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Telematics Industry
Insights by
Michael L. Sena

# THE DISPATCHER

## IN THIS ISSUE



CONTINUING THE THEME of 50th anniversaries, it's been half a century since The BEATLES' ***Abbey Road*** album cover was shot on August 8, 1969. The group had been playing together since 1962. A month after this album cover was made, John Lennon told his bandmates that he was finished, and the group officially disbanded (forgive the pun) in the spring of 1970. The BEATLES, with their music, their movies and their off-screen/stage antics gave us all a great deal of pleasure. They put thought into their art, and this cover shoot was no exception.

Everything the Beatles did became the subject of analysis. People looked for hidden meanings in their lyrics and album covers, and conspiratorial theories were hatched based on the theoreticians'' interpretations. For example, there had to be a reason Paul McCartney was barefooted and out of step; why was John Lennon dressed all in white and Ringo all in black; and why was a white *VW Beetle* parked half way up on the curb with its license plate number, LMW 281F, clearly visible. As it turns out, they were all wearing what they had on when they showed up for work that morning. APPLE RECORDS' office was on Abbey Road. Paul was wearing sandals but kicked them off because he was hot. According to the photographer, the *Beetle's* owner was a resident of Abbey Road, and it was pure coincidence the car was parked there. The car was sold at auction in 1986 for $23,000 and is currently on display at the VOLKSWAGEN MUSEUM in Wolfsburg, Germany. So much for conspiracies.

# THE DISPATCHER

Telematics Industry Insights by Michael L. Sena
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# Deciders Will Decide If or When Driverless Arrives

HAVE YOU EVER wondered why it took us humans over 200,000 years to invent the automobile? I never considered this question before I read a very thought-provoking book, **The Technology Trap**, written by Carl Benedikt Frey.[1] He, along with his Oxford University friend and colleague, Michael Osborne, are best known as the authors of a research paper they published in 2013 estimating the potential impacts of advances in artificial intelligence (AI) on jobs.[2] They found that 47% of American jobs are at high risk of automation as a consequence of AI by 2035. Their research paper was quickly—and incorrectly—interpreted as confirmation that 47% of all workers in the United States would be unemployed by 2035, replaced by robots and AI-fueled algorithms.[3] If we just count people in the U.S. who are full-time employed, which in 2018 was 129 million, that would mean approximately 60 million without a job. The number of unemployed people in the U.S. today is around 6 million. Think of the implications.

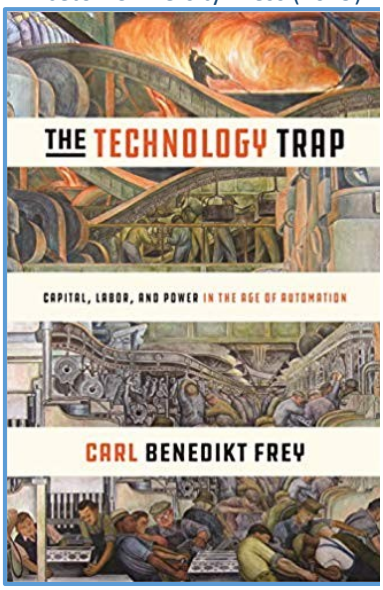
There is a very large difference between what can happen and what eventually does happen. Frey is an economic historian and his research has focused on the economics of AI, the history of technology and the future of work. He made clear in several interviews that his and Osborne's estimates should not be taken as meaning the end of work. He said:

*"Our study wasn't even a prediction. It was an estimate of how exposed existing jobs are to recent developments in AI and mobile robotics. It said nothing about the pace at which jobs will be automated away. What it did suggest is that 47% of jobs are automatable from a technological capabilities point of view over some specified number of years."*

And here is his key point:

*"The actual extent and pace of computerization will depend on several additional factors which were left unaccounted for."*

1. Frey, Carl Benedikt. **The Technology Trap**: **Capital, Labor, and Power in the Age of Automation**. Princeton University Press (2019).




2. Frey, Carl Benedikt and Osborne, Michael A. "*The Future of Employment: How Susceptible are Jobs to Computerisation?*" Oxford Martin School, Oxford University (September 17, 2013)

3. In their book, **Radical Markets: Uprooting Capitalism and Democracy for a Just Cause** (Princeton University Press – 2018), Eric A. Posner and E. Glen Weyl argue that the term 'artificial intelligence' is a misnomer and should be replaced by 'collective intelligence'. I agree, and I state the case for this in the September 2018 issue of **THE DISPATCHER**. I will use AI throughout this article since it is so widely accepted, but I will mean 'collective intelligence'.

Frey has found that through the various stages of technological development, it is a combination of cost, political pressure, regulatory concerns and social resistance that determine whether a new technology is first invented and then deployed. In his book, he provides countless examples of machines or processes that could have saved labor, capital or both that never saw the light of day because the conditions for their implementation were not met. This is the 'technology trap': when the politically powerful had more to lose than gain from progress, technologies that threatened people's skills were forcefully resisted. He wrote **The Technology Trap** to both clarify his and Osborne's research and to state his position on the nature of automation and the future of jobs.

He is neither an unbridled optimist nor a doom-mongering pessimist.[4] Many of his classical economics colleagues fall into the former category. They argue that in the past, new technology has always ended up in the long term creating more jobs than it destroyed. The short term may be difficult, they say, as it was in the First Industrial Revolution, but things will work out for the best in the long term. They argue further that it was capital accumulation among the new merchant class which cleared the way for technological breakthroughs and rational self-interest (humans' reciprocal altruism) did the rest. Extending this to today, it will be the same rational self-interest that will ensure that all will be well for everyone, even though everyone may not be able to have a job.

Martin Ford personifies the latter category as the penultimate pessimist.[5] He predicts "the middle class will vanish, economic mobility will cease and a wealthy plutocracy could shut itself away in gated communities or in elite cities (on Mars, maybe), perhaps guarded by autonomous military robots and drones with the unemployed masses subsisting on a universal (basic) income." For the pessimists, technology eliminates jobs, the unemployed cannot find new work, they, along with their families, lead miserable lives and are long dead by the time any benefits trickle down to those who have been affected most negatively. This is, in fact, what actually happened during the First Industrial Revolution.

## *Deciders, Influencers and Everyone Else*

Frey believes that by studying history we can find the clues we need to solve the mystery of how to make the next industrial transition, the one that is starting now, less painful for the large majority of people than the three previous ones.[6] Based on a careful

4. *Shumpeter – An accidental doom monger*. THE ECONOMIST, June 29th 2019. This is an article about Frey's book and his attempt to set the record straight.

5. Martin Ford is a futurist and author focusing on artificial intelligence and robotics, and the impact of these technologies on the job market, economy and society. He has written three books on technology. His 2015 book, **Rise of the Robots: Technology and the Threat of a Jobless Future**, was a New York Times bestseller and won the £30,000 Financial Times and McKinsey Business Book of the Year Award.

6. There have been three Industrial Revolutions thus far. The term was first popularized by the British economic historian Arnold Toynbee (1852-1883) to describe Britain's economic development from 1760 to 1840, the period of the ***First Industrial Revolution***. It is defined by Merriam-Webster as *"a rapid major change in an economy (as in England in the late 18th century) marked by the general introduction of power-driven machinery or by an important change in the prevailing types and methods of use of such machines."*
The ***Second Industrial Revolution*** occurred between 1870 and 1914. It was characterized by the build out of railroads, large-scale iron and steel production, widespread use of machinery in manufacturing, greatly increased use of steam power, widespread use of the telegraph, use of petroleum and the beginning of electrification.
(Continued)

reading of his book, I find that his most profound insight is profoundly simple: The ways that things are produced and work is performed change because people in charge (i.e., the Deciders) decide they may change, and the people in charge are influenced by those who have the most influence (i.e., the Influencers). The terms 'Deciders' and 'Influencers' are my terms. Those who are most affected—usually negatively—by the changes (i.e., the people doing the work), have little or no say at all. If Influencers convince the Decider that it is most important to keep the people working, any new technology that threatens that status quo will be stopped. This was the case in agrarian societies up to the First Industrial Revolution. If Influencers can show the Decider that investing in capital will make the Decider stronger and the Decider's domain more powerful in relation to its competitors, then the workers will be sacrificed. This is what happened with the appearance of factories and mechanization of tasks that had previously been performed by skilled laborers.

If we do not take the time to truly understand how decisions have been made, and will continue to be made, about the adoption of new technologies, we will fall into the same 'technology trap' as the generations before us, and this time it may have the most severe repercussions on the future of humanity. We could well create the preconditions to make ourselves extinct, or perhaps worse, irrelevant. It is worthwhile to refresh our memories with how we have gotten to where we are today.

I will show that this has everything to do with my opening question: Why did it take us over 200,000 years to invent the automobile and why are we so intent on getting rid of their drivers? There is an interesting follow-on question: After having the automobile for only 100 years, why are so many people trying so hard to get rid of it? This question will have to wait for a future issue.

## When the foundations were laid for Deciders

Frey takes as his starting point the beginning of the *Neolithic Period* in 12,500 B.C. when the first developments of farming appeared. Before this, humans had survived in nomadic bands that had between a few dozen to a few hundred members. The men hunted and the women gathered. Life was difficult, but we have learned that pre-Neolithic people were basically healthier, had better teeth and were taller than the average farmer in the post-Neolithic period. Spears, clubs and carrying devices were invented to make both hunting and gathering more effective. Everyone

*(Continued from previous page)*

The ***Third Industrial Revolution*** began in 1969, characterized by the use of nuclear energy, the rise of electronics with the transistor and microprocessor, telecommunications and computers. Biotechnology, space research and the invention of robots resulted. We are currently in the *Third Industrial Revolution*, also referred to as the *Digital Revolution*.

The ***Fourth Industrial Revolution*** is heralds a series of social, political, cultural, and economic upheavals that will unfold over the 21st century. Building on the widespread availability of digital technologies, particularly the Internet, that were the result of the *Third Industrial Revolution*, the *Fourth Industrial Revolution* will be driven largely by the convergence of digital, biological, and physical innovations.

moved with the herds and the seasons and tried to get through the winters. They ate what was on offer on that day at that time of year. There was no such thing as a surplus. Everyone had to co-operate in order for the group to survive. There don't appear to have been any super leaders or chieftains or that men were more important than women or vice versa.

Eventually, in the area of the Levant, in the region around present-day Syria, humans figured out how to cultivate plants and domesticate animals. Food supplies became more abundant and grains could be stored. Domesticated animals could be raised and slaughtered when needed. Beer could be brewed and vinification could be perfected. Humans settled down, settlements grew, people got shorter and fatter and the story of humankind could have been a 'Happily Ever After' saga. As we know, it wasn't.

When land was the most valuable commodity, the possession of land and the means to generate wealth from it was what drove all decisions about how the surplus would be managed, counted and used. Those within the early settlements who took responsibility for performing this managing and counting task gradually became more important than the rest of the members. They became the first **Deciders**. Once they had these positions, they naturally did what they felt they needed to do to keep them. One was to surround themselves with guards, who became the class of humans called soldiers, and the other was to foster superstitions and legends that justified their positions of superiority. The latter task was assigned to another new class of humans called priests. The Deciders came to be called kings and emperors, some of whom declared that they had divine powers given to them by the gods that the priests had invented (or discovered—your choice).

Specialists within the settlements were supported with the surpluses and given the task to develop better cultivation and irrigation techniques, better ways of storing grain, new methods for turning grapes into wine and hops into beer. The soldiers came in handy when the Decider in the settlement on the other side of the mountain decided that he would like to make his neighbor's surplus his own, thereby increasing the size of his surplus and, by extension, the greatness of his power. In order to accomplish this, or to keep it from happening, some members of the settlement were assigned to other specialist tasks, like making weapons and shields and thinking up strategies for winning the battles.

## Empires: more land, more people, more power

This new state of affairs trundled on for about 10,000 years when the world's first empire was formed by Sargon the Great in Mesopotamia in 2,350 B.C. Sargon figured out that more land and more people gave him more power. His *Akkadian Empire* lasted for two hundred years. Sargon established the idea of hereditary rule, that one of his sons would succeed him as the principal Decider, and made his sons governors of settlements in the empire and his daughters the high priestesses of major gods. Decidership became a family affair. Egypt and the pharaoh Deciders had their day between 1,550 B.C and 1,069 B.C. They also adopted the idea of family members inheriting the highest positions, and they gave themselves the title of 'divine ruler', meaning that they were themselves gods.

The Egyptians were inventive folks. How the heck did they get those huge boulders in place on their pyramids? They invented the ramp. They created writing 'paper' in the form of papyrus sheets, invented ink and then writing, all of which allowed them to record and communicate. Other inventions, including the ox-drawn plough, the sickle and irrigation made it possible to cultivate more land. These inventions increased productivity without reducing the need for labor. It seemed to be generally accepted that the more people you had who could work the land the more you were worth and the more power you had.

It wasn't until the Romans came along in the last millennium B.C. that the role of the Decider was shared among a group of elected individuals called 'senators'. In 509 B.C., Rome's kings were replaced by senators and the Roman Republic was established. For the next four hundred years, Rome's armies brought huge areas around the Mediterranean under its control. The Republic was replaced by the Roman Empire in 27 B.C. with Julius Caesar as its first emperor. He was the first REALLY BIG DECIDER. The Influencers were the patricians, the noble class who were wealthy land owners from the old families. There were citizens who were not patricians, there were the plebeians, the common people who were not citizens, and finally, there were the slaves who were definitely not citizens. Citizens had all the rights; plebeians and slaves had none.

*Slaves in chains under Roman rule, at Smyrna (present-day İzmir), 200 A.D.*

Once the Empire was established, the Roman Deciders did everything they could to keep the Influencers happy and everyone else in their place. A period called *Pax Romana* from 27 B.C. to 180 A.D. was a time of peace and stability among the 70 million-or-so

inhabitants of the Empire. This was no mean feat, and it required a great deal of flexibility to keep the majority of the populace from revolting and the nobles from fighting amongst themselves to gain more wealth and power. Anything that disturbed this fine balance was heavily frowned upon. Very heavily. There was no need for labor-saving technology, especially because one of the benefits of conquering so much territory was that the Romans could take so many unpaid workers as slaves. Inventions, like aqueducts and sewers, made life for the large number of city dwellers, the citizens, more comfortable, and improvements to roads and sea vessels brought soldiers to where they were needed more quickly and provided goods to keep the citizens satisfied. But if you thought you would endear yourself to the Emperor with a labor-saving idea, you were going to be very disappointed.[7]

When *Pax Romana* ended and the Roman Empire collapsed in the 5th Century, there followed a period of almost nine hundred years during which the feudal order prevailed. A king (the Decider) ruled over a group of nobles (the Influencers) who were given ownership of tracts of land by the king. The nobles owned serfs who lived on and farmed the land, and were controlled by soldiers under the noble's command. While they were not slaves, the serfs were bound to the land and were not free to leave or to sell their labor or products they might make. They were allowed to farm a part of the land for food that they would consume themselves. Inventions during this period, like those in the periods before, did not replace labor but enhanced it. These included the nailed horseshoe, the modern horse collar, the heavy plow, and wind and water power devices.

## *A new way of thinking emerges*

If someone had invented a car during the Middle Ages or even during the Renaissance (as da Vinci did), it would not have gained much traction. The majority of people didn't go anywhere because they had no reason to do so, and were not allowed to travel in any case. If you had a reason for travelling you were of the class that was allowed to do so and your servants took you where you needed or wanted to go. Something began to change during the latter part of the Renaissance that would, in time, have an enormous effect on the way people thought about things.[8] That 'something' was that beliefs based on superstition started to give way to beliefs based on reason. Individuals like Francis Bacon and John Locke argued for empiricism, that is, basing knowledge on inductive reasoning and careful observation rather than *a priori*

7. Seutonius, a Roman historian who wrote during the early period of the Roman Imperial Empire, describes how a man who had invented a device for transporting columns to the Capitoline Hill had presented his idea to Emperor Vespasian. The Emperor declared: "How will it be possible for me to feed the populace?" Transporting columns gave thousands of people livelihoods, kept them busy, and thereby minimized chances of social unrest.

*Da Vinci's designs for a self-propelled vehicle moved by the interaction of springs with geared wheels. Image: Courtesy of Museo Nazionale della Scienza e della Tecnologia Leonardo da Vinci*

8. The Renaissance (UK: /riˈneɪsəns/ ri-NAY-sənss, US: /ˌrɛnəˈsɑːns/ REN-ə-SAHNSS) is a period in European history, covering the span between the 14th and 17th centuries and marking the transition from the Middle Ages to modernity.

ideas about ideals. Changing the way people thought changed the way they acted. A fundamental shift occurred in the culture.[9] Joel Mokyr, referred to extensively in Frey's book, believes that culture is not immutable but evolves. Therefore, it was not only capital accumulation that had built up through the 18th century A.D. that led to the First Industrial Revolution. This was necessary, but not sufficient. The true catalyst, in Mokyr's view, was a "continent-wide evolution of beliefs."

With the Scientific Revolution, which preceded the First Industrial Revolution and began around 1400 A.D., inventiveness really got started.[10] Most inventions, like William Bourne's submarine in 1578 and da Vinci's helicopter in 1493, remained on paper. Mokyr said: "If inventions were dated according to the first time they occurred to anyone, rather than the first time they were actually constructed, the Renaissance may indeed be regarded just as creative as the (First) Industrial Revolution." Mokyr claims that the majority of gadgets associated with the First Industrial Revolution—with the exception of steam power—could have been built in the 1600s. However, while an empiricist scientific culture was evolving, the societal culture was still in a 'labor trumps capital' mode.

The societal change occurred first in Britain, where a new class of Influencers appeared, the middle class merchants. What the Scientific Revolution did during the 16th and 17th centuries was to prepare the ground for a culture of growth. "Once the notion of objective knowledge became widespread and it could be used to improve people's lives, the emergence of self-sustaining economic growth was near inevitable," says Mokyr. We see the first glimmer of hope that a machine could be invented—and built—which would both increase productivity and replace labor.

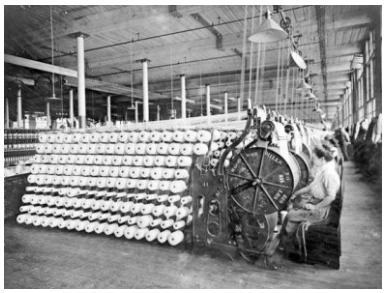
## *Invention is the mother of necessity*

Frey put the start of the First Industrial Revolution perfectly with this phrase. It wasn't the other way around. No one, not even the merchants were clamoring for machines to replace manual labor. However, once the inventors began to show how their machines could increase productivity, reduce costs and reduce time to market, the merchants understood that they could considerably increase their wealth while sharing the risk with those who were willing to provide capital. By making a strong case to the Deciders for Britain being able to achieve a dominant position in global trade, and thereby increasing the wealth available to the country

9. Joel Mokyr is an economic historian at Northwestern University who wrote **A Culture of Growth** (2016). Mokyr says that cultural shifts influenced individual choices and thus broader economic activity. "Culture," according to Mokyr, "is a set of beliefs, values and preferences capable of affecting behavior. Within a culture, these traits are socially, not genetically transmitted and shared by some subset of a society."

10. The Scientific Revolution took place during the 16th and 17th centuries. A new view of nature emerged replacing the Greek view that had dominated science for almost 2,000 years. Science became an autonomous discipline, distinct from both philosophy and technology, and it came to be regarded as having utilitarian goals. By the end of this period, science had replaced Christianity as the focal point of European civilization.

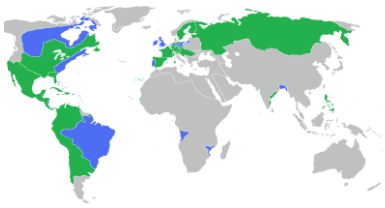
ENCYCLOPEDIA BRITANNICA



*A 1912 scene in the American Woolen Company in Boston, Massachusetts showing two of the principal inventions of the First Industrial Revolution, the factory and the machines, and one from the Second, electric lighting.*

for expansion of its power, the merchants gained the upper hand in Britain over the landed gentry and became the strongest Influencers of the Parliament (as a group, the effective Decider, while the king was the titular Decider).

It's important to recall our history lessons from the latter half of the 18th century. Britain and France were fighting for global hegemony, and the other major European powers were allied with one or the other in the Seven Years' War (1756-1763). Battles were fought in North and South America, in the Far East as well as in Europe. Wars cost money, especially if you want to win them. Britain and its allies won this particular war, but then followed the American War of Independence (the American Revolutionary War – 1775-1783), the French Revolution (1789) and the Napoleonic Era (1799-1815).



*All the participants of the Seven Years' War*

*Great Britain, Prussia, Portugal, with allies*

*France, Spain, Austria, Russia, Sweden with allies*

What distinguished Britain at this time was its parliament's dominance over the monarchy. This was the result of the Glorious Revolution of 1688-89 in which the parliament gained supremacy over the crown. According to *Article 4 of the Declaration of Rights*, Britons could no longer be taxed without their consent. What Frey found in his research was a strong correlation between a strong monarch who could raise taxes at will and that monarch's resistance to technology. Francis I, the last Emperor of the Holy Roman Empire and Emperor of Austria-Hungary until 1835, refused to allow steam railroads in his domain out of fear that the they would bring the poor to cities where they could organize and rebel. In Britain, the merchant Influencers convinced the MP Deciders that more money could be generated with trade than laying heavier taxes on the landed gentry, and it could be strongly argued that this is what tipped the balance of power in favor of Britain compared to other countries.

So when Richard Arkwright and James Watt patented their inventions that served as the starting shot of the First Industrial Revolution, Britain was ready to put them to use. Arkwright is credited as being the father of the modern industrial factory.[11] With his 'water frame' he combined water power, machinery, semi-skilled labor and cotton to create mass-produced yarn at a fraction of the cost and in a fraction of the time that artisans could produce the same quantities. Watt didn't invent the steam engine (that was Thomas Newcomen in 1712), but his separate condenser improvement made steam engines cost-effective.

11. The first legal definition of Factory System was in 1844: All buildings and premises where-in or within the close or curtilage of which steam or any other mechanical power shall be used to move or work machinery.

*James Watt contemplating his invention.*

What happened next, initially in Britain and eventually everywhere else, is the replacement of manual labor performed by skilled individuals who had trained to perform a specific task or groups of tasks. Large numbers of people employed in what was called the 'domestic' or 'cottage' industry no longer had work. As steam power replaced water and wind power, factories could be located in cities and towns, rather than scattered along rivers or in the countryside. Many of the younger unemployed moved to the cities to work in factories—in 1850, only one-quarter of the adults in Manchester, Liverpool and Glasgow had been born there—but they found that the jobs were filled by children or others who had no skills whatsoever, which meant that they were paid a fraction of what the skilled laborer had earned. For a description of what conditions were like (i.e., deplorable) in Britain's major industrial cities, read any book by Charles Dickens.

This situation continued for half a century. Unfortunately for the masses, the gains from growth did not trickle down to labor during this time. Between 1786 and 1846, output per worker grew by 46% as a result of the mechanization of tasks, but real wages grew by only 12%. However, since average working hours increased during this period by 20%, actual wages declined. On the other hand, profits for the industrialists doubled. Not everyone who found themselves out of work and without a chance to continue to feed his family took the situation lying down. There were some workers who did exactly what the last Holy Roman Emperor said they would do: they rioted.


*The Luddite movement was named after Ned Ludd (probably a mythical character), an apprentice who allegedly rushed into a stocking weaver's house and destroyed his equipment in 1779 and whose name had become synonymous with machine destroyers. Ned Ludd was used as a way to shock and provoke the government. He was reputed to live in Sherwood Forest like Robin Hood.*

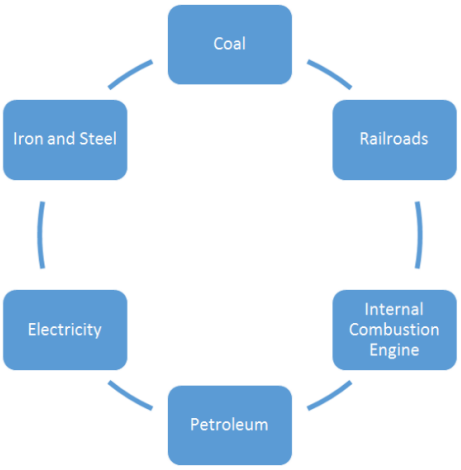
Merriam-Webster

## The Luddites were the good guys

The term 'Luddite' has gained popularity recently as a label for those who exhibit negative attitudes towards the use of automated, robotic systems to replace humans in performing work tasks. When the term was coined in the 18th century, it was not just those who were associated with the Luddite movement (see sidebar) who rose up against mechanization, but they were the most organized and the most determined. Their efforts failed and principally served to steel Britain's government against the destruction of machines and the factories that housed them. The parliament passed a law making such destruction a capital crime. Hundreds of Luddites were executed as a result.

The Second Industrial Revolution is the one that brought the benefits to the masses and helped to expand the middle class. Beginning in the First Industrial Revolution, coal fueled the develop-

ment of the iron and steel industry and gave rise to the first railroads. In the Second, railroads expanded, electricity made the impossible possible and both petroleum and the internal combustion engine heralded the start of a new age. All the products and inventions we are so critical of today, those that have brought us closer to the time when our planet may be uninhabitable by future generations, were those that augmented labor, rather than replacing it, as in the First Industrial Revolution. New inventions, particularly those developed for the automobile industry—that became the largest employer in the United States by the middle of the 20th century—made workers more productive and created entirely new labor-intensive activities. They increased the demand for labor, increased wages and drew up the working class into the middle class. Skills, knowledge and ability were once again valuable. Engines needed engineers.



*The major factors influencing the Second Industrial Revolution*

The year 1879 is the symbolic beginning of the Second Industrial Revolution. In that year, Karl Benz successfully demonstrated his internal combustion engine and Thomas Edison invented the electric light bulb. Electric lights and fans and electric motors directly running machines made factories both more humane and more productive. Ford's continuous flow production with the assembly line and his perfection of machine tooling that allowed interchangeable parts revolutionized the way products were made.

Unlike in the First Industrial Revolution, there were no major objections to the new technologies in the Second Industrial Revolution because the rising tide was lifting all the boats, not just those of the owners. Added to this was the mechanization of the home with refrigerators, washing machines and vacuum cleaners that lightened the load on the (female) homemaker and made it possible for women to begin to enter the workforce. Another invention, the typewriter, invented in 1874, provided a tool that would, more or less, turn the office workforce into one where both men and women found a place.

There were times between the end of the Second Industrial Revolution and the start of the Third that Deciders had second thoughts about the pace of mechanization. FDR tried to slow it down during the 30s and the Great Depression to put people to work, but then Pearl Harbor was bombed and everyone who wasn't in a military uniform was gainfully employed supporting

the war effort. JFK said in 1962 that automation was a problem because it was putting people out of work. Then he was assassinated, the Vietnam War got the economy booming and everyone forgot about losing their job to automation.

And so, by the middle of the 1960s, the middle class became the largest class. The difference between the wages of the wealthiest and the poorest was smaller than it had ever been before—and smaller than it has been since that time. Two World Wars and the Great Depression served to destroy the riches of the wealthy. Grandchildren of peasant farmers and day laborers were graduating from the best colleges and taking their place in all professions alongside the grandchildren of the landed gentry and the industrial barons. Walter Reuther, President of the UNITED AUTOMOBILE WORKERS (UAW) from 1946 until his death in a plane crash in 1970 said:

> *"I look forward to the day when the worker will spend time writing a concerto, painting or doing scientific research. An auto worker may work 10 hours per day. Culture will become his main occupation. Working for a living will be a sort of hobby. Technology will turn the backyard of every American into a Garden of Eden."*

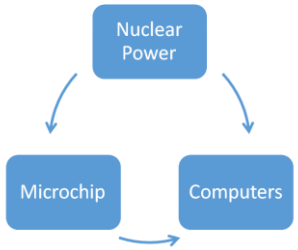
Reuther did not live to see what the Third Industrial Revolution would bring to the auto workers and many others in the working/middle class. He would not have been pleased.

*"In the end, for most people, the main source of their income is not physical or financial capital, but human capital. The wealth of workers is their skills. It is from their human capital that they make their living."*

***The Technology Trap**, page 213.*

## *You say you want a revolution*

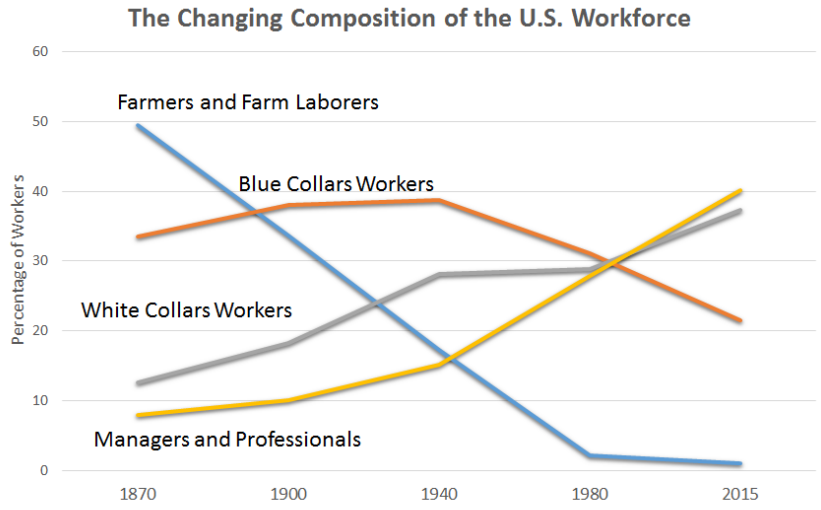
*"Well, you know, we all want to change the world."* John Lennon's lyrics to *Revolution* captured the mood of the late '60s, right at the start of the Third Industrial Revolution. There were those who wanted to change everything and those who wanted to maintain the status quo. Management consultant Peter F. Drucker, who coined the term 'knowledge worker', claimed at the start of the automation revolution that 'automation' was just a fancy name for mechanization and computers would simply supplement the mechanization process. He was wrong. Computers would indeed change everything, just like the first machines changed everything. They would cause a revolution.




*The Third Industrial Revolution*

Before computers, all machines needed to be operated by humans. The computer revolution was different. Computer-controlled machines have eliminated exactly those jobs that had been created when sophisticated electric machines were introduced, routine (perhaps monotonous) jobs that did not require more

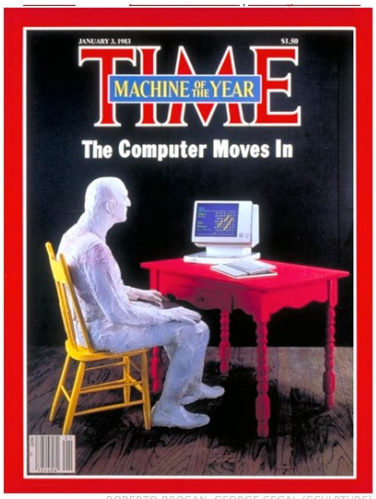
than a basic education but enough skill to make obtaining the skill worth the effort. As of 1970, more than 50% of jobs in the United States were performed by blue collar workers and the clerical portion of white collar workers. These jobs didn't make them rich, but they provided enough money to make their lives and lives of their families comfortable.



Source: Historical Statistics of the U.S.

By the time the personal computer was awarded by *TIME MAGAZINE* its "Man of the Year" award, the transformation of work was well underway, and with it, the hollowing out of the middle class had begun. As routine jobs disappeared, those who had them either tried to obtain the education needed to enter the class of workers called by Robert Reich 'symbolic analysts', or were forced to take lower-paying jobs in the 'in-person services' category, or remained unemployed.[12] Reich describes the symbolic analyst as a person who engages in problem solving, problem identification and strategic brokerage services, who have also been referred to as 'knowledge workers'. Already in 1989, symbolic analysts, who include lawyers, doctors, engineers, scientists and other highly educated individuals, comprised 20% of the population of the United States, but earned more than 50% of the income.

With all of the job losses, why are there still so many people working? People still need to tell computers what to do. As Michael Polanyi has said: "We can know more than we can tell."[13] Deciders could be convinced by the Influencers who were promoting ever increasing amounts of automation that there would be more and more symbolic analysts leaving universities with advanced degrees earning increasing sums of money to lavish on the personal services being provided by in-person services personnel, and that



*In 1982, Time Magazine awarded its "Man of the Year" award to the personal computer, the first non-human to receive the award since its creation. It changed the title for that issue to "Machine of the Year".*

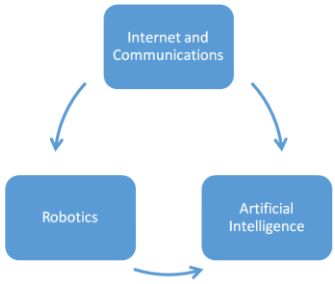
12. Reich, Robert B. **The Work of Nations**. (1992). Symbolic analysts are problem identifiers, problem solvers, or innovators who can visualize new uses of existing technologies. This class of workers includes scientists, engineers, and other scientific or technical specialties as well as marketers, investors, some types of lawyers, developers and a wide variety of consultants.

13. Polanyi Paradox, attributed to Michael Polanyi (1891-1976), a Hungarian-born scientist and philosopher who immigrated to Great Britain during WWII. The Polanyi Paradox is the theory of human knowledge of how the world functions and capability are, to a large extent, beyond our explicit understanding.

this would more than compensate for the loss of jobs in the routine category of work.

## *Automation is a religion*

We are now on the cusp of the Fourth Industrial Revolution. Inventors of robotic systems controlled by self-learning systems are developing technology to replace the in-person services category of workers, including taxi and truck drivers and potentially drivers of all types of vehicles, along with the other 47% of the jobs Frey and Osborne identified as susceptible to computerization. Maybe there will be new jobs to replace the old, maybe not.[14]




*The Fourth Industrial Revolution*

In order for this to become a reality, Influencers in each of the principal market regions, North America, Europe and Asia, and in the countries in those regions, will have to convince the Deciders that the short-term pain of massive unemployment will be more than compensated for by the long-term gain, in the same way they did in the previous Industrial Revolutions. And, as in the previous Industrial Revolutions, the Deciders will be most interested in the competitive advantages that will accrue to the country compared to the jobs that will be lost and the economic and social impacts that will result from those losses.

Will the Deciders in each market take the same position as Britain did during the First Industrial Revolution, viewing their competitive advantage versus the rest of the world as more important than the loss of jobs for weavers and other craftsmen? Will the appeals of tax preparers, insurance adjusters and truck drivers fall on deaf ears like those of whale hunters in the Second Industrial Revolution and machine tool operators in the Third? The answer is probably, yes.

## I see a red door and I want to paint it black

Deciders in the 18th, 19th and 20th centuries accepted investment in mechanization over investment in labor and witnessed the benefits in the beginning of the 20th century. They embraced automation and praised the benefits of globalization for mankind. They now appear to be ready to lend their support, willingly or hesitatingly, to the Fourth Industrial Revolution. It would be counter intuitive if they did not. Most Deciders are also members of the symbolic analyst caste and have grown up being taught that their job, directly or indirectly, is to find ways to cut costs, increase speed and reduce errors through relentless automation, to paint all of the red, green, blue and white doors the color of

14. Without the safeguards for humans that Max Tegmark and the Future of Life Institute have recommended, the world may experience the kind of backlash leashed by the Luddites, but on a much larger scale. See **THE DISPATCHER**, February 2018.

automation. The pursuit of automation for everything has become accepted, and no one questions the spread of automation until they have lost their job to it. Even now, with the possible exception of the 'Yellow Jackets' in France, people are not rioting in the streets because they have lost their jobs or feel threatened by businesses putting their own profits before the welfare of people. Many choose to go quietly into the opioid night.

It appears to be taken for granted by businesses, government and the general public that every task can be the object of automation, whether it is mowing the lawn, vacuuming the floor or delivering a package to your door. If a youngster doesn't get the pocket money he would make by mowing the neighbor's lawn, or a single parent doesn't earn that little extra to pay the rent by cleaning homes, or if the delivery person loses his job, that's just the price we pay for doing our job. The automobile, truck and tractor were mechanical versions of a horse, ox or camel. Like a horse, ox or camel, they still needed a human driver in order for them to perform a task. Because, since the beginning of the Third Industrial Revolution, any work task is open ground for automation, replacing the driver is simply a logical next step. It does not need to be justified on epistemological, metaphysical or ethical grounds, and the political grounds are clear: if we don't do it, the others (other business, other country) will and we will be at a strategic disadvantage.

*A Scrammell Mechanical Horse and Trailer in the Great Western Railway. Another railway, the London and North Eastern, wanted an answer to the problem of replacing horses for local haulage purposes while retaining the flexibility of changing the wagons and the manoeuvrability of the horse and wagon. A company called Napier & Son obliged.*

It sounds like it's a done deal. Investors are pouring money into AI, including driverless vehicle technology, and are acting like the Fourth Industrial Revolution and the acceptance of the technologies that will replace more and more jobs are already a *fait accompli*. Here is a story to give us pause. A high school in Sweden was just fined for using automatic face recognition to determine if students were present in class, rather than the teacher calling the roll. It was found that the technology violated the General Data Protection Regulation (GDPR) even though it was only a trial and even though the students had given their permission. This may seem small, but it is HUGE. Widespread AI is definitely not yet a done deal. There are many miles to go and mountains to cross before cars and trucks are being driven without drivers, but "*one way or another, they're gonna get ya, get ya, get ya, get ya*."

## Maybe there are lighter and darker shades of black

The road to driverless will be bumpy, the degree of bumpiness depending on whether you are in the U.S., China or within the EU. In the September 2018 issue of **THE DISPATCHER,** I took a look at

how decisions on personal data are taken in each of the three major markets, and these decision processes apply to how decisions will be taken on implementing driverless vehicles.

In the U.S., one just needs to look at how the governmental agencies are handling TESLA and its so-called 'auto pilot' to understand what it will do when companies state they are ready to deploy vehicles without drivers.[15] There have been six TESLA crashes, the first extending back to 2016. The driver of the TESLA vehicle died in four of the six crashes. A report was issued on August 22, 2019 by the U.S. National Transportation Safety Board for an accident that occurred on January 22, 2018 (see sidebar). The report said similar things to earlier reports on other TESLA crashes, that Autopilot is not an auto pilot, but the driver was acting like it was. So far, TESLA has not been told to re-name its product nor pull it from the market. We can expect similar treatment for companies delivering driverless cars unless there is a major change of government in the U.S. It is as Milo Minderbinder said in Joseph Heller's **Catch-22**, "What's good for M&M Enterprises will be good for the country." Substitute TESLA or any other company name for M&M ENTERPRISES and the statement applies.

15. On January 22, 2018, on a busy freeway in Southern California, a Tesla Model S with Autopilot engaged drove into the back of a stationary fire truck that was serving as a guard vehicle in a high occupancy vehicle lane where an accident involving a motorcycle had occurred. The Tesla's brakes were never engaged.

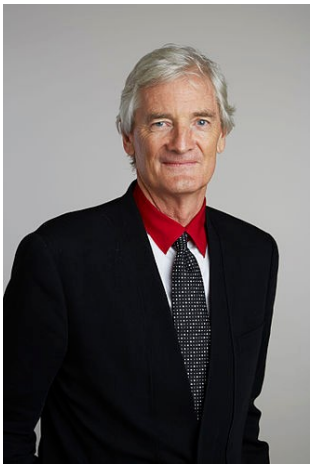
In July, 2017, China's government presented a plan for China to become the world leader in AI by 2030, building a domestic industry worth $150 billion. Driverless vehicles, whether for military or peaceful uses, is part of this plan. No further discussion is needed.

The EU will move much more slowly because of the differences between its 27 (maybe still 28?) members. Individual countries that have a significant auto industry, especially Germany, France and Sweden, have been working with industrial partners on advanced driver assistance systems that are being further developed for driverless operation. The UK also has strong basics for a safe introduction of driverless technologies, once it decides whether it is in or out of the EU.

**Opinions About the Automation of Labor Using Artificial Intelligence**


It took us 200,000 years to invent the automobile counting from the first *Homo sapiens*. However, if you count from the time the horse was domesticated, it took us only 5,500 years to replace the horse with a motorized vehicle. We're about to replace the driver in a little over 100 years. How long before we replace the riders?

# James Dyson: Appliancizing the Automobile



DYSON LTD. IS best known for its VACUUM cleaners based on cyclonic vacuum technology, like the one in the sidebar. The company was founded in 1991 by James Dyson (Sir James Dyson as of 2007, pictured left). He studied furniture and interior design at the Royal College of Art before he started his career as an industrial designer. His Big Idea was a vacuum cleaner that would not lose suction as it picked up dirt and which did not require dust bags. He worked on it for five years while his wife brought home the paychecks. It was a hit.

He has broadened out from vacuum cleaners to air purifiers, hand dryers (the Blade that is appearing in public toilets), bladeless fans, heaters and hair dryers. In 2014, he invested in a joint robotics lab with Imperial College London to investigate vision systems for household robots. Now, he is going to try his hand at cars.

In September 2017, Dyson announced via an e-mail to employees that for the past two years the company has had a secret 'skunk works' project located in Hullavington, Wiltshire. Four hundred people have been working on a battery electric vehicle which Dyson said he hopes to release by 2020. More information came out on the project in February 2018, with news of three electric vehicles in the works as part of an estimated £2.8 billion project. In an interview with the BBC, Dyson said the car will be radical and different because, as he put it, "What is the point of making it like any other car?" He also promised it would not be cheap. Neither are any of his other products. The release date is now 2021 or thereabouts.

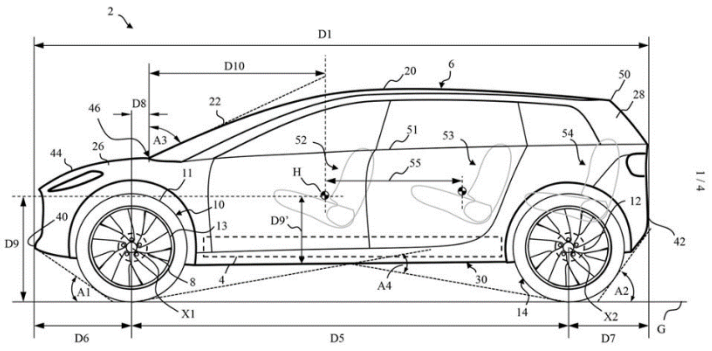
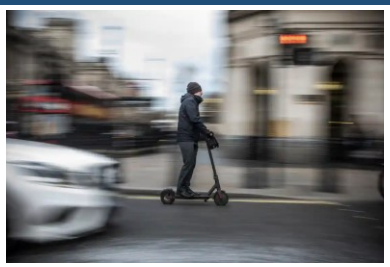



Fig. 1

The drawing to the left is from the company's patent application for the Dyson EV. It looks a bit like my 1970 Ford Cortina Estate (see **THE DISPATCHER**, May 2019), not very radical. It seems the main innovation is not the vehicle design but the batteries that will be used in it. Dyson bought a U.S. company called SAKTI3 that claims to have a solid-state lithium-ion battery producing over 400Wh/kg energy density. Tesla's batteries deliver 240Wh/kg. We shall see.

# Rental e-scooters Are Worse than a Nuisance



When Electric Scooters that are picked up and dropped off anywhere by their users started appearing in cities around the world two years ago, they were hailed as one of the best solutions to urban mobility since the mobile phone-based taxi service (e.g., Uber, Lyft, among others). E-scooters provided by Bird and Lime, along with local renters like VOI in Sweden, were said to be environmentally friendly, convenient to use, inexpensive to rent and available to all. Some went so far as to say they were a better alternative for the climate than all other forms of transport other than walking.

The key innovation with e-scooters is the rental business model: Download the app for one or more of the e-scooter companies on your smartphone; enter a valid credit card number; use the map on the app to find a nearby scooter; use the barcode reader on the app to unlock the scooter; go for a ride; park the scooter; and, end the ride on the app. What happens after that is up to the e-scooter company. If its battery still has a charge, it can be re-rented. If not, eventually, it will be picked up by the e-scooter rental company, carted to a charging location, maybe cleaned up and repaired, if needed, and then placed out on the street again for another round of rides.

E-scooter hardware is mostly based on Segway[16] technology, either honestly licensed or copied. Batteries are another key advance. Since the early 2000s, energy storage systems have become more powerful and less expensive. Vehicle battery prices have dropped 86% between 2010 and 2016. Electric scooters now travel 20 to 30 miles between charges. These batteries have also benefited other electric transportation devices like motorized skateboards and unicycles.

One year after they were introduced into major cities in the U.S. and Western Europe, the impact of e-scooters, both positive and negative aspects, began to become clear. Whatever their advantages might be, they were perceived by large numbers as a nuisance.[17] They cluttered the sidewalks and have been left inconsiderately by their users anywhere they hopped off them. Blind and elderly have stumbled over them. They have been used regularly

16. Segway was bought by Ninebot in 2015. Ninebot, a Chinese competitor to Segway, The deal represents a quick turnaround for the two companies' relations: in September, Segway petitioned federal trade regulators to block Ninebot and several other companies from selling similar devices in the United States, saying they were violating Segway's patents.

17. Full disclosure: Your editor can be counted among those who view e-scooters principally as a nuisance because they litter the sidewalks in the center of Stockholm, and their riders pay no attention to the rules of the road or sidewalk.

illegally on sidewalks at speeds over the allowed maximum of six miles per hour, and on bicycle paths at speeds over the 20 mph which is their legal maximum, endangering everyone.[18] Cities were caught totally off guard by their appearance. Many did nothing to either control or accommodate them. Others, like Paris, simply declared them *scooterati non grata*.

## If it sounds too good to be true, it usually is

Two years later, arguments in favor of e-scooters are looking a lot weaker than the negative ones, and it's not just because they are a nuisance. Their environmental friendliness is a red herring. A study conducted by ***MIT TECHNOLOGY REVIEW*** shows that a single e-scooter generates more harmful emissions than a diesel bus.[19] "The mere fact that battery-powered scooters don't belch pollution out of a tailpipe doesn't mean they're emissions free, or as eco-friendly as some have assumed," says the article's author. "The actual climate impact of the scooters depends heavily on how they're made, what they're replacing, and how long they last." A research study was conducted by a group at North Carolina State University after one of the researchers looked at a receipt he received after renting a LIME scooter which stated, "Your ride was carbon free."

What the researchers found was that dockless scooters generally produce more greenhouse gas emissions per passenger mile than a standard diesel bus with high ridership, and, naturally, much more than a walk or non-e-bike. A survey of users found that only 34% of the users would have taken their car or a taxi. Nearly 50% would have walked or biked (non-electric), 11% would have taken the bus and 7% would not have taken the trip at all. The electricity used to charge the vehicles is one of the smallest contributors to the product's emissions; around one-half of the emissions come from the raw materials and manufacturing process.

The researchers disassembled BIRD and LIME scooters made by XIAOMI, a Chinese manufacturer that supplies to both companies and many others. They weighed the aluminum frame, steel parts, lithium-ion battery and the electric motor and used other findings to assess the environmental impacts of extracting, producing, and delivering those raw materials. If a scooter remains in service for the theoretical operating life of two years, the impacts can be spread thin enough to make them acceptable. But, e-scooters don't last two years in the rough and tumble world of e-scooters. They are thrown into rivers and lakes, are run over by cars and

18. In Stockholm, the law is clear on where an e-scooter may be used. If the e-scooter travels over a walking pace, which is 6 kilometers per hour, it may not be used on either a sidewalk or a pedestrian path. It must travel on a street or on a bicycle path. In September, the ***Swedish Association for the Vision Impaired*** began to place the equivalent of parking tickets on e-scooters that were blocking the sidewalks as a demonstration concern for the dangers these vehicles pose for the city's inhabitants.

19. Temple, James. "Sorry, scooters aren't so climate-friendly after all". ***MIT TECHNOLOGY REVIEW***. (August 2019).

trucks, set on fire and are simply damaged by careless use. BIRD conducted a study of its own fleet and found that the average life was closer to 29 days!

## We just found another way to die

I subscribe to the liberal view that an individual should be free to endanger himself as long as he does not endanger anyone else or their property in the process. So if folks want to hop on an e-scooter and zip around in traffic at high speed, fine. But, if it means that I, as a driver, am now liable if I hit them, or that I, as a pedestrian crossing a street (legally) can be run over by one of them because they do not obey the rules of the road and give way to pedestrians, then I have a problem sharing the road with them. The number of reported accidents in Stockholm during the first seven months of 2019 was 86. The total for 2018 was 4. These are only those incidents that involved a visit to the hospital or in which police were engaged.

Scooters, e- or otherwise, are not made to travel fast.[20] They have small wheels making them less stable than other two-wheeled vehicles like bikes and motorcycles, and cracks and pot holes can send them flying. I found data from UCLA's University Medical Center in Santa Monica and Ronald Reagan Medical Center in Los Angeles showing that 249 people were admitted to their ERs with injuries from electric scooters. Most of those injuries were from falls, not collisions. In San Diego, the University of San Diego Medical Center says it had admitted 42 people with severe injuries from electric scooter accidents. Of those, only one person was wearing a helmet. A total of 48% of those riders were measured to have a blood alcohol level higher than the legal limit for intoxication and 52% tested positive for illegal drugs.

And they're not cheap. If I buy a single transit ticket in Stockholm costing around $3.20, I can ride around for 75 minutes. If I ride around on an e-scooter for 75 minutes, it is going to set me back $23.50. That's $1 for the right to rent it and $0.30 per minute.

Not every invention is good just because it looks 'cool'. Kick scooters had a brief heyday until people came to the conclusion they were neither practical nor worth the trouble. E-scooters are different. There is a demographic who flock to them like flies to horse manure. These people don't own a car or like taking the bus. The idea of sweating a bike ride is not appealing, and a taxi, even UBER, is sooo not cool. Walk? C'mon. Let's just keep their use safe and to a minimum while promoting the safer and cleaner options.

20. In the U.K., electric scooters, like SEGWAYS, hoverboards, *Go-Peds* and self-propelled unicycles, are neither roadworthy enough under the Road Traffic Act 1988 to be registered as vehicles nor can they be used on the pavement: an offence against the Highways Act 1835. People are occasionally prosecuted. Paris's mayor, Anne Hidalgo, was in favor of e-scooters as a greener alternative to cars, but no longer. Police have started cracking down for bad parking, riding on pavements and breaking the 20km/h speed limit. Police said they had issued 1,000 tickets and impounded 600 scooters.

*A friend from the U.S. (Austin, Texas) came for a visit late this summer. She was on a two-week Scandinavian tour and this was her last stop before heading home. As we ate lunch in a café in the very center of Stockholm, in front of the Royal Palace, Parliament and Opera, she commented on the beer cans and other flotsam floating in the water. "That wasn't there when I was here last, twenty-five years ago," she said. "And what's going on with the scooters? They're all over the sidewalks. It's not like that in Copenhagen or Oslo. It doesn't give a good impression of the city. I've been tripping over them and trying to keep from getting run over by them since I arrived here yesterday."*

# Dispatch Central

## *NHTSA's Acting Leader Leaves*

HEIDI KING, the National Highway Traffic Safety Administration (NHTSA) Deputy Administrator since 2017, has resigned effective 31 August 2019. She replaced the previous administrator, Mark Rosekind, who departed just prior to the inauguration of President Trump in January 2017. Ms. King was nominated by President Trump in 2018 to become Administrator, and her nomination was approved by the Senate Commerce, Science and Transportation Committee on April 3rd, but it was not confirmed by the full Senate before the end of 2018. President Trump re-nominated her, but again, she was not confirmed.

King's appointment was blocked by Democrats in the Senate and by both the *Center for Auto Safety* and the *Natural Resources Defense Council*. The basis of their disapproval was her unconditional support for rolling back the Federal fuel economy and efficiency rules that had been established by President Trump's predecessor, Barack Obama, during the final days of his administration. U.S. Department of Transportation (DOT) Deputy General Counsel, James Owens, will take over as deputy NHTSA Administrator and the agency's Acting Chief.


## *A sign or our times*

THIS PHOTO of a parking sign in a neighborhood on the edge of Stockholm says a lot about the times in which we live. It appeared in the 'Miscellaneous Stuff' section of the local newspaper, DAGENS NYHETER on 26 August. A simple *No Parking* sign should do it, but it doesn't anymore because it seems that people now feel that regulations either apply to other people or rules are created by old folks who are out of touch with how things work today. "Why can't I run a taxi business without a taxi business license and without having registered and qualified taxi drivers?" Uber's founder, Travis Kalanick kept saying. "Why can't I update my cars' software without going through the hassle of new type approval if I do it directly over the air?" whined Elon Musk when the EU authorities tried to slap his hand. "Why can't I park anywhere if it is more convenient for me?" asks a parent dropping off their child at day care. In a world run on exceptionalism, the only answer is Why not?

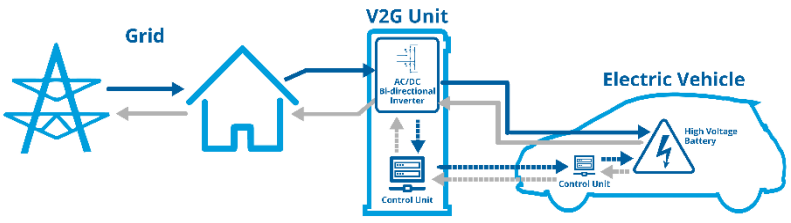
## *Electric Cars: A matter of give and take*

IF EVERYONE bought a battery electric vehicle (BEV) like the green lobby Influencers are advocating and politician Deciders are encouraging through tax incentives and heavy-handed disincentives, the electric supply would literally be brought to its knees. The UK faced a crisis of electricity supply in the late 1960s when its citizens finally started to purchase electric appliances for their homes that were already common in the United States and Northern Europe. Since central heating was never a British forte, various types of fixed and portable direct heating radiators were fairly common, but as electric usage increased, so did prices and outages. Storage heaters appeared throughout the UK in the 1970s as a heating alternative to direct heating radiators, and were designed to exploit new night time so-called Economy 7 electricity tariffs.

So now, with BEVs, we are facing a similar problem. Because the chances of recharging during the day are minimal or non-existent at the workplace, everyone arrives home in the evening and plugs their car into the grid. The grid is overloaded and either crashes completely or moves to low output mode. What is needed is an intelligent way for electric cars to be charged with only the amount of electricity is needed and to share any excess with other users. Enter HONDA with two innovations. The first is its *Honda SmartCharge* system that it began testing last year in California. Operating via an Apple mobile app, it allows owners of its *Fit EV* car to charge when electricity demand is low and when the availability of renewable energy is high. It uses the vehicle's telematics system and ENEL X subsidiary *eMotorWerks' JuiceNet* software platform to compute the best time to charge a vehicle from the electric grid, taking into account in real time the driver's schedule, the amount of renewable energy being generated (from the electricity provider).

*HONDA is currently collaborating with WITRICITY, a U.S.-based venture corporation developing a system that enables wireless charging of vehicles (equipped with pads installed in the vehicle's underside) from the power grid (with pads embedded in parking spaces), and wireless power transfer technologies.*

The second innovation is its vehicle-to-grid (V2G) concept. V2G provides bi-directional power balancing. When the vehicle is plugged into a charging station, it can both accept power to charge the vehicle's batteries and deliver energy stored in its batteries back to the grid when demand for electricity is high. Nissan, Renault, FCA and other companies are working on this concept. It sounds good, but there will need to be a lot more vehicles doing it to really make it practical.



## *New California law encourages driverless taxis*

DID THE TITLE get your attention? California legislators have not passed a law that has anything directly to do with driverless taxis, but it has passed a law that makes it more difficult for Uber, Lyft and other companies that depend on a business model based on the gig economy to continue to use that model. The California State Senate passed Assembly Bill 5 on the 10th of September after it had been approved by the Assembly in May. The Bill changes the status of gig workers to employees of the companies that use their services. Governor Gavin Newsom signed it into law on the 18th of September.

The legislation is the result of a May 2018 California Supreme Court decision which ruled that independent contractors who worked at a courier company called DYNAMEX OPERATIONS WEST should have been considered employees of DYNAMEX. The case was brought to the Supreme Court by the Superior Court of Los Angeles. The ruling stated that, based on a three-part, ABC test[21], the workers are employees. Reports following the ruling agreed that of the three parts created by the DYNAMEX decision, "the 'B' test is the big one". If a pizzeria hires somebody to clean the windows, that person is performing work outside the company's "usual course of business" and can be an independent contractor. But, if a pizzeria hires someone to make pizzas, because a pizzeria's primary business is making pizzas, the person making pizzas must be an employee.

If you are Uber or Lyft, you can try to argue that the drivers are in the taxi business and you are in the 'matching taxi businesses with taxi users', and that is exactly what they are going to try to do. Their first defense is their claim that the majority of their workers have full-time jobs elsewhere that provide the full-time benefits, and people who drive for them are just doing some extra top-up on their income. They have also already stated they will lobby for a direct vote by the people of California, and propose a new category of worker who is neither an employee nor an independent contractor.

This is big. If this ruling sticks—and Uber and Lyft have earmarked $30 million of their (investors') cash pile to fight it—legislatures in other states and other countries will use it as a precedent, and not just to pay the salaries of their new employees, but to pay the costs that are currently borne by their gig contractors. Uber's stock dipped a few days before the ruling to its lowest point since its introduction, down 33% from its July high of $46.38.


*Uber drivers blocked an intersection near the company's San Francisco headquarters in May 2019 the day before Uber launched its shares on the US Stock Exchange. They were striking to protest against their working conditions and low pay.*

21. Under the ABC test, a worker will be deemed to have been "suffered or permitted to work," and thus, an employee for wage order purposes, unless the putative employer proves:

(A) That the worker is free from the control and direction of the hiring entity in connection with the performance of the work, both under the contract for the performance of the work and in fact;

(B) That the worker performs work that is outside the usual course of the hiring entity's business; and

(C) That the worker is customarily engaged in an independently established trade, occupation, or business of the same nature as the work performed.

Note that each of these requirements needs to be met in order for the presumption that a worker is an employee to be rebutted, and for a court to recognize that a worker has been properly classified as an independent contractor.

# A Dispatcher's Musings: Which Brave New World?

*FEMA (the U.S. Federal Emergency Management Agency) states that an RV is "designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.*

*RVs may have their own motor power (motorhomes), be mounted (truck campers) or towed by another vehicle (travel trailers, fifth wheel trailers, folding camping trailers). Sports utility RVs, which contain a built-in garage for hauling cycles, ATVs or sports equipment, are available in both motorhomes and towable RVs. Retail prices for RVs range from about $5,000 for towable models (folding camping trailers) to $500,000 or more for motorhomes (Type A motorhomes). The variety of models allows RVs to appeal to a wide range of consumer preferences and income levels. Motorhomes can be driven and travel trailers can be towed in the United States with a regular automobile driver's license. In the U.S., IRS tax deduction - For most RV buyers, interest on a loan taken to pay for an RV is deductible as second home mortgage interest.*

HAVE YOU NOTICED that there are more caravans/camper trailers, like the AIRSTREAM below, and campervans, like the *Hobby 700 ELC* to the left—collectively called 'recreational vehicles' or RVs—on the roads today? They averaged one-in-five on connector roads and one-in-fifteen on motorways here in Sweden this past summer. Sales of recreational vehicles peaked in the U.S in 2006 at 390,000, dipped to 165,700 in 2009 and then rose to 504,600 in 2017. Sales have followed the stock market, which was at a record high in July of this year. Pundits say the reason for the increase is all the retired baby boomers. They are probably right. My friends in the U.S. who own them need to do something in between their cruises to Alaska, Venice and St. Petersburg. With RVs, they can take their cats and dogs along to visit with their families and friends without having to book rooms in pet-friendly hotels. They can carry along all of their medicines and their entire liquor cabinet without worrying whether they will get through airport security.

According to *Kampgrounds of America* (*KOA*) the number of camper households increased by 6 million between 2014 and 2018. The majority of them are in the 35-54-year-old segment. The millennials may be mostly roughing it in tents, while the 19% of them who are baby boomers are primarily buying the RVs. One of the reasons why RVs are popular, both in North America and in Europe, is the cost-savings opportunity they offer families. A vacation or holiday using an RV can be more than 60% cheaper than a traditional vacation at a hotel, bed and breakfast, or similar type of accommodation, and unlike staying at an AIRBNB rental, you don't have to worry if the sheets were changed after the last visitor.

The RV industry has a $114 billion economic impact according to the results of the 2019 RVs Move America

Study, research commissioned by the *RV Industry Association*. The industry provides 596,355 jobs and $32.2 billion in wages in the U.S.

## Coming to a parking lot near you

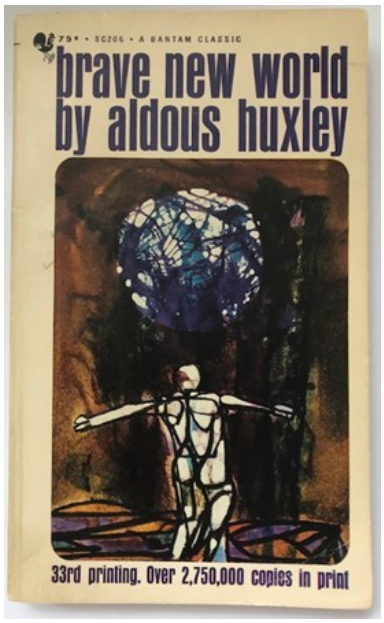
Where are all those portable vacation homes headed? Well, they might be making a beeline for your driveway, a guest parking space at your condo or the prime location at one of your relaxation spots. My brother-in-law with his wife, their dog and two casts arrived at our condo a few weeks ago in their *Suzuki Vitara* pulling their camper. They stayed for a couple of days before heading to other destinations. There was at least one campervan parked right in front of each of my favorite fishing spots on a recent outing. But most of the RVs you see on the roads are on their way to a space in an official campground, like the one at Myrtle Beach in South Carolina shown in the photo at right, where their owners can hook up to electricity, stock up on the basics at the commissary, enjoy a shower and wash their clothes at the campground facilities.

*South Carolina, Myrtle Beach RV Travel Park, aerial view of campground near the ocean. Here is some serious camping. There are a few spots still open.*

As the number of portable vacation homes has increased, so has the number of campgrounds. In Europe, there are 9,854 campsites that are inspected by the the largest camping guide provider. *EuroCampings.eu*. There are three times that number in total according to one estimate I have seen. Many of these sites are owned and operated by the communities in which they are located. In the U.S. there are 13,000 privately owned RV parks and another 1,600 state-owned parks that cater to RVs. KOA is the largest chain of RV park operators.

## When a lifestyle becomes a way of life

My musing on the subject of recreational vehicles, both trailers and self-driven, and their special campgrounds is in relation to what happens to them if and when the New World comes, the *Brave New World* in which harmful emissions have stopped being pushed into the atmosphere and global warming is in recession. [22] The scenario that is being promoted the most vociferously by groups like Extinction Rebellion is one in which there are no motorized vehicles of any kind. When protestors block intersections in cities, as they have in London, they do not distinguish between ICE (internal combustion engine) and BEV (battery electric vehicles) cars, nor do they allow buses, ambulances, police cars, fire trucks or any other vehicles—perhaps, especially not RVs—to pass. These protestors will roll back the clock to a time before trains allowed us to live in one place and work in another, and before cars made it possible to




22. After reading the first two books in the 'dystopia series' (Orwell's Animal Farm and 1984), I felt it was time to dig into my bookshelf, find the third and read that one too. It's been half a century since I read the novel that Aldous Huxley wrote in 1931. I had forgotten what it was about, to what 'brave new world' referred.

spread out beyond the suburban bedroom communities into every nook and cranny of in the landscape creating sprawling conurbations.

In one *Brave New World* scenario, everyone will live in heavily concentrated cities where elevators are the main means of transport. Citizens will ride electric bicycles, electric scooters and mini electric helicopters (as in Huxley's London in the year 632 After Ford[23], or 2540 A.D.), or be chauffeured around in self-driving electric pods. Those who must leave their city to visit another will take high-speed trains. If the places are far away, they will board supersonic rockets powered by some magical fuel that has no impact on the environment. In the places where there once were suburban communities, wind turbines will cover the hills and solar collector panels will fill the valleys. Wave power generators will line the coastlines of oceans and large lakes. People will eat whatever is delivered to their doors as long as it does not contain anything that once moved itself. Just like in Huxley's book, vacations will not require travel, only a pill. A citizen need only decide how much *soma* to take and the drug-affected mind will do the rest while the body lies at home in bed. No VR goggles required. Simple. Cost-effective. Safe. And, yes, boring.

There are, thankfully, other scenarios. In the July 6th issue of *THE ECONOMIST*, there was a special section titled *The World If*. It contained possible outcomes of events that occurred in the past if other decisions or actions had been taken, or events that may occur in the future if we approach them differently today. Topics included 'What if America leaves NATO?', 'What if antibiotics stop working?' and 'What if the Treaty of Versailles (ending WWI) contained different terms for the losing combatants?' The authors of the articles use three different methods to understand different outcomes. One is to look at science fiction. The author of this sections says: "Sci-fi can play a useful role as a forward-scanning radar for technological, social and political trends. But sci-fi does directly shape the future in one concrete way: the tech industry is full of people trying to make it come true." Think: Cars that drive themselves, for example.

Another author describes an approach to apply the concepts of anthropology.[24] The idea is to look for examples of behavior or techniques that are new but have not gained wide acceptance. I recall being in Tokyo in 1996 and seeing young girls walking with their faces glued to their mobile phones. This was well before the practice hit the U.S. or Europe.

23. For those who have not read Brave New World, the year the *Ford Model T* was introduced is Year Zero for the World State. Its citizens make the sign of the T instead of the sign of the cross, and say Thank Ford, instead of Thank God.

24. Anthropology is the study of humans and human behavior and societies in the past and present. Social anthropology and cultural anthropology study the norms and values of societies. Linguistic anthropology studies how language affects social life. Biological or physical anthropology studies the biological development of humans.

The third approach is called ‘scenario planning’. It is believed to have started with the military during WWII. The idea is to take known facts about the future, such as demographics, geography, and mineral reserves, and combine these with social, technical, economic, environmental and political (STEEP) trends. For example, what if climate change causes drastically rising water levels and major storms making it impossible to live in cities that are located near any sort of water body. What if storms and excessively high temperatures cause massive electrical outages? What if weather conditions combine with an inability to operate farm machinery because of the lack of fuel or electric power making it impossible to produce, process and package enough food to feed large urban populations, and problems with transport do not allow whatever food that is available to be delivered to urban centers? What if people are forced to constantly move to find places where it is safe to live and where food can be found? There was a time in the history of humanity when moving to food was the natural condition everywhere. Hunters followed the herds as they moved to find water and food. Maybe we will find ourselves there again. This is where RVs will be able to help.

## By perseverance the snail reached the ark

What better way to move to a place that may offer temporary security and nourishment than with a portable shelter. Gastropods, like the snail to the right, have been doing it successfully for over 250 million years. Early nomadic people sought shelter wherever it could be found. Later, when animals were domesticated, they devised all types of portable structures, like yurts and teepees, that could be erected and taken down quickly and packed on or pulled behind their animals. They moved with the seasons, but they also moved when climate conditions changed, either forcing a relocation when the climate turned inhospitable, or allowing a move when an area beame more welcoming. Modern humans left Africa around 60,000 years ago, but they didn’t wander up to northern Europe until after the glaciers began to recede eleven thousand years ago. For a period of time there were both hunter and gathers and settled farmers sharing the same areas, but by the second millennium B.C. farmers were predominant.

Small groups became villages, villages became towns and by the end of the 16$^{th}$ century, some towns had become cities. The Industrial Revolution in Europe and gradually most other places

essentially eliminated the craftsmen and we divided ourselves up into those who labored with and on the land and those who ate and used what the land-laborers provided. This condition has persisted for no more than the past three hundred or so years. In the total scheme of things, that is not a very long time. If we must, in order to survive major changes in climate, we can return to humanity's former condition when we moved when we had to move.

The rich and famous are already making preparations for a mobile habitat. The yacht to the left has a $1 billion price tag. It is called the *Streets of Monaco*. It has a go-kart track, a beach on a lake, and a ship deck designed to replicate a city-scape. Included are reproductions of casinos and the Monaco Grand Prix track. Along its 550 foot length are tennis courts, swimming pools, cafés, and supposedly grand underwater ocean views. For those who are less well off, the *World Residence at Sea* (right) offers 165 studios, one-, two- and three-room apartments aboard a floating condominium. The super, super rich will head off to colonies on the Moon or Mars where they will live in hermetically sealed communities while they wait for the Earth to heal or the masses to arrive.

*"With only 165 individual Homes, The World's residents enjoy one of the most exclusive lifestyles imaginable. Not only do residents from 19 countries own their individual residences, but collectively, they own the ship, ensuring that the experiences – both onboard and off – are far beyond current luxury travel standards."*

RVs can serve as homes for the rest of us, those of us who will work on fixing the Earth, to make it livable again. RVs can house the people who will see to it that there is electricity generated by every clean means available, who will maintain the electric power grid and the communications network. RVs can house the people who will still need to keep the roads maintained so that when we need to move out of the way of a devastating storm or if the water supply evaporates, we can move lots of people quickly and safely. RVs can serve as hospitals, schools, shops and offices, providing the basic services necessary to maintain a decent and humane standard of living for everyone and travelling along with the rest of us when nature demands it.

We may have permanent settlements as well, where machines are built, including new RVs and other vehicles. These facilities might be located in mountain caves high enough above sea level to be out of reach of rising waters or seismic sea waves. There already exist disaster-proof facilities built by governments where computer systems are located. These can be turned to the good of all rather than just for use by the military. Humans will be too busy just

surviving to worry about fighting one another to gain an advantage in trade or access to resources.

If you are one of the companies making recreational vehicles today, like FORD, FCA, AIRSTREAM, CARTHAGO, DETHLEFFS, HOBBY or HYMER, what do you do? When the next economic downturn comes and sales are halved as they were in 2008, do you call it quits because you think that climate change will make RVs obsolete? Do you ignore the climate change signs and try to keep doing what you have been doing for the past fifty years until conditions make it impossible to continue? Or do you start to look at scenarios that would make RVs less recreational and more essential? It is not a matter of more people having more recreational time. When the baby boomers in North America and Europe have popped their last champagne corks, there will not be such a large and accepting market for leisure time vehicles as at present. It's a matter of a nomadic way life, rather than the sedentary one, being the normal way to live, and providing the vehicles that will make that possible.

Maybe *Van Life* (see sidebar) is more than just a fad mimicking the hippie trend in the '60s and '70s. Instead of building a log cabin in the woods, Van Life adherents are making their vans their homes.

## Keeping all your scenarios open

We don't know for certain what will happen. We don't know whether Roy Scranton is correct when he says it's too late to do anything about global warming, so just keeping going as we are until the end comes for humanity.[25] In that case, RVs will continue to follow the ups and downs of the economy and will either continue to be a part of what people do when they retire or not, depending on many unforseen factors. We don't know if the earth will fix itself without the hand of humanity if we just keep going as we are before the earth becomes unlivable by us--anywhere. We don't know if we will finally focus our efforts on the most important problem facing us today, reversing global warming, and put all of our minds together to solving it (instead of fighting silly wars, arguing over tariffs or shooting our neighbors in shopping centers). And even if we find the solution to fixing global warming, we don't really know how long it will take for the fix to work.

What we do know for certain is that the earth is getting warmer and that we are responsible for it, even though there are those who do not believe the science behind this fact. I'm not planning to trade in my SUV for an electric scooter anytime soon just in case I need to 'get out of Dodge' fast.

*"The term "Van Life" represent more than just vehicle dwelling. It embodies a shift in the way people are thinking, a movement that is sweeping across the mindset of our generation. Van Life is a sub-culture of nomadic individuals whom are embracing minimalism on a journey to reassess what is truly important for a happy and balanced life."*

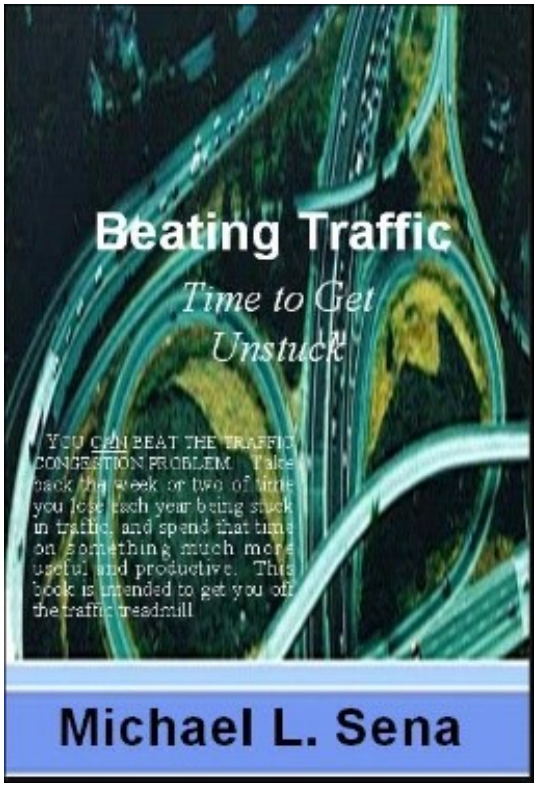
25. Scranton, Roy. Learning to Die in the Anthropocene: Reflections on the End of Civilization. City Lights (2015).

*We stayed one night in August this year at a camping site on the West Coast of Sweden while visiting friends in the town where we lived during our first eighteen years here. We rented one of the two-storey cottages since we did not have a camper or a tent. I took this photo with the ocean approximately 50 meters behind me.*

## *About Michael L. Sena*

Michael Sena, through his writing, speaking and client work, attempts 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, how and why developments are occurring so that you can develop your own strategies for the future.

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