.

What is Apple's Core (Continued from P.1)

The interlocking value chains for devices and content complement each other. Apple earned $14 billion on content in 2014 by taking a portion (30%) of the content price without spending a cent on its creation. While substantial, this is still less than 10% of its revenues. Apple charges enough of a premium for its products to pay all of its suppliers in the value chain enough to keep them happy. What Apple has left is a substantial margin. Cars—or airplanes and trains—do not fit this model. Neither do stoves and washing machines. Watches? We'll see, but seems promising. Eyewear? Questionable (see opposite).

Questions from some of you have already started arriving on my desk: *If Apple is entering our business, should we stop working with them?* An iPhone is more of a threat to your car business than an eventual iCar. Smart phones in general, and iPhones in particular, have already caused a big dent in the integrated navigation systems business for carmakers. And what does working with Apple really mean, integrating Apple CarPlay in your dashboard? If you cannot do it better yourself, then put it in. Let us get to the real bottom line on this issue. If Apple wanted to, and it had the support of its major investors and its board, it could buy most of the car companies on the planet. To figure out what Apple is doing, look at its business model.

-the use of a standardization process for the adoption of the architecture, and the open in-vehicle specifications.

2. The definition of necessary measures to progress the development and implementation of cooperative systems based on:

-the facilitation of the exchange of data or information between vehicles, infrastructures and between vehicle and infrastructure.
-the availability of the relevant data or information to be exchanged to the respective vehicle or road infrastructure parties,
-the use of a standardized message format for the exchange of data or information between the vehicle and the infrastructure,
-the definition of a communication infrastructure,
-the use of standardization processes to adopt the respective architectures.

The US automobile industry was not concentrated in Detroit, Michigan because of its wonderful weather or because the city was a hotbed of hip culture. Besides the fact that Henry Ford and Ransom Olds happened to live there—which is not an insignificant reason for companies being where they are (think Apple, Hewlett-Packard, Google)—it had the perfect location on the Great Lakes to obtain the natural resources it needed and to ship its finished products to the major markets. Like any industry, once it gains a foothold, similar industries want to be close by to enjoy the benefits of the labour pool and share the research costs. The same thing happened with Boston's 128 and then Silicon Valley. Of the fifteen companies building cars in the US today, most of them are being assembled in places other than Detroit, even among the remaining US Big Three (GM, Ford and Chrysler). If all were starting anew today, it is unlikely Detroit would be the center.

On the Road to Where? Using public roads for self-driving cars (Part II)

I AM ON RECORD AS FAVOURING self-driving car test sites that simulate real-world driving conditions. Why take the chance that something will go wrong and an accident will occur? What is the up-side to using public roads when a growing number of more than adequate test sites are being developed? This is my opinion, and, since most of you reading this live in a country where it is perfectly alright to have different opinions, mine is not shared by everyone. You will make up your own minds if you are working with self-driving cars, so I will cover both types of options. In the last issue of **The Dispatcher** I described off-road test sites in Borås, Sweden, Ann Arbor, Michigan, Monmouth, New Jersey and Concord, California.

The Mercedes-Benz self-driving concept car shown at CES 2015 provides a glimpse of what a relaxing ride, back to steering wheel, could be for a future driver (with doors closed, of course). Before we get here, there will be many millions of kilometers of testing done on public roads and off-road test tracks.

It is now Great Britain's turn. In early December last year, the U.K. Chancellor of the Exchequer, George Osborne, announced that four cities will receive funding and serve as test sites for driverless cars. The program which is responsible for organizing these trains is **Innovate UK**, formerly known as the Technology Strategy Board. It is an executive non-departmental public body sponsored by the Department for Business, Innovation and Skills. Its mission is to "fund, support and connect innovative businesses to accelerate sustainable growth". Tests started in January, 2015 and will run for between eighteen and thirty-six months. The ambitious goal of the trials is to establish the UK as the global hub for research, development and integration of driverless vehicles and associated technologies. Innovate UK lead technologist for low carbon vehicle innovation platforms says: *"Cars that drive themselves would represent the most significant transformation in road travel since the introduction of the internal combustion engine and at Innovate UK, we want to help the UK to lead the world in making that happen."*

There are three test sites: Greenwich; Milton Keynes and Coventry working together; and, Bristol. Each test site is the responsibility of a consortium, and the three consortia comprise close to forty companies and organisations. Total government funding is £19 million, with £10 million coming from Innovate UK and an additional £9 from other government sources.

GATEway Project in the Royal Borough of Greenwich is led by Transport Research Laboratory (TRL). It involves three separate trials of different types of zero emission automated vehicles. The principal applications are an automated passenger shuttle transport system and an autonomous valet parking service. Both objective and subjective feedback will be recorded on the extent to which these systems are used, trusted and accepted. TRL will provide its DigiCar driving simulator for investigating driver behavior in automated vehicles. The automated vehicle technology to be tested is provided by Phoenix Wings and the French company INDUCT SAS, in which Phoenix Wings has a 35% stake.

Other consortia members include Shell, RSA (Insurance), Telefónica (owner of the UK mobile operator O2), and local colleges. An advisory board includes GM, ATOS, RAC Foundation and the UK Highways Agency.

UK Autodrive in Coventry and Milton Keynes is led by Arup, a global—and world-leading—engineering firm. This trial will involve on-road testing of passenger cars with increasing levels of autonomy, along with the development and evaluation of lightweight, fully autonomous self-driving pods designed for pedestrian spaces. Tests will start with single vehicles on closed roads and then move to the open roads when tests results warrant it. Participation by Jaguar Land Rover, Tata Motors and Ford will ensure that there is a strong focus on self-driving cars. One of the participants in the consortium is Oxbotica, a spin-out from Oxford University's Mobile Robotics Group. Oxbotica's CEO, Graeme Smith, has plenty of experience in the vehicle telematics space having worked for Ford Telematics, Connexis and Ricardo. Oxbotica specialises in mobile autonomy, navigation and perception, allowing robots, vehicles, machinery and people to precisely map, navigate and actively interact with their surroundings.

VENTURER Consortium in Bristol will test both driverless cars and the workability of public-private-citizen partnerships, says Bristol Mayor, George Ferguson. The principal motivation for Bristol and the South Gloucestershire Council is developing more environmentally sustainable transport alternatives to those that exist today. The University of Bristol's Communication Systems and Networks group will integrate wireless communications in the driverless vehicles to enable them to talk to the 'smart city' network and to each other. The Bristol Robotics Lab has the task of making the cars driverless.

We will be following the progress of these trials. Having written my planning thesis on Milton Keynes, it will be interesting to see how the city built for the car fares without drivers.

Macro Factors: Real Influences on Telematics

As the chart below shows, the world has changed during the past sixty years, and it will change even more dramatically during the next forty. Pulling back by hook or crook all of the former Soviet states will not help Russia regain its former population position since Russia itself is depopulating (It is among the countries with the slowest growing populations , -0.2% during the past five years). Germany, Great Britain and Italy have all fallen off the top ten list and Japan will follow because of its excessively low birth rate. They have been replaced by Pakistan, Bangladesh and Nigeria, and will be joined by Ethiopia and the Philippines in 2050—barring catastrophes, spectacular increases in birth rates or the discovery for a cure for death. As a result of decent birth rates and, thus far, a desire among foreigners to emigrate there, the US will hold its own.

In North America and Western Europe, industrialization created a mass movement from rural countryside to cities in the 18th and 19th centuries. In the second half of the 20th century, wars, crime, cars, new ways of communicating and many other factors combined to move people from cities to suburbs. A suburb (Roman word), for statistical purposes, is a metropolitan area outside the central city. By 1951, more people in the United States lived in suburbs than either in central cities or rural areas.

Something else has been happening over the past thirty years. In 1970, there were

THE ROMANS BUILT ROADS and used them to transport their armies and materials throughout their vast empire. They kept detailed records of where everyone and everything was at any given time so they could be moved to where the generals needed them to be. Horses, oxen and men pulled the wagons over land for the Romans and all the warring countries up to the turn of the nineteenth and into the twentieth century when the self-moving, motorized vehicle was invented. It took only fifty-six more years until the next most significant invention came along, the shipping container.

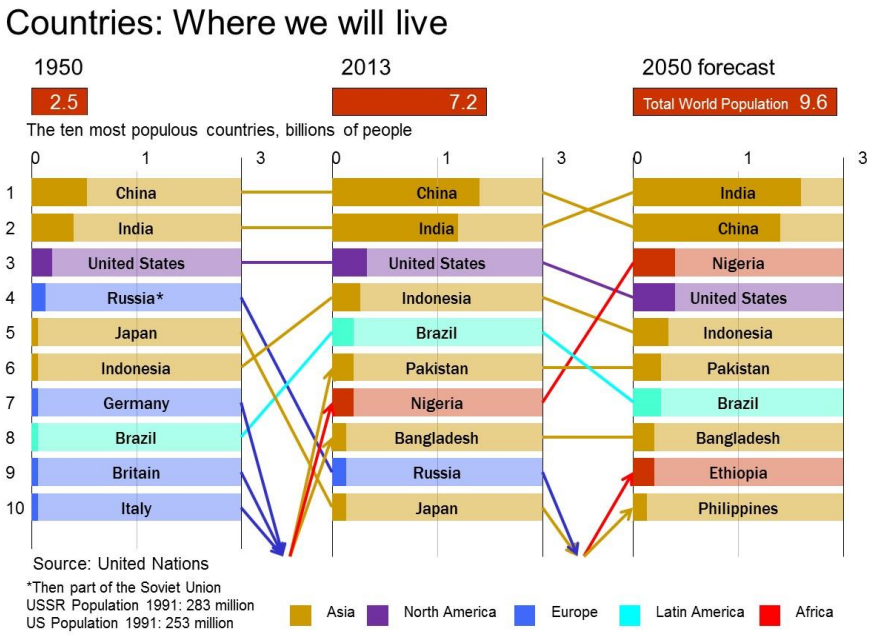
In the mid-1990s, there was a **Telematics Big Bang** when four major technologies converged:

- Wireless telecommunications
- Digital maps
- Global navigation satellite systems
- The Internet

Like Rome's roads, all of these technologies were funded and initially developed principally for securing military advantage. They were commercialized and have been used to create all types of products that are affecting our daily lives and having an impact on our individual and collective futures. Technology is important, but it is not technology alone that affects our businesses and our lives. Political, social and economic activities are what cause countries and regions to experience growth or decline, that cause population increases or contractions, and start massive movements of people from one region to another. These are the **Macro Factors**. Think of the Great Plague, the Great Depression, the two World Wars in the 20th century, the fall of the Iron Curtain and, more recently, the Great Recession.

Businesses do not exist in a vacuum. Vehicle-related businesses are no exception. And the more vehicles that are sold, the greater are the greater are the effects on all of the related businesses, including telematics. The opposite is also true. Vehicle sales are the result of how well or how poorly societies are functioning. Sales plunged in the US and Europe in 2009, and China sailed by both of these regions. Sales have recovered in the US, but will the next generation even think about owning cars?

Continued on page 5.



Macro Factors: Where and how we live will affect telematics growth (continued from p.4)

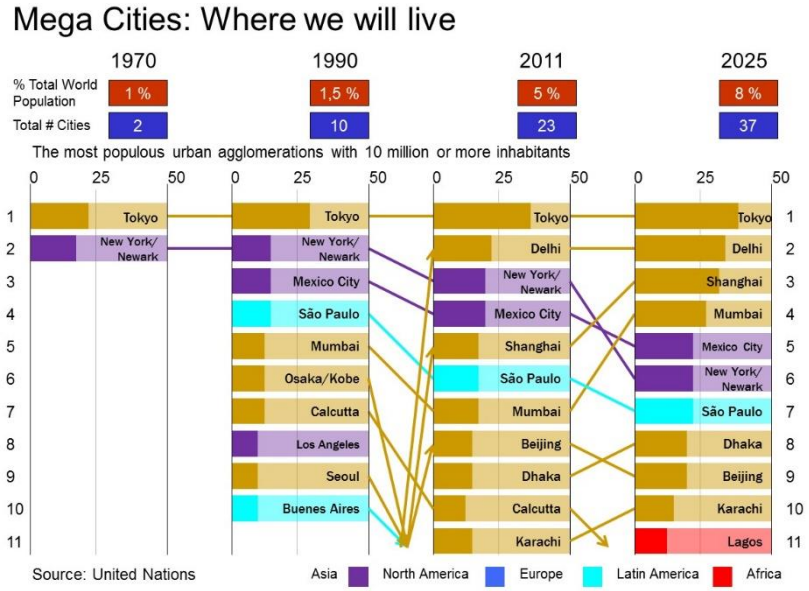
The four macro factor questions we need to answer are:

1. Where and how will we **live**?
2. What **work** will we do and where will we do it?
3. How and where will we **purchase** our physical goods?
4. How will **we** and our goods get from where we/they are to where we/they want to be?

Answers to these questions will help us to improve our short- and long-term profitability or the very existence of our businesses. In this issue we will address the first question: where and how will we live and what impact will this have on telematics?

Groupware, virtual private networks, conference calling, videoconferencing, and Voice over IP (VOIP) are making it possible for people to stay where they are and still communicate with co-workers. It can be efficient and useful for companies since it allows workers to communicate over long distances, saving significant amounts of travel time and cost. As broadband Internet connections become more commonplace, more and more workers have adequate bandwidth at home to use these tools to link their home to their corporate intranet and internal phone networks.

All signs point to knowledge workers working closer to where they live, and where they will live looks like it will be a condo in the any one of the thirty-plus super cities with more than 10 million residents, rather than in an isolated hilltop cabin in the Apennines or Adirondacks, which seemed to be the dream being pursued in the '70s. Today, more than half of the world's population lives in urban areas, and by 2050 the UN estimates that it will be more like 67%. This, however, does not mean everyone will have moved from the suburbs and will be living in central cities, as some have predicted.[2] While cities are growing, few cities are getting more crowed in their centers. Beijing, for example, like China's other megacities, is growing by expropriating cheap land outside its city's limits and then moving its boundaries. Suburbs will continue to have strong attractions for families and for those seeking a slow-paced life. Quoting a recent essay in *The Economist*: "Those who argue that suburbia is dying are wrong on the facts." (December 6th 2014)



only two urban agglomerations with 10 million or more inhabitants, Tokyo and New York/Newark. By 1990, the number had jumped to ten. Osaka/Kobe, Los Angeles, Seoul and Buenos Aires all appeared, but were bumped off by 2011 when the number reached twenty-three. Delhi moved in to second place, behind Tokyo, and Shanghai and Beijing moved into the top ten.

Quite a lot of transport-related investment money is going to be made or wasted based on whether the future holds higher density urban growth versus lower density sprawl in more concentrated megacities. Those who started to bet on the former using change in population growth in the 100 largest US cities between 2006 and 2013 may have to revise their thinking following the figures for the past two years. Cities went from negative to positive growth of 1%, while cities dropped from 2% to 1% before veering upward again.

Suburbs are changing, as the riots in Ferguson, St. Louis clearly showed. Cities are changing as well, as is apparent in cities that were written off as dead or dying just a few decades ago. My advice is don't jump on the next suburbs-are-dead bandwagon that comes along.

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"Tradition ist nicht die Anbetung der Asche, sondern die Weitergabe des Feuers" (Tradition is not the worship of ashes, but the preservation of fire.)

Gustav Mahler, Composer

Mahler was as brilliant with his quotations as he was with his musical compositions. It was not his preference to copy dead masters, but to be inspired by their genius to reach new heights. Companies that define their missions as following the traditions established by their founders eventually find it impossible to write the score to the new composition, to use the musical analogy. In 2011, only 13.4% were left of the companies on the Fortune 500 from 1955. Steve Jobs blamed 'great company' failure on a shift of power from engineers to sales staff. One of my best cars was a 1983 Saab. One of my worst was a 1995 Saab. Saab's gone. Its owners, GM, couldn't carry the tune.

It Snows in Boston: Don't let that catch you by surprise.

Massachusetts Avenue Bridge, Boston, Massachusetts, USA
DOMINICK REUTER / EUROPEAN PRESSPHOTO AGENCY

This photo appeared in the New York Times on February 20, 2015. It was a header to an article written by E.J. Graff describing the situation in Boston following record snowfall as 'a catastrophe'. I lived in Cambridge, the city across *The Charles* from Boston, and walked across this bridge daily during my first year. I moved my walking path to the Longfellow Bridge when I moved offices. When I lived there, beginning sometime in early December, the temperature started heading south of freezing and it began snowing. Some years it snowed a little; some years it snowed a lot. In February, 1978, just about the time I am writing these words thirty-seven years later, it snowed enough to close the city for a week[3]. The National Guard was called in to help with the clean-up. We skied across the Mass Ave and Longfellow bridges to get to work. Honest! I don't recall anyone calling for the resignation of the Mayors of Cambridge and Boston, or for the Director of the MBTA to fall on his sword. (The current one resigned as a result of criticism of the maintenance program.) It is nobody's fault that two meters of snow is sitting on everyone's roof. It happens every year in places not so much further north of Boston. A bit further north of where I am writing now, more than a few meters of snow is heaped on the ground. Nevertheless, what E.J. describes as a 'catastrophe' has been verified by many of my friends in first-hand accounts. It's not a flood or earthquake or hurricane, but that much snow is overwhelming. Some people buy all-wheel drive cars that can move on and through snow, and some put tires on their cars that are actually made for driving on ice-covered roads. Even these are not much help when the snow is so deep. Yes, *Snow happens*, and maybe it happens so seldom and so irregularly that we don't feel we need to do something to relieve the burden when it does. I don't agree.

With the proper tires and sensible driving, the cars being built today for rough weather regions (think SUVs and AWDs), are much safer than anything that was around a few decades ago. Politicians should not be talking about banning them or outlawing studded tires. But snow build-up on the streets has always been a problem with a solution. We had it in my home town when I was growing up: steam heat. The coal-fired gas and electricity works delivered a by-product in the form of steam that was piped under the streets and sidewalks. If we want to fault our politicians, and the people who vote for them (you and me) for something, it is for not making the snow melt on the roads and walkways without the help of the sun.

Footnotes:

1. Deductive reasoning: Arguing from general evidence to a particular truth. All men are mortal; Socrates is a man; therefore, Socrates is mortal. It is easy to get it wrong. For example: All dogs are mortal; Socrates is mortal; therefore, Socrates is a dog.

2. Leigh Gallagher in "*The End of the Suburbs"*; Edward Glaeser in *"The Triumph of the City*"; Alan Ehrenhalt in "*The Great Inversion*". These books herald the second coming of the city and the death of the suburb.

3. The official figure is 27" during 12 hours. It was over 36" in Cambridge and more in the suburbs, especially along Rt. 128 where cars were stranded for days.

About Michael L. Sena Consulting AB

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. 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 for your organization, are what we do together.