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## THE JANUARY 2024 ISSUE IN BRIEF

GM CEO MARY BARRA, who also sits on *CRUISE*'s board, has told investors that *CRUISE* could generate \$50 billion in revenue by 2030. That's one-third of GM's 2022 revenue. It's slightly more than one-half of TESLA's 2022 annual revenue. The *CRUISE* operation lost more than \$700 million in the third quarter of this year. Mary Barra cannot really believe what she is saying.

In this issue's lead article I will attempt to dissect another corpus, *WAYMO*, which some people believe is in the same business as *CRUISE*, or vice versa. I am choosing to look at *WAYMO*, rather than *CRUISE*, because *WAYMO* has come much, much farther than *CRUISE* in demonstrating that it has a truly driverless vehicle. *WAYMO* is also part of an organization, ALPHABET, which unlike GM, has proven over the fourteen years it has funded and supported *WAYMO* that it believes there is a place for the operation somewhere within its company, but has also demonstrated that it can cut an operation or a CEO loose if they don't fit comfortably into ALPHABET's total structure.

*WAYMO* has three possible futures:

- *Defunct, meaning that Alphabet decides it no longer wants to fund it and closes it down, rather than selling it to a third party.*
- *Continued life inside Alphabet, either as a standalone subsidiary or as a part of another subsidiary, like Alphabet is now making WAZE part of Google Maps.*
- *Continued life as a spinoff outside Alphabet, either as an independent company or as an acquisition by another company.*

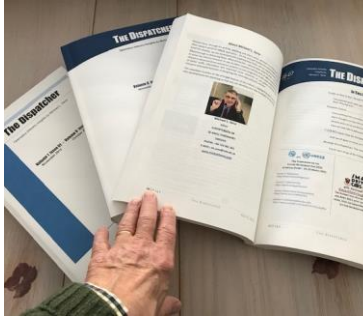
I believe that if ALPHABET has its way, it knows exactly where *WAYMO* belongs in side ALPHABET and nowhere else. However, competition authorities in the U.S. and EU may not let ALPHABET have its way. Understanding

WAYMO's future will bring us a long way toward understanding who will operate driverless vehicle services, and what should happen with CRUISE.

# THE DISPATCHER

Mobility Industry Insights by Michael L. Sena  
January 2024 – Volume 11, Issue 3

## Feature: The Real Case for Driverless Mobility



### Feature Articles



The real case for driverless mobility



Vehicle-related telecommunications



Automotive artificial intelligence



The business of delivering transport systems



People and transport – the effects of how and where we live, work, and recreate on our requirements for transport



Standardization and regulation of transport systems

### Who Will Operate Driverless Vehicle Services

WAYMO WATCHERS WERE all atwitter in late October 2023 when two events occurred involving the wholly-owned ALPHABET INC. subsidiary. First, on the 25<sup>th</sup> of October, a message came from WAYMO staff to all of its passengers:



Hi there,

Many of our riders choose Waymo for the clean and consistent vehicle we offer. To ensure every rider gets this experience, we'll be applying a vehicle cleaning fee **for riders who leave a mess behind in the vehicle**, such as vomit, excessive trash, and smoking odors.

For those that self-report their mess during their ride (not including smoking), the fee will be \$50. For issues that go unreported, we'll charge riders \$100 for the first violation and increase the fee for subsequent violations. Repeat trash and smoking related violations may also impact your account standing.

Here are a few reminders to avoid this fee:

- **Take your trash with you.** At the end of each ride, please take any trash with you to dispose of at your destination.
- **If you're feeling sick, request a pull over.** The Waymo Driver will find the next safe spot to pull over where you can exit the vehicle.
- **Do not smoke in the car.** Smoking of any kind, including vaping, is prohibited in Waymo vehicles.

We appreciate you keeping Waymo One fresh and clean for everyone! Please reach out to Rider Support via the Waymo One app if you have any questions.

Thanks,  
The Waymo Team

Then, on the 26<sup>th</sup> of October, WAYMO put out a news release with the headline: *"The Waymo Driver: now available on Uber in Phoenix"*. Here is what it said:

### Good news, Phoenix

*There's now another way to catch a ride with the Waymo Driver. Starting today, Uber customers can get matched with a fully autonomous, all-electric Waymo ride – with no human driver behind the wheel – in the 225+ square miles of Metro Phoenix where Waymo currently operates.*

*When an Uber customer requests an UberX, Uber Green, Uber Comfort, or Uber Comfort Electric ride through the Uber app,*

they'll have the option to confirm a ride in a Waymo vehicle if matched to one. This is the first launch of our strategic partnership with Uber we announced earlier this year.

"Our partnership with Uber gives their riders the chance to experience the Waymo Driver," said Tekedra Mawakana, co-CEO of Waymo. "As we continue to scale, we want as many people as possible to experience the safety, consistency and delight of riding with the Waymo Driver."

### **Bringing the Waymo Driver to more people in more places**

Riders will still be able to hail the Waymo Driver directly through the Waymo One app, available to the public in Metro Phoenix, San Francisco, Los Angeles, and soon, Austin. Tens of thousands of people hail the Waymo Driver every month in Metro Phoenix, and the Waymo Driver currently provides more than 10,000 rides each week in the region – over a thousand of which are to or from Sky Harbor International Airport.

We're proud of the rider community we're building in Metro Phoenix – the result of years spent developing a genuinely useful service in the market. This month marks five years since we first launched Waymo One in Chandler, Arizona, and three years of offering our fully autonomous service to the public. In that time, we've quintupled the size of our service area in Phoenix, making it the largest AV ride-hailing territory in the world.

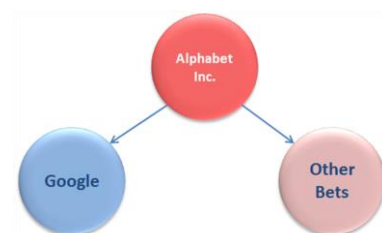
### **Scaling the benefits of full autonomy**

Our partnership with Uber allows us to expand the benefits of safe, reliable, autonomous driving technology and lets more people experience the excitement of riding with Waymo. We're delighted to welcome even more riders into Waymo vehicles with Uber.

I cannot say for sure whether the timing of the behave-and-clean up your mess "Mom Reminder" and the UBER announcement were related, but I suspect they were. Together they set in motion a great deal of speculation in the ether about what it all meant for WAYMO, UBER, and EVERYTHING.

### **The answer is not 42**

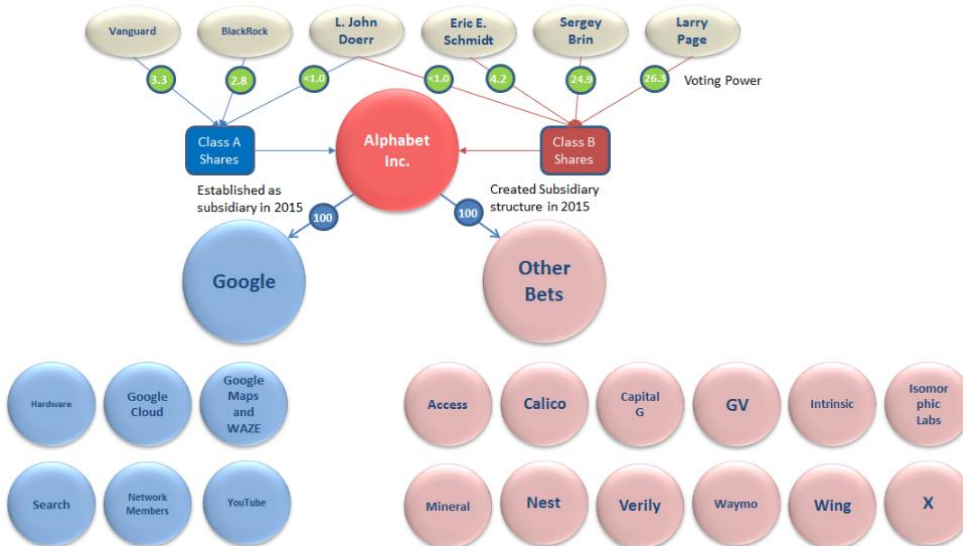
WAYMO LLC began life in 2009 as the Google Self-Driving Car Project. It became a subsidiary of ALPHABET INC. in its "Other Bets" division in December 2016 when it was taken out of Google (which was by then the "Alpha Bets" division of ALPHABET), made a limited liability company, and renamed WAYMO LLC. It was placed in the Other Bets division because that is where ALPHABET parks those businesses that it owns which have no income and an uncertain future. The name



'Waymo' was derived from "a new WAY forward in MOBility", according to ALPHABET. Its current co-CEOs, Dmitri Dolgov and Tekedra Mawakana, who took over from John Krafcik in 2021,<sup>1</sup> report to ALPHABET CEO Sundar Pichai (who is also CEO of ALPHABET subsidiary Google). WAYMO's business is listed on the company's organization chart as "Autonomous driving".

In the diagram below, I have shown both the major owners of ALPHABET shares and the organization of the company into its two divisions. Company founders Sergey Brin and Larry Page have a controlling position in the company with their 51.2% share of the votes. In the sidebar you will find short descriptions of the twelve companies, including WAYMO, in the Other Bets division.

**Alphabet Inc. Organization – Revised on 3 November 2023**



What does all of the recent activity with UBER and car tidiness have to do with where WAYMO is going, and how does WAYMO's future affect the question of who or what will operate driverless vehicle services? To answer both of these questions, let's first take an in-depth look at WAYMO's current business and possible futures.

*Alphabet is in the ad brokering business and nothing else*

Shall we agree that for the foreseeable future, ALPHABET will remain in the ad brokering business, where it is now, and

<sup>1</sup> Krafcik was the former president of TrueCar and president and CEO of Hyundai Motor America. He was named CEO of Google's self-driving car project in September 2015. Krafcik remained CEO when Waymo was formed.

### Alphabet's Other Bets

Alphabet's Other Bets comprise a list of twelve companies in 2023 that span from life science to self-driving companies:

**Access** – Runs Google Fiber, which offers super-high-speed broadband access over fiber optic cables to new cities

**Calico** – Human health by overcoming age

**CapitalG** – Private equity for growth stage technology companies

**GV** – Venture capital for technology companies

**Intrinsic** – Robotics software

**Isomorphic Labs** – Drug discovery

**Mineral** – Sustainable agriculture

**Nest** – Creates a set of smart home devices

**Verily** – Develops tools to collect and organize health data

**Waymo** – Autonomous driving

**Wing Aviation** – Developer of delivery drones

**X** – Research and development for "mootshot" technologies

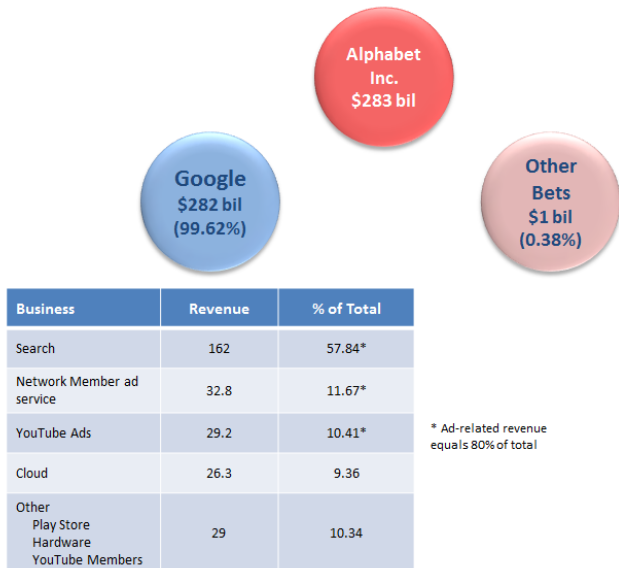
Compared to Alphabet's total revenue, Other Bets represented less than 1% of overall revenues for 2021.

Other Bets that have moved out:

**DeepMind** – merged with Google Brain and is now part of Google Research.

shall not transform itself into any of the businesses in its Other Bets group? Other Bets accounts for less than one-half of one percent of total revenue. Its ad-related revenue, which is all under the Google division, represents 80% of its total revenue, as the diagram here shows. Fully 57.84% comes from ad revenue driven by Google Search, and the remainder from companies that subscribe to its ad service (11.67%) and *YOUTUBE* advertisers (10.41%). Its \$26.3 billion Cloud business, which is non-ad-related, represents a bit over 9% of its revenue, and it might seem that it has the potential to grow, given that it has only approximately one-third of the revenue of each of its principal competitors, MICROSOFT and AMAZON. Google Cloud has been generating losses, but it supports all of ALPHABET's businesses and enables the company's total revenue. ALPHABET is simply getting others to pay for its IT systems by selling cloud services. Other non-ad revenue in the 'Google Other' category, which totals \$29 billion and is a bit over 10%, contributes indirectly to Google's (and ALPHABET's) principal way of earning money.

### Alphabet Inc. 2022 Revenue – Revised 3 November 2023



Michael L. Sena

What this means is that *WAYMO* has a future inside ALPHABET if – and only if – it either 1) generates additional ad revenue, or 2) contributes to more ad revenue being generated. In either case it will move into the Google division. If it is an ad generator, the contribution has to be meaningful, and the business would at least have to carry its costs. As a meaningful ad contributor, I would assume that it needs to be in a similar class as *YOUTUBE* ads, so somewhere around \$20-30 billion. *YOUTUBE* today has 2 billion monthly active users globally.<sup>2</sup> Nearly 43% of global Internet users access the site every single month, and 63% use the site for around 17 minutes every day. Of the 2 billion monthly active users, only 1.5%, or 30 million, are paid subscribers accounting for

<sup>2</sup> <https://backlinko.com/youtube-users>



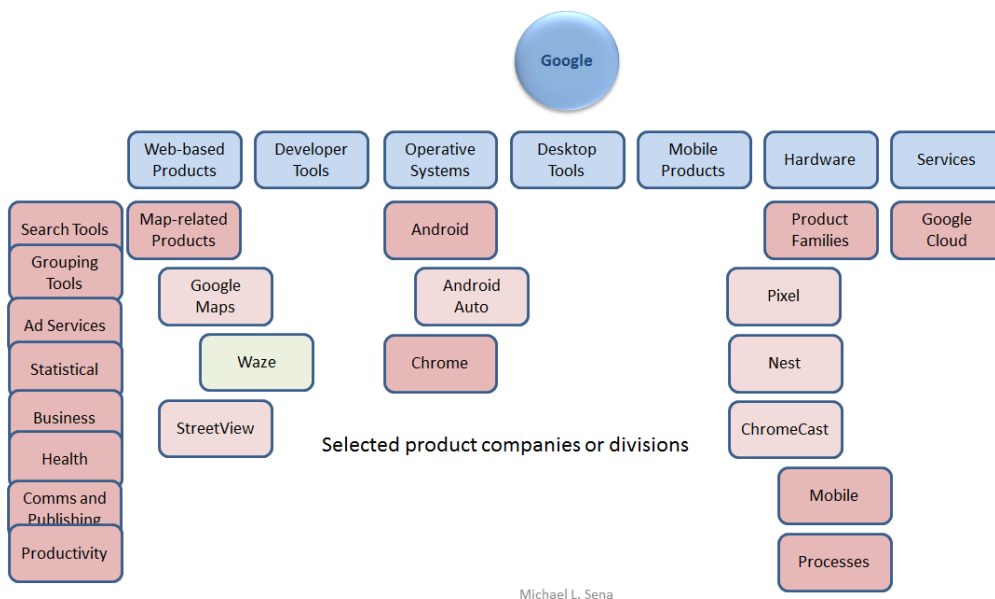
just \$3.6 billion annually, which is counted in the Google Other business category. The rest of the *YOUTUBERS* are free-loaders.



*Note: I saw an article in which a pundit tried to value WAYMO's ad-generation potential by giving it the revenue YouTube content creators receive. That would be like giving APPLE all of the YouTube revenue if an iPhone user accessed YouTube on the device. Google does pay APPLE for making Google Search the default search engine for Safari, and the amount Google pays is substantial (in the \$20 billion range), but it does not pay APPLE if I use my iPhone to watch a YouTube video. It pays the content creator, and gets paid by the advertisers.*

Only Google/ALPHABET has any idea whether WAYMO has significant ad revenue generation potential. Will users of their "autonomous driving" service jump into WAYMO-equipped cars and immediately begin using a device in the vehicle that will rack up ad revenue? I and a couple of billion others have 24 hours (minus the hours we spend sleeping) with our smartphones or at least six hours in front of our laptops every day to use Google Search or dip in and out of *YOUTUBE*. Does 17 minutes in a taxi every now and then by a fraction of the number of *YOUTUBE* users have the possibility to generate similar numbers as *YOUTUBE*? Someone inside WAYMO or Google *must* be working on this problem, wouldn't you think? Otherwise, WAYMO is going to be a Google Other company or division doing something that the other "Other" companies or divisions do, which combined, generated \$29 billion in revenue in 2022.

**Google Organization – Revised 8 November 2023**



Looking at the diagram above of Google with its seven divisions and a selection of product groups, you can see that included among those other companies/divisions are Google Maps, Android with Android Auto, Chrome, and many other familiar products and services. Android Automotive, the vehicle OS-integrated version of Android Auto, is part of Android Auto, which in turn is part of the Android group inside the Operative Systems division. If *WAYMO* is not a big ad generator, it will most likely find a home somewhere within this collection of companies, perhaps under Services with Google Cloud or within Hardware or inside Operative Systems, or in parts of all of them.

I believe we need to put to the test the idea that *WAYMO* is going to be a company supplying driverless rides generating large revenues, employing thousands of staff, and having its own place in the Google hierarchy. That's what it appears to be doing today with its own fleet of cars and its customer app, and now taking real money for rides.

### **It's a Long, Long Way to Tipperary**

In order to climb out of the minor leagues and make it to the majors as a ride-supplying company, *WAYMO* has its work cut out for it. At the present time, *WAYMO* is little more than a money-sucking technical marvel operating in a few markets. It has *WAYMO*-labelled cars in a few cities, and it is taking money from passengers for rides. How would it scale up so that it has enough cars to either earn its keep as an "autonomous driving" company, or put enough eyeballs in front of advertising clickbait? I have tried to find analogs for what *WAYMO* could become as a ride-supplying business, and I have settled on two: a global taxi company or the equivalent of *UBER*.

#### *Waymo as one, big taxi company*

If *WAYMO* with its "autonomous driving" offering were to replace all 36,474 taxi companies in the U.S. operating around 100,000 taxi vehicles<sup>3</sup>, what would that represent in total annual revenue? Today, total revenue generated by all taxi



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<sup>3</sup> This is a rough estimate based on the numbers of taxis in NYC (12,000), Chicago (6,600), Los Angeles (2,300), DC (6,500), San Francisco (1,600), Boston (1,825).



companies in the U.S. is somewhere around \$12 billion.<sup>4</sup> This does not include limo services, nor does it include the so-called “ride-hailing” services like UBER or LYFT. WAYMO’s current revenue from its operations in three U.S. cities, Phoenix, San Francisco, and Los Angeles, combined with the revenue from the eleven other Bets companies, comes to a grand total of \$1 billion. Is WAYMO 1%, 10%, 50% of that total? We don’t know, but whatever it is, it’s currently peanuts.

Even if WAYMO scaled to the entire U.S. and replaced all 36,474 taxi companies currently operating in the country, and its total revenue from fares came to somewhere in the vicinity of \$12 billion, that would be a drop in the ALPHABET bucket. Since most taxi drivers in the U.S. are not employed by taxi companies, but lease the cars from the taxi companies and pay a fee for their use, the fee they pay is included in the total revenue for taxi companies. That fee comes out of what the drivers earn from fares, and their average take-home pay is around \$25,000 annually. Multiply that number by the 250,000 taxi drivers, and you have \$5.4 billion, the amount of money the drivers claim as taxable income. This is money WAYMO would not have to pay out because it wouldn’t have drivers, but WAYMO would also not be receiving any payments from drivers for their leasing of the vehicles. But just to keep things as simple as possible, let’s say that a U.S. taxi business delivering all the rides that all taxis in the U.S. combined deliver today would put \$12 billion into WAYMO’s revenue pocket.

It will be WAYMO paying for buying or leasing the vehicles used for delivering rides. At around \$80,000 per vehicle, the cost to buy 100,000 of them, whether it’s WAYMO or a leasing company, is around \$8 billion. After all the expenses are paid for lease payments, or depreciation if owned by WAYMO, for operating the vehicles, for the cleaning and maintenance of the them, for everything related to operating the platform, and for providing back-office support, maybe WAYMO could eke out a small profit. Is it worth it to ALPHABET? Double the revenue and double the costs if it expands to Europe, and it is still not up to the revenue of YOUTUBE.

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<sup>4</sup> <https://bolddata.nl/en/companies/usa/taxi-companies-usa/>;  
<https://fred.stlouisfed.org/series/REVEF48531TAXABL>

I'm certain that Google/Alphabet has run their numbers a thousand times from Sunday, and know very well what both the upside and downside are for WAYMO as a taxi company.

### *Waymo as Uber*

Looked at from another perspective, what if WAYMO suddenly became UBER? UBER generated \$14 billion in global revenue from its taxi service in 2022, of which \$8.4 could be attributed to the U.S. and Canada. (Did you think it was more?) It did that with around 3.4 million drivers in the U.S. and Canada.<sup>5</sup> Other revenue was \$10.9 for mobility (mainly food delivery) and \$7 billion in freight. It had a \$9.1 billion loss for 2022 on its \$31.8 billion of total income.<sup>6</sup> UBER does not own the vehicles used to provide rides to its customers, so it has no costs related to them. Those costs are on the drivers. UBER is giving its drivers on average only 60% of the fares paid by riders these days (and it still can't make money), and that 60% has to pay for all of the costs of the driver's vehicle as well as leaving something over to pay the driver for his or her time.<sup>7</sup>

Taking over UBER and turning all of its cars into "autonomous driving" vehicles means paying all the costs for those vehicles, including all the additional kit needed to make them "autonomous". It will not need 3.4 million cars in the U.S. because not all of those cars driving around today are operating simultaneously. WAYMO has 300 cars in Phoenix, according to one source,<sup>8</sup> and if one scales that up to the U.S., it results in around 65,000-80,000 cars for the entire U.S.<sup>9</sup> WAYMO would need to shovel out about \$5-6 billion for that number of cars if it were to buy them and add the driverless kit.

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<sup>5</sup> Uber had 5.4 million drivers globally in 2022, and Uber does not provide the number of drivers just for the U.S. and Canada. It does, however, break out its revenue by region, so I have used the percentage of revenue to obtain the percentage of drivers.

<sup>6</sup> With these numbers, it is a mystery to me how Uber deserves a \$100 billion market valuation, but that is what it has. Someone is convincing shareholders that there is a big payout coming in the foreseeable future.

<sup>7</sup> <https://maximumridesharingprofits.com/uber-lyft-take-rate/>

<sup>8</sup> <https://techcrunch.com/2022/05/18/waymo-is-expanding-its-driverless-program-in-phoenix/>

<sup>9</sup> 1.6 million people in Phoenix with 300 cars. 65,625 for 350 million population in the U.S.

So, if UBER can't make money without owning the cars or employing the drivers, and receiving up to 40% of what a passenger pays, how does WAYMO earn money by having both the driver in the form of "autonomous driving" kit and the vehicle costs? I suppose Google/ALPHABET has already answered this question, even though this is exactly what WAYMO appears to be doing in Phoenix, San Francisco, and in a few other markets. To the casual observer, it looks like it is competing directly with UBER and LYFT.

*Things aren't always what they seem*

I do not believe for a minute that WAYMO wants to be a national or global taxi company, or that it yearns to be UBER or something like it. I also do not believe that ALPHABET is pouring money into WAYMO so that it can become a ride supplying company. As the sign on the WAYMO office front lawn says, WAYMO is in the "Autonomous driving" business.

**When Waymo eventually moves from Other Bets to Alpha Bets, it will be providing autonomous driving services, not autonomous riding services. There is a big difference.**

It's a test with UBER. Maybe WAYMO will provide "loaner" vehicles to prospective customers in the future, like it will do with UBER in this test, while these customers are getting up and running. However, in its main business, WAYMO will either license the *Waymo Autonomous Driving* kit to operators who will order cars that include the *WAYMO AUTOMOTIVE* systems, or, more likely, WAYMO will license the kit to multiple automotive OEMs that will build it into their vehicles, which they will then sell to operators or leasing companies. Until that happens and as long as WAYMO is providing access to the vehicles that it owns or leases, it will be WAYMO that has to keep them clean and in good shape for delivering rides, and customers – whether they sign up with WAYMO or ride supplying companies like UBER, will have to behave. That's the reason for the 'Mom Reminder' emanating from WAYMO now, as it prepares to deliver rides in its vehicles to the perhaps more rowdy UBER customers.

**Advertising, advertising, advertising**

I believe the reason that ALPHABET has funded WAYMO for the past fourteen years is to build it into an advertising data generator, not to build it into an advertising revenue generator or a taxi company or a Uberesque company. This is



what *Android Automotive* is, a data generator. While *Android Automotive* has been making conquests with its *Android Automotive* integrated maps, navigation and infotainment software systems, it is not in the *YOUTUBE* tier of Google companies. Even if it managed to take all of the automotive OEM business currently owned by HERE and TOMTOM, the principal choices by most car companies for integrated automotive navigation, mapping and traffic information systems, the revenue would represent just under \$1.5 billion. This is what the two companies combined bring in annually.<sup>10</sup>

ALPHABET must have concluded long ago that it doesn't make *WAYMO* part of its advertising machine by having the company jump into new cities, one after the other, buying more cars and fitting them out with its driverless kit, competing with the existing transit alternatives, the existing taxi companies, and the existing driver-rider intermediaries, like *UBER* and *LYFT*? That would be a very long-term strategy that does not fit at all with ALPHABET's revenue growth policies. *Waymo Autonomous Driving*, like *Android Automotive*, will have the goal of being in every vehicle that rolls off the production line, not just in 80,000-100,000 taxis. Neither *Android Automotive* nor *Waymo Autonomous Driving* will have a place inside of *TESLA* as long as *TESLA* management believes that it can produce better infotainment and better driverless systems than Google or anyone else. Neither will it have a place in Chinese brands that decide to use domestic providers, such as *Pony* or *AutoX*. However, as we have seen with *Android Automotive*, companies that have tried to develop their own infotainment solutions, like *VOLVO CARS* and *AUDI*, are adopting *Android Automotive*. They will do the same with *Waymo Autonomous Driving*.

To win a *Get Out of Other Bets* card, *WAYMO* "Autonomous driving" needs to quickly start getting into more cars that are giving rides-without-drivers, and it needs to do it in a way so that ALPHABET is not the parent at the restaurant picking up the tab for everybody's dinner (as well as reminding everyone at the table to mind their manners). *WAYMO* needs to do something similar to what *Android Auto* is doing, which is working with automobile manufacturers to make *Android*

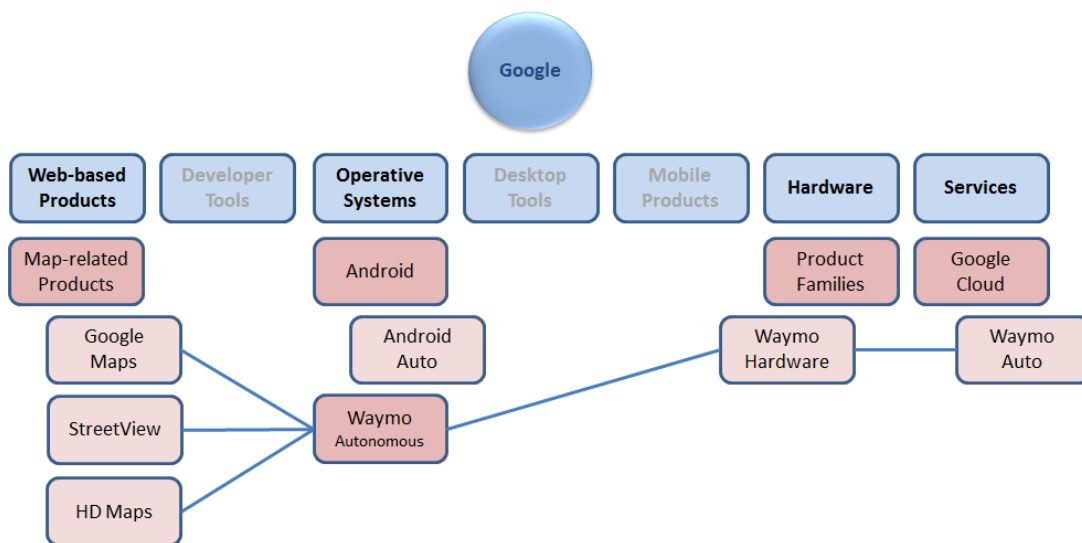
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<sup>10</sup> According to their respective annual reports, Here's 2022 annual revenue was \$928 million, and TomTom 2022 revenue was \$536 million.

*Automotive* the first choice for the vehicle's infotainment operating system. *Waymo Autonomous Driving* needs to be the first choice for every car's driverless operating system. Once it is there, any potential ride supplier can purchase or lease cars and deliver rides on its own terms. UBER can continue to serve the party set, the jet set, the well-heeled crosstown commuters who want to avoid public transit and everyman's hackneys. Existing taxi companies could lease the driverless cars and run them along with their fleet of driver driven cars. Transit companies could buy them and run them as part of their fleets. Individual car owners can do what TESLA is planning for its car buyers, which is to turn them into driverless ride suppliers during the times that the owner is otherwise occupied. *WAYMO* will bear no cost for the purchase, maintenance and operation of the vehicles. It delivers the kit to the auto makers and the services to the ride supplying operators, and, like Android Automotive, it builds into cars the potential to support ad revenue generation as Google does with all of its products.

Google has all of the pieces in place for *Waymo Autonomous Driving*, as the diagram below shows. Its Map-related Products division, which includes *Google Maps* and *StreetView*, has already started delivering High Definition (HD) maps to VOLVO CARS that will be used in VOLVO's advanced driver assistance systems. These maps are the basis for *WAYMO's* driverless functions, and there is no reason they cannot be

**Theoretical Google Organization with Waymo Autonomous**  
**Revised 8 November 2023**



Michael L. Sena

used for driver assistance functions while the *HD Maps* division gears up for delivering data for many more operational design domains. Google's Hardware division has plenty of experience with sourcing the kind of hardware that *Waymo Autonomous* will deliver to vehicle manufacturers for installation in their vehicles, and *Google Cloud* is already hosting *WAYMO's* suite of operation software.

### **It's not necessarily all in Alphabet's hands**

The U.S. Federal Trade Commission (FTC), the U.S. Department of Justice (DOJ), and the EU Competition ministry will have the most impact on whether *WAYMO* stays inside *ALPHABET*. On the 12<sup>th</sup> of September 2023, DOJ opened an anti-trust trial against Google/*ALPHABET*. It maintains that the company has "intentionally stifled competition against its search engine," and accuses the company of "spending billions (of dollars) to operate an illegal monopoly that has harmed every computer and mobile device user in the United States". DOJ alleges that Google's negotiation of exclusive contracts with wireless carriers and phone makers "helped to cement its dominant position in violation of U.S. antitrust law".<sup>11</sup> Prosecutors allege that by installing Google's search engine on mobile devices, Google has a steady flow of user data which reinforces its monopoly. Google Search data and the revenue it generates feeds into all of *ALPHABET's* businesses, so the outcome of this trial will potentially affect every business activity within *ALPHABET*, including *WAYMO*.

The EU has been suing and fining Google and then *ALPHABET* since 2010, accusing the company of antitrust activities. The basis of the suits is the European Competition Laws, which "promotes the maintenance of competition within the European Single Market by regulating anti-competitive conduct by companies to ensure that they do not create cartels and monopolies that would damage the interest of society".<sup>12</sup> Most of the suits against Google and then *ALPHABET* were brought following complaints filed by competitors. *ALPHABET* has appealed all judgments.

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<sup>11</sup> Quotes from a CNN report from the 12 September 2023 trial. <https://edition.cnn.com/2023/09/12/tech/google-antitrust-lawsuit-government-trial-duplicate-2/index.html>

<sup>12</sup> [https://en.wikipedia.org/wiki/European\\_Union\\_competition\\_law](https://en.wikipedia.org/wiki/European_Union_competition_law)



*Don't kill the Google that laid the golden egg*

Will one of President Biden's legacies be that he set in motion a force that destroyed one of the most successful companies the country has ever produced? Everything that WAYMO does, and all the inputs and support it receives from Google's businesses, are of one piece. This is true of all of Google's businesses. WAYMO cannot survive if it gets spun out on its own with no connections back to the Google Mother Ship. That would leave the U.S. at the complete mercy of CHINA, INC. with all the data from vehicles equipped with CHINA, INC. driverless kit flowing back to clouds tethered to hosts in China.

I don't believe it will go that far. It doesn't look like the government's case is all that strong, at least that is what the prosecutors on the Microsoft browser case think.<sup>13</sup> Even if the current case finds Google at fault, there will be years of appeals, changes at the FTC and DOJ, and accommodation by Google to address the basis of the charges. There is too much at stake for the U.S. to lose this one.



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<sup>13</sup> <https://www.cnbc.com/2020/10/22/lawyers-who-pressed-microsoft-on-antitrust-claims-say-the-google-case-differs.html>

## THE DISPATCHER

Mobility Industry Insights by  
Michael L. Sena  
November-December 2023  
Volume 11, Issue 2

*The topics covered in Dispatch Central are newsworthy, but I leave it to others to deliver them “as they break”. I give them a little time to settle in, and try to provide an analysis of their impact.*

### **Cruise is taking a bruising**

IT HAS BEEN a rough couple of months for CRUISE LLC after it reached a high point in August this year. That was when CRUISE, along with WAYMO LLC, received approval from the CALIFORNIA DIVISION OF MOTOR VEHICLES to operate round-the-clock paid ride-supplying services in the state with their driverless vehicles, that is, with no human primary or back-up driver in the vehicle. CRUISE’s license was for 300 vehicles. Then the wheels began to come off the cart, figuratively speaking. On Sunday evening, the 19<sup>th</sup> of November, CRUISE founder and CEO, Kyle Vogt, announced that he was throwing in the towel. The next day, Dan Kan, co-founder of CRUISE, quit. Is this the beginning of the end for CRUISE? Or is this just the end of the beginning, as most of the Pollyannaish opinion pieces on the subject have opined?

***Spoiler:** It’s not the end for CRUISE, but it should be the end for GM’s skunkworks project with CRUISE, and the start of a more serious approach toward driverless vehicles by the automobile industry and investors.*

#### *How it began to unravel*

CRUISE started offering driverless rides in its vehicles in San Francisco on the 1<sup>st</sup> of February 2022. It was dubbed the Cruise Rider Community Program. The company had received authorization the year before from the California Public Utilities Commission (CPUC) to offer free rides in its driverless vehicles. “Today we are opening up our driverless cars in San Francisco to the public,” wrote CEO and co-founder Kyle Vogt in a blog post at the time. “I’m still surprised I can even write those words – this moment really snuck up on me.”<sup>14</sup> He was a freshman at MIT (he left in his junior

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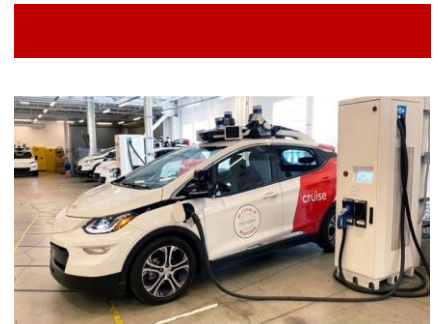
<sup>14</sup> Ohnsman, Alan. GM-Backed Cruise Launches Driverless Ride Service in San Francisco. Forbes (Feb 1, 2022)

year) when a team he was on participated in the 2004 DARPA Grand Challenge, so he has been slogging away at the driverless vehicle problem for twenty years. He must have felt both joy and relief when his company's cars were allowed on the streets of one of the world's major cities.

WAYMO vans and SUVs in driverless mode had been plying the Chandler, Arizona streets since 2020. It had mostly managed to keep its cars out of trouble in the wide, straight, flat streets of the Phoenix suburb. Could it do the same in the narrower and more crowded streets of San Francisco? It, too, was granted a pass by the CPUC to offer free rides in San Francisco, in its case on the 9<sup>th</sup> of November, 2022. WAYMO was always going to be the benchmark for the performance of CRUISE when the two finally started operating side-by-side. When CRUISE held up traffic because its software got confused, or ran over fire hoses when seemingly mindlessly wandering into active fire-fighting zones, commenters couldn't help comparing it to WAYMO, which seemed to always behave better. WAYMO wasn't flawless, but it didn't appear to constantly be getting into trouble,

Weeks after the permits for paid rides were granted, a CRUISE vehicle collided with a firetruck (What is it with CRUISE and fire trucks?!), and its license was downgraded to just 150 vehicles. Less than two months after both WAYMO and CRUISE were given approval to charge for driverless rides, an accident occurred on the 2<sup>nd</sup> of October at 9.30 p.m. in central San Francisco. A driver of a car (not the CRUISE vehicle) struck a pedestrian while she was crossing the street. The force of the collision threw the woman into the path of a CRUISE driverless vehicle, which braked hard and swerved, but could not avoid running over her. The CRUISE vehicle stopped, but then began a pre-programmed "pull over" maneuver, which dragged the woman under the vehicle for 20 feet. When the vehicle came to a stop, the woman was partly under the vehicle's rear tires. Rescue workers arrived, the woman was extricated from under the vehicle, and rushed to a hospital. She is recovering, and, as far as we know, the hit-and-run driver has not been identified and apprehended.

On the 17<sup>th</sup> of October, the NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION (NHTSA) began an investigation of



*The current Cruise vehicle is a modified version of the Chevy Bolt Electric Vehicle.*

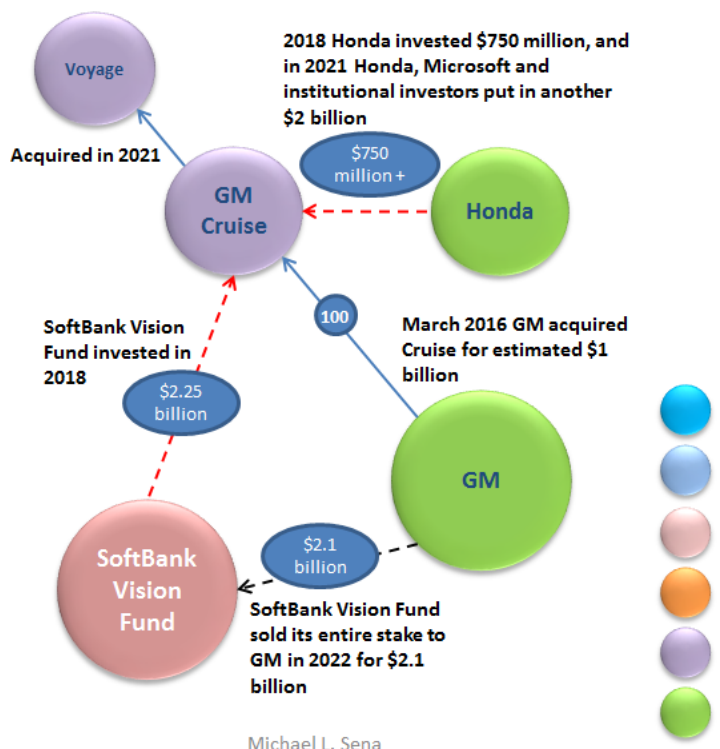
*CRUISE* after receiving reports of pedestrian injuries involving Cruise vehicles. On the 24<sup>th</sup> of October, the California DMV suspended *CRUISE*'s self-driving license, claiming that its vehicles are "not safe", that the company misrepresented safety information, and withheld information from the October 2<sup>nd</sup> accident. It ordered *CRUISE* to immediately stop operations of all of its driverless vehicles in the state. Three days later, *CRUISE* announced it would temporarily halt its driverless ride-supplying operations in all the areas where it is currently operating, which include Phoenix, AZ, Austin, Dallas, and Houston, TX, Miami, FL, along with San Francisco. On the 8<sup>th</sup> of November, *CRUISE* said it was recalling all of its 950 driverless vehicles in order to implement an over-the-air software update. The following day, it announced that it was laying off an unspecified number of its workers who support the driverless operations. On the 19<sup>th</sup> of November, Vogt handed in his resignation.

*Fallout from the perfect storm hitting Cruise*

According to GM financial disclosures as reported in a November 10<sup>th</sup> 2023 *REUTERS* article, *CRUISE* has lost more than \$18 billion since 2017, including \$738 million in the third quarter of 2023.<sup>15</sup> (It would be more accurate to say that Cruise has spent \$18 billion since 2017 because it is not in a position to offset costs with income.) HONDA has said that it is not planning on making any more investments in *CRUISE*, but it has not changed its mind about beginning a driverless ride test in Japan using the *Origin* vehicle that it developed jointly with GM. On the 6<sup>th</sup> of November, GM halted production of the *Origin* vehicle, partly as a result of *NHTSA* not yet granting *CRUISE*'s request to deploy up to 2,500 vehicles without driver controls. Shareholders in GM have pushed GM shares down more than 3% to their lowest level since



**Cruise Sphere**



<sup>15</sup> <https://www.msn.com/en-us/news/politics/ford-uaw-contract-why-some-think-kentucky-truck-plant-employees-voted-no-on-contract/ar-AA1jTRg8>

August 2020. I suppose SOFTBANK is feeling some degree of relief at having disembarked from the *CRUISE* ship over a year ago and received almost the full amount it had invested in 2018, before the ship started listing.

On Sunday, the 19<sup>th</sup> of November, Kyle Vogt must have felt like a quarterback who has been sacked for a fifty yard loss, and every player on the opposing team—and some members of his own team—has piled on top of him. He handed in his resignation to the Cruise board. It was immediately accepted by Cruise Chair, Mary Barra. The next day, Vogt's co-founder, Dan Kan, followed Vogt out the door.

### **Time to get yourself up, brush yourself off, and start over**

My recommendation to GM and HONDA: Do not do a "FORD and VW" and close down *CRUISE* as they closed down *ARGO AI*. It is not a matter of ignoring the old adage about stopping digging when you find yourself in a hole. You are not in a hole. You, especially GM, have let *CRUISE*, and Vogt, wander off all on its own, and now it has ended up in a dead end in the wilderness. You bought *CRUISE*, Ms. Barra, but you have let it operate as an independent operation taking investments from companies like SOFTBANK who expect big payouts and (relatively) quick results. Those happen when private companies or subsidiaries go public. You, as Chair of the *CRUISE* board, as well as CEO of GM, have talked constantly about *CRUISE*'s market capitalization and huge upside potential, when you and your GM colleagues should have been thinking about how *CRUISE*'s systems and service operation innovations could make GM something much more than what it is today. Read the lead article in this issue and you will have a better idea of what I mean.

You are being praised for the quick actions you have taken after the 2<sup>nd</sup> of October, all good crisis management stuff, but it is your lack of action and engagement BEFORE the crisis that led to that crisis. The blame should not be falling on the heads of the people who got *CRUISE* to the point of having, perhaps, the second best driverless vehicle on the Planet.

*CRUISE* has a life after San Francisco, but, like *WAYMO*, it needs to be inside a company that knows what to do with it. If it's not GM, Ms. Barra (and accepting Vogt's resignation fifteen minutes after he tendered it indicates that you and

### **Brevity is Overrated**

*A question on a philosophy exam asked: "Was Hegel a good philosopher? Be brief." One student wrote, simply, "Yes". The professor for the course gave the paper a good grade, but wrote in the margin: "This was a good, brief answer. But a better, briefer answer would have been No."*

*Found in Letters to The Economist  
October 21<sup>st</sup> 2023 from Sam Williams,  
London.*

GM are not accepting an appropriate amount of the responsibility for what has happened), then please hand it over to a company that will know what to do with it. The first item on the agenda for that company should be to get Kyle Vogt back in the CEO saddle, and Dan Kan back as his steady sidekick.

### **Car theft should be something we can stop**

DOESN'T IT FEEL awful to have something stolen, especially our own car? Cars I have owned have been broken into and things stolen from them, but I have not yet experienced the theft of one of my cars (knock on wood). Most people insure their cars for theft, so the financial loss is limited, but many of us keep things in our cars that we don't like losing. On top of this there is the sense of loss of a tool that we have grown accustomed to using.

When thieves want something you have left in your car or want to steal your radio or navigation unit, they usually just smash a window and grab whatever it is they set their grubby eyes on. When they want to steal your car, the last thing they need is a lot of broken glass all over the inside of the car. Either they first steal your keys, or they manage to get the door opening code from your keyless fob, or they get out the clothes hanger. It was the third method that the AAA roadside assistance mechanic used to get me into my three-year-old 1983 *Saab* at a Boston Logan Airport parking garage when I returned from a trip to DC (where I was consulting to AAA on mapping). I had left my keys in my overcoat and packed the overcoat in my suitcase because of a sudden temperature rise in DC. Unfortunately, my suitcase with overcoat and keys did not make it on my plane but did make it on a plane to LA and would not be back in Boston for at least a day. The AAA mechanic unlocked my *Saab* in less than ten seconds. Since I had no spare key hidden anywhere in the vehicle, we had to have it towed to a *Saab* dealer, but he offered to hot wire it so that I could drive it there myself. I declined.

Since then, I have never put my keys in a suitcase. However, the biggest takeaway from the experience was the realization of how easy it is to unlock a car without breaking a window. This was ten years before I began working on the *Volvo*



Immobilizer Sign

A 2016 study in the [\*Economic Journal\*](#) finds that the immobiliser lowered the overall rate of car theft by about 40% between 1995 and 2008.<sup>[1]</sup> The benefits in terms of prevented thefts are at least three times higher than the costs of installing the device.



*On Call* telematics system. In addition to the automatic emergency assistance call, one of the main features of the system was an automatic theft alarm to a secure operating center and stolen vehicle tracking service. What I learned from my twenty-five years of working with *Volvo On Call* and several other telematics systems is that it is still relatively easy for thieves to enter cars and drive them away. I also learned why car companies don't like doing anything to make their cars unstealable unless what they do also makes them more convenient to use by their lawful owners.

#### *The Kia Boys and TikTok are a toxic mix*

Why are *KIAS* and *HYUNDAIS* in the U.S. and not in Europe so easy to steal? That's a question the cities of Chicago, Baltimore, New York, and Seattle are asking *HYUNDAI MOTOR GROUP*, whose cars have exhibited a particular propensity for being purloined in their jurisdictions. The cities are suing the owner of the two brands for selling cars that are easy to steal. In 2022, 8,800 *HYUNDAIS* and *KIAS*, almost one-third of the total of 22,000 thefts, were stolen in Chicago. In 2023, *HYUNDAIS* and *KIAS* are being swiped at a rate of 50% of the total in Chicago. Sounds like a conspiracy, right? It probably is. The so-called "Kia Boys" have been getting their inspiration from the Chinese-owned site, TikTok. There is a "Boys Tutorial" that describes in the minutest detail how to nick one of the Korean brands, while a humanoid voice intones to the accompaniment of rap music, "This is why you should not buy a Hyundai or Kia". It appears that many of the thefts are for either taking a joyride, or functioning as get-away cars, or the wheels for drive-by shootings.

Isn't this a bit like suing *ADIDAS*, the most stolen fashion brand, just because their products are the ones that thieves steal most often? The judges who will either decide to hear the cases or throw them out will have to make that determination. The cities say that *HYUNDAI* and *KIA* are negligent because they are not adding a piece of hardware that would make them difficult (but not impossible) to steal, and therefore are responsible for countless hours and untold amounts of wasted time by their police forces.

What is it that *HYUNDAI MOTOR GROUP* should have made sure their brands added to their vehicles, and why aren't the cities suing the other companies that make up 50-66% of the



<https://www.makeuseof.com/what-is-an-immobilizer-does-my-car-have-one/>

<https://www.federalregister.gov/documents/2016/09/29/2016-22061/exemption-from-vehicle-theft-prevention-standard#citation-2-p66834>


<https://eu.usatoday.com/story/news/factcheck/2023/01/19/fact-check-false-claim-bill-mandates-kill-switch-cars-police-drunk-driving/11066287002/>

other cars stolen? To answer this question, we have to spend a little time in the world of security versus convenience.<sup>16</sup>

*Stealing cars is a business, but not one that is as good as it was*

The U.S. NATIONAL INSURANCE CRIME BUREAU (NICB) reported that over 1 million vehicles were stolen in 2022, a 7% increase over 2021 and surpassing 1 million for the first time since 2008. California and Texas had the most reported stolen vehicles, and Illinois had the largest increase, estimated at 35% between 2021 and 2022. The NICB said further that if reported stolen in the first 24 hours, passenger vehicles had a 34% same-day recovery rate in 2022. More than 85% of stolen vehicles were eventually recovered in 2022. Police and security forces have gotten better at recovering cars, but the reason why the current rate of car theft in the U.S. is one-third what it was in 1990 is that laws were passed beginning in 1984 requiring original equipment and replacement parts to be marked with identification numbers. The intention was to make it more difficult for “chop shop” operators to steal cars in order to legally sell their parts. The illegal trade continued unabated, but ...

Then the fiddling started. In the Anti Car Theft Act of 1992, the parts marking requirement was extended, but exemptions were made for cars that were “equipped with an effective anti-theft device as standard equipment”. It had to be the entire line (e.g., Chevrolet Impala), and it had to be factory-equipped. You might think fo the “anti-theft device” being something like a motion-detecting device, and factory-equipped like the *Volvo On Call* system. But this is not at all what NHTSA was referring to. The device is a so-called “immobilizer”, which is an electronic security device fitted to a vehicle to prevent the engine from starting unless the correct transponder, or “smart key” is present in close proximity to the vehicle. This prevents the vehicle from being “hot wired” after the vehicle has been broken into.



<https://www.statista.com/statistics/191216/reported-motor-vehicle-theft-rate-in-the-us-since-1990/>

<https://www.federalregister.gov/documents/2016/09/29/2016-22061/exemption-from-vehicle-theft-prevention-standard#citation-2-p66834>

<https://eu.usatoday.com/story/news/factcheck/2023/01/19/fact-check-false-claim-bill-mandates-kill-switch-cars-police-drunk-driving/11066287002/>

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<sup>16</sup> <https://www.iii.org/fact-statistic/facts-statistics-auto-theft>

The electric immobilizer/ alarm system was invented by St. George Evans and Edward Birkenbuel and patented in 1919.[2] They developed a 3x3 grid of double-contact switches on a panel mounted inside the car so when the ignition switch was activated, current from the battery (or magneto) went to the spark plugs allowing the engine to start, or immobilizing the vehicle and sounding the horn.[3] The system settings could be changed each time the car was driven.[3] Modern immobilizer systems are automatic, meaning the owner does not have to remember to activate it.[4][5]

Immobilizers have been mandatory in all new cars sold in Germany since 1 January 1998, in the United Kingdom since 1 October 1998, in Finland since 1998, in Australia since 2001 and in Canada since 2007. Early models used a static code in the ignition key (or key fob) which was recognized by an RFID loop around the lock barrel and checked against the vehicle's engine control unit (ECU) for a match. If the code is unrecognized, the ECU will not allow fuel to flow and ignition to take place. Later models use rolling codes or advanced cryptography to defeat copying of the code from the key or ECU.

The microcircuit inside the key is activated by a small electromagnetic field which induces current to flow inside the key body, which in turn broadcasts a unique binary code which is read by the automobile's ECU. When the ECU determines that the coded key is both current and valid, the ECU activates the fuel-injection sequence. [How Electric Road Systems work](#)

ERS solutions differ according to how energy is transmitted to a moving vehicle. The following three alternatives are be

### **Drive-thrus, product returns, and traffic jams**

I HAVE ALWAYS been interested in what causes traffic jams ever since I was a little kid. I wanted the car or cars that delayed our trip along Route 46 to our cousins in New Jersey to still be there when we finally passed the scene of the fender bender or whatever it was. Often, there was no sign of an incident. Could they have cleared the accident so quickly, I thought. It wasn't until I was in college and read about the butterfly effect, the one that says if a butterfly

flutters its wings in India it could cause a tornado in Iowa. The highway equivalent is someone hitting his brakes five miles ahead in heavy traffic causing us to stop in our tracks a few minutes later.

Two of the more recent causes of holdups on local roads, either in cities or in built-up suburban areas, are drive-thrus of all kinds and package delivery service vehicles. In other words, those of us who are backed up into roads while waiting your turn at the Dunkin' Donuts window, and those of you who are ordering your underwear on Amazon, have yourselves to blame for being stuck in traffic.

### ***That's a car***

WHEN I SAW that a 1962 Ferrari 330 LM/250 GTO sold at auction for \$51.7 million I thought of Michael (Mick) J. "Crocodile" Dundee and his response to Sue Charlton telling him to hand over his wallet to two teenage wannabe thieves who threaten them with a knife. "That's not a knife," says Mick. He pulls out his Bowie and says pointing to it: "That's a knife." The kids run away. A 1962 Ferrari. That's a car.



*Photograph by RM Sotheby's; Car by Ferrari (batteries not included)*





## Crew Comments

### *Views on the business of transport systems*

*In the lead article in the November/December 2023, The business shift coming for car companies, I compared the strategies of four groups of companies. In one of the groups there is only one company: Tesla.*

**Ken Pyle** is co-founder of Viodi, LLC and Managing Editor of the Viodi View, a publication focused on independent telcos' efforts to offer video to their customers. He has edited and produced numerous multimedia projects for NTCA, US Telecom and Viodi. Pyle is the producer of Viodi's Local Content Workshop, the Video Production Crash Course at NAB, as well as ViodiTV.

"Kudos on the latest podcast (with Alain Kornhauser and Fred Fishkin) and your analysis of the car makers. Two comments:

1. As alluded to by Alan, Tesla has a leader (Elon Musk) who gets his hands dirty and understands the details of the business, while still seeing the big picture. Tesla also has not had the time to build up the institutional inertia of the incumbents (and as long as Musk is around institutional inertia will probably not be allowed). In short and for better or worse, Musk is the competitive differentiator that none of the incumbent car makers have.
2. The analysis should probably be expanded as Tesla is much more than a car company. It seems to have figured out how to use its core building blocks to build new products (as well as bring those products back to its car division). Gosh, with X, Grok (running stand-alone on Tesla hardware), Starlink, The Boring Company, Neuralink, personal robots, Semi-Trucks, etc. he may take over the world (assuming the regulators don't squash him first) <https://viodi.com/2019/06/07/tesla-the-dark-horse-maas-provider-smartdrivingcarsummit/>

Lastly, this article and its reference to the Boise streetcars reminds me of Alain's horizontal elevator analogy and the value that low-cost mobility brings to the urban edge.

### *Views on the*

*In the lead article in the November/December 2023, The business shift coming for car companies, I compared the strategies of four*



*groups of companies. In one of the groups there is only one company: Tesla.*

**Graeme Smith** is co-

“I read your article in the back seat of a taxi across Pnohm Penh. I really don’t know how to describe the driving style here in this congested city. Swirling? Shoal-like? Not many formal rules observed, even at red lights. Incessant merging. Traffic on the sidewalks. But a high level of cooperation between travellers who good naturedly give way. Huge risks everywhere (families of 4 on scooters). Nightmare to drive without experience. But somehow it works. Oh, and my favourite edge-of-the-seat manoeuvre: Turning left at a t-junction with stop sign (they drive mainly on the right in Cambodia). In our case there was heavy traffic coming from the right, but none from the left, so our driver didn’t bother with stopping, but just turns left onto the wrong carriageway and somehow slots into the right lane as other traffic gives way - without any blaring of horns. Amazing.

“I can only begin to imagine a self driving vehicle ever being able to balance the complexity of risk taking versus making progress in environments like this that require cooperative driving and some avoidance of any traffic regulations. After-the-fact accident investigation and assessing liability will be almost impossible Reinforces my opinion that self driving will never be a magic bullet generic solution. Only ever a well considered and applied solution - initially where the environment can be controlled and understood.”

### *Views on the*

*In the lead article in the November/December 2023, The business shift coming for car companies, I compared the strategies of four groups of companies. In one of the groups there is only one company: Tesla.*

**T. Russell Shields** is co-

You can use my comments but note that it is from October 25 when the California DMV publicized that there was the second part of the incident.

I have a radically different view from what you wrote.

I think GM management has acted in a very responsible way.

When it came out that Cruise did not show the second part of the incident to California and the public, GM in less than a month:

1 Step by step, shut down operations.

2 Hired a technology firm to analyze the technology.

3 Hired a law firm to analyze the activities of the Cruise leadership.

4 Sent a senior GM legal executive to be Chief Administrative Officer.

5 Fired the CEO ('accepted his resignation').

6 Added a GM Board member to the Cruise Board and then made him Vice Chair.

Whether the Cruise business makes sense (is practical?), I complement GM top management for the great ethical actions that they have taken.



# Musings of a Dispatcher: Striking to Work

## THE DISPATCHER

Mobility Industry Insights by  
Michael L. Sena  
November-December 2023  
Volume 11, Issue 2

### ***Life or death on both sides of the pickets***

THERE ARE STRONG similarities between the motivations for the actions of the “Luddites” during the Industrial Revolution and those of the striking auto workers today. The weavers and textile workers in late 18<sup>th</sup> century were fighting against the automation of their jobs and the replacement of their hard-won skills with mechanized looms and knitting frames. They had apprenticed themselves and trained from their earliest days to be artisans, and they looked upon the unskilled operators of those machines, along with the factory owners who were installing them, as thieves of their livelihoods. Desperate to hold onto the only way they had to support themselves and their families, they broke into factories and smashed the textile machines. They called themselves “Luddites” after Ned Ludd, a real or fictional textile apprentice who was rumored to have demolished two textile machines in 1779 in a fit of rage.

“Luddite” quickly became a pejorative term which has been used to describe people who dislike new technology.<sup>17</sup> Economists argued that technological progress “will have no long-term impact on employment levels, and will eventually raise wages for all workers because progress helps to increase the overall wealth of society”.<sup>18</sup> The term ‘Luddite Fallacy’ was coined to explain that the anti-technophiles were wrong about the eventual effects of technological progress. One glib economist, Alex Tabarrok, says that if the ‘Luddite Fallacy’ were true, we would all be out of work.

However, no one can deny that the artisan weavers were made redundant by mechanized looms and knitting frames. The army of progress marched across a muddy patch of history on the bodies of

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<sup>17</sup> <https://www.history.com/news/who-were-the-luddites>

<sup>18</sup> [https://en.wikipedia.org/wiki/Technological\\_unemployment#CITEREFFord2009](https://en.wikipedia.org/wiki/Technological_unemployment#CITEREFFord2009)

those artisans who sacrificed themselves for the coming generations. Mechanical looms, for the artisans, were in reality an existential threat. The unionized autoworkers are also fighting to keep their jobs in the face of both increased automation and new technology in the form of battery electric vehicles (BEVs).

Moving from manufacturing internal combustion engine vehicles (ICEs) to BEVs will mean the elimination of many of the jobs current auto workers perform. ALIXPARTNERS, a consultancy, has estimated that the manual labor required to produce a BEV is 3.7 hours, compared to 6.2 hours for an ICE vehicle.<sup>19</sup> The battery pack is a large part of a BEV, but building one is mostly an automated process. Most car companies produce their own internal combustion engines, but only a small group of companies outside of the car industry produce battery packs. They include Japan's PANASONIC, South Korea's LG CHEM, and the Chinese CATL (the world's largest battery producer) and BYD (also a car producer).

With good reason, the auto workers' union leadership has not defined the objective of this strike as one that will preserve jobs. That would simply leave them open to being labeled "Luddites" and end up with many promises from the automobile companies which could easily be broken. Automotive industry workers can no more force companies to continue making a particular kind of vehicle than coal miners could force railroad operators to continue to buy steam engines. The unions have made the strike about fairness and equality, to give workers the pay they deserve and to return the benefits that were taken away from them when the auto companies submitted to Chapter 11 during the Great Recession in 2009 in order for their huge debts – including to their retired workers – to be wiped off their books.

Shawn Fain, the United Auto Workers (UAW) president since only March 2023, said: *"Billionaires in my opinion don't have a right to exist. The very existence of billionaires shows us that we have an economy that is working for the benefit of the few not the many. It feels like we've gone so far backwards that we have*

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<sup>19</sup> <https://www.nbcnews.com/business/autos/electric-vehicles-pose-real-risk-auto-workers-halving-number-people-required-n1060426>

to fight just to have the 40-hour work week back. Why is that? So another asshole can make enough money to shoot himself to the moon. Our fight is not for ourselves, but for every worker.”<sup>20</sup>

### Who was fighting whom in the auto strike ring?

The auto strike did not involve all automotive workers and all automotive OEMs in the U.S. Three companies, GENERAL MOTORS, FORD, and STELLANTIS, the so-called Big Three or Detroit Three, were targeted. STELLANTIS in the U.S. is what was once CHRYSLER CORPORATION (CHRYSLER, DODGE, JEEP), so the strike did not affect the other STELLANTIS brands, FIAT, PEUGEOT, CITROËN AND OPEL/VAUXHALL. The three Detroit-based companies are the only automobile manufacturing companies in the U.S. that are unionized. They employ 146,000 UAW union workers out of the total of 400,000 UAW members.<sup>21</sup> The 254,000 UAW members who are not employed at the the Big Three work in a range of industries, including government, universities, hospitals, other manufacturing companies, and more. Another important fact is that the 146,000 UAW members at the Big Three are approximately 50% of the total number of employees at those firms. The other 50%, including management and salaried workers, are not members of the UAW.

At its peak in the 1970s, the UAW had 1.5 million members. It was down to 640,000 in 2000, and is today 400,000. This followed a general trend of de-unionization in the U.S. In 1979, there were 21 million members of all types of unions. Today, there are approximately 15 million card carrying union members. Just 6% of private sector workers in the U.S. are union members, down from 30% in 1970. In the sidebar is a list of all current automobile manufacturers in the U.S., who combined employ just over 1 million workers as of October 2023.<sup>22</sup> Only the Big Three have unionized workforces.

*This is what the UAW asked for*

There were four negotiating points that were presented by the UAW leadership to the Big Three when negotiations

#### *Companies Manufacturing Automobile in the United States and Canada in 2023 (Unionized \*)*

BMW  
Ford\*  
General Motors\*  
Honda  
Hyundai  
Jaguar Land Rover  
Kia  
Mazda  
Mercedes-Benz  
Mitsubishi Motors  
Nissan  
Stellantis  
Subaru  
Tesla  
Volkswagen  
Volvo

<sup>20</sup> <https://edition.cnn.com/2023/09/12/business/uaw-president-shawn-fain/index.html>

<sup>21</sup> <https://eu.usatoday.com/story/money/2023/09/15/uaw-membership-numbers-through-years/70865885007/>

<sup>22</sup> <https://www.bls.gov/iag/tgs/iagauto.htm>

started for a new four-year contract that would run from 2024 until 2023:

1. Cumulative pay rise of 36% over the next four years;
2. Return to generous pension provisions that were lost in the 2000-11 financial crisis;
3. An end to new workers (post-Chapter 11) being paid less than legacy workers; and
4. The right to strike over factory closures.

In the past, whenever it was time to renew a collective bargaining agreement with the Big Three every four years, the UAW selected one of the three with whom to negotiate. When the negotiations stalled, the UAW called a strike against that one company. The other two companies were spared the disruption and loss of sales, but they knew their turn would come next time. Shain chose a new tactic. The UAW would strike selected production facilities run by each of the Big Three. On the 15<sup>th</sup> of September, 13,000 UAW members working at a GM, a Ford, and a Stellantis plant all walked off the job.

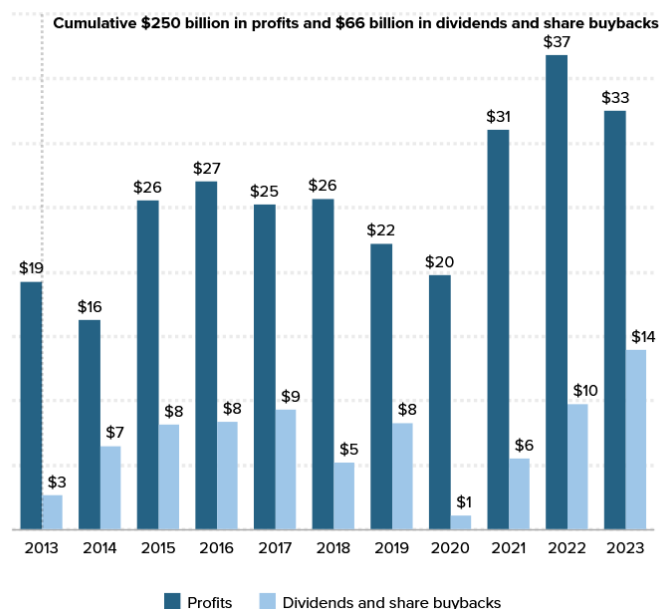
In the first instance of a sitting president joining the picket lines of an active strike, President Biden flew into Detroit on Tuesday, the 26<sup>th</sup> of September, the 12<sup>th</sup> day of the strike, and stood with Shawn Fain to address the striking workers. He told the strikers to stick with it. *“You made a lot of sacrifices, gave up a lot when the companies were in trouble. Now they’re doing incredibly well and guess what? You should be doing incredibly well too.”* The workers were impressed. As the graph shows, the Big Three have done fairly well since 2013, generating substantial profits during the past ten years, while wages for manufacturing workers have not kept up with inflation.<sup>23</sup>

Tentative agreements were reached with all three Big Three companies by the 30<sup>th</sup> of October, after



### Big 3 automakers achieved more than \$250 billion in profits over the past decade

Profits and dividends and share buybacks of Big 3 automakers (billions), 2013–2022 and 2023 forecast



<sup>23</sup> <https://www.epi.org/blog/uaw-automakers-negotiations/>



just six weeks of strikes. They were hailed as the union's biggest wins in decades. Here are the offers to each of the companies:

#### Ford

- 25% wage increase, including 11% immediately upon ratification
- Increase in starting wages from \$18.04 to \$30.35
- Wage tiers eliminated
- \$5,000 ratification bonus and annual bonuses for all retirees.
- \$8.1 billion in plant investments

#### GM

- 25% wage increases that rises up to 33% when accounting for inflation
- Maximum pay more than \$42/hour
- Wage tiers eliminated, and three years to get to top of pay scale

#### Stellantis


- 25% wage increases
- Agreement not to lay off 5,000 workers as planned before the strike, and a commitment to add 5,000 new jobs
- Starting wages for new hires increased by 67% to over \$30/hour
- Right to strike over plant closures

### **And the crowd roared**

Everyone cheered when the agreements were reached. Well, almost everyone. Most of the 140,000 UAW union members cheered because their retirements were safe, and they would be able to add to their savings with the extra money they would make before they were made redundant. Cheers went up in the White House and among Democrats in Congress because it was a big win for unions, which have traditionally been supported by the Democratic party.<sup>24</sup> Although Republicans have not been friends of unions in the past because of their association with Socialism, Republicans

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<sup>24</sup> In 1935, President Franklin D. Roosevelt's allies in Congress passed the landmark National Labor Relations Act – also known as the Wagner Act, after one of its authors, Senator Robert Wagner of New York – which established workers' rights to collective bargaining and attempted to regulate unfair practices by employers, employees and unions.



cheered the new agreements because their so-called “right to work” Red States would benefit from all the new factories that would be built there to avoid using more expensive unionized labor in Detroit. Loud applause could be heard all the way from China because their cars, both ICEs and BEVs would now be even cheaper than cars made in Detroit. TESLA management were very pleased because in the short term, ICE cars coming out of Detroit would be much more their expensive and thereby close the price gap between TESLA’s and Detroit’s cars. This will most likely push those buyers who might buy a cheaper ICE, rather than a more expensive BEV, into the waiting arms of TESLA.

Big Three executives and boards cheered as well, but behind closed doors. They had to give the appearance that they had made huge concessions. They weren’t cheering because they had to give up less than they feared going into the negotiations, although winning a 11% concession in pay raises (25% rather than the 36% asked by the UAW) was a significant win. They were pleased that they lost only six weeks of production in some of their plants and could now get busy on cutting their work forces in half to match the need for manual labor with the task of building battery electric vehicles. They cheered because they could now start to move their production out of Detroit to wherever they could find lower costs.

There were union members who didn’t cheer, and they voted against ratification of the of the agreements. They wanted the leadership to hold out for 36% and not accept just 25% pay increases. They wanted stronger language about not closing ICE plants. At this writing, on the 22<sup>nd</sup> of November, the strike is over, and the UAW members have ratified contracts with the Detroit Three. Shawn Fain, said the UAW will now turn its attention to attempting to unionize the U.S. auto sector beyond General Motors, Ford and Stellantis, as well as other industries.

Another concession by the car companies is that the new contracts will expire on the day before the 1<sup>st</sup> of May, 2028. Why is that important? The UAW has made no secret of its affinity to the “workers of the world”, and the 1<sup>st</sup> of May is International Workers’ Day, celebrated with great fanfare in countries with a Socialist legacy.

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### *May Day versus Labor Day*

The 1<sup>st</sup> of May, referred to as May Day, was the approximate time that nature worshipping tribes like the Celts of the British Isles celebrated the end of the dark part of the year and the beginning of the light part. Rituals involving the lighting of fires celebrated the return of life and fertility. Dancing around a pole formed from a tree trunk that has been decorated with flowers became a tradition in the northern reaches of Europe, and it carries on to this day. It is best explained as a fertility ritual, with the pole symbolizing male fertility and baskets and wreaths symbolizing female fertility. This tradition never caught on in early, Puritan America.

May Day was appropriated as worker solidarity day in 1889 by the International Socialist Conference. It was in commemoration of the Haymarket affair. It was declared as a holiday for workers and become known as International Workers' Day. The Haymarket affair took place on the 1<sup>st</sup> of May 1886. A major union demonstration in favor of an eight-hour workday took place in Chicago's Haymarket Square, and it lasted for several days. On the 3<sup>rd</sup> of May, a strike at the McCormick Reaper plant in the city became violent, and the next day's gathering in Haymarket Square spiraled out of hand. On the 4<sup>th</sup>, the crowd in Haymarket Square began to break up at 10:00 p.m. after a full day of listening to speeches denouncing police brutality, mostly by anarchists. When the last speech was over, a group of 180 policemen marched to the square to break up the demonstration. A bomb exploded within the police ranks, wounding 67 policemen and killing seven of them. The police opened fire, killing several demonstrators and wounding 200.

During the Cold War, May Day as Workers' Day was treated with contempt by both politicians and citizens. In July of 1958, President Eisenhower signed a resolution that named May 1<sup>st</sup> "Loyalty Day". The resolution declared that it would be a "special day for the reaffirmation of loyalty to the United States of America and for the recognition of the heritage of American Freedom. In America, Labor Day is celebrated as a Federal Holiday on the first Monday in September to "honor and recognize the American labor movement and the works and contributions of laborers to the development and achievements of the United States".<sup>25</sup>

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*If we can make it in Detroit, we can make it anywhere, can't we?*

There were calls from the UAW and its supporters to start a serious campaign to unionize all the autoworkers in the U.S. President Biden stopped short of endorsing pushing for full-scale unionization, but he did call for the adoption of the UAW agreement reached with the Big Three by all auto manufacturers operating in the U.S. A union vote can be called at any plant, and if a majority of the workers vote in favor of forming or joining a union, the company may not stop them,

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<sup>25</sup> [https://www.history.com/topics/holidays/history-of-may-day#section\\_1](https://www.history.com/topics/holidays/history-of-may-day#section_1)

nor can it close the plant or remove workers who are seeking to organize a union.<sup>26</sup> Nothing has prevented workers at any of the non-unionized auto makers from joining the UAW or attempting to unionize the factory, and nothing is stopping them from doing so now. However, there does not appear to be a surge of interest in doing so, especially at TESLA. TESLA employs 127,000 workers all around the world, and none of them are either unionized or affected by collective bargaining agreements in their countries. At least not yet.

In 1999, the Big Three had a 68% market share in the U.S. Today it is 40%. It cannot have escaped anyone's notice who looks at the auto industry that the \$20/hour difference between what the Detroit Three paid their unionized workers before the new agreement and what the non-union manufacturers paid theirs has played a part in the loss of market share by the Detroit Three. The U.S. makers of the 60% of the cars sold in the U.S. will, after the new union contract takes effect, have an even larger advantage over the Big Three as long as they, the non-unionized companies, can continue paying non-union wages. As the 40% and the 60% market shares are reduced by even cheaper Chinese-made vehicles, both BEVs and ICEs, the higher costs for the Big Three will increase in significance, and the incentive for all of the non-union shops to remain non-union will become even greater.

### **Musk, unions, collective bargaining, life or death**

To ultra-libertarian, Elon Musk, unions are anathema. He could no more tolerate having a union leader on his board or a union council having a say in what or how things are done in one of his factories than he can tolerate one of his managers questioning his decisions. He shares this trait of loathing unions with the man who built a car company that Musk has used as the model for his own: Henry Ford. Ford reluctantly signed his company's first contract with the UAW in 1941, four years after CHRYSLER and GM, and only

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<sup>26</sup> The U.S. National Labor Relations Act forbids employers from interfering with, restraining, or coercing employees in the exercise of rights relating to organizing, forming, joining or assisting a labor organization for collective bargaining purposes, or from working together to improve terms and conditions of employment, or refraining from any such activity. Similarly, labor organizations may not restrain or coerce employees in the exercise of these rights.

after FORD was found guilty of violating the Wagner Act, and his wife, Clara, threatened to leave him if he didn't relent.<sup>27</sup>

There has never been a union vote held at a TESLA plant, and Musk does not believe it would succeed if one were held. The company has crossed the NATIONAL LABOR RELATIONS BOARD, and had its hands slapped numerous times, but it hasn't given an inch of space to unions or attempts to create them.<sup>28</sup> This is right now in the process of being tested, and it is not in an unlikely place: Sweden. It would be an understatement to say that Sweden is union-friendly. The Social Democratic Party received over 40% of the vote between the 1930s and into the 1980s. Between 1923 and 1940, the party was a member of the Labour and Socialist International. The Social Democrats lost the 2022 election to the middle-right coalition, but it remains the largest party with over 30% of voters sympathizing with its stance on most major issues.

Today, Sweden is the fourth largest market for TESLA in Europe, behind, in order, Germany, UK, and Norway. It seems like there are more *Teslas* driving around my town than *Volvos*. Now, the unstoppable force, TESLA, has met the immovable object, the Swedish metal workers' union (IF METALL). In September of this year, IF METALL representatives contacted TESLA in order to open discussions with the company about accepting its collective bargaining agreement (*kollektivavtal*). This had become a yearly exercise since TESLA established itself in Sweden in 2013 as *TM SWEDEN AB*, which was initially for servicing and repairing *Teslas* and setting up charging stations, but now includes selling and leasing *Teslas*. It is not legally obligatory for a company, domestic or foreign, to sign the *kollektivavtal*, but 90% of the workers in Sweden are covered by it. Nevertheless, TESLA declined the invitation.

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<sup>27</sup> <https://www.history.com/this-day-in-history/ford-signs-first-contract-with-autoworkers-union>

<sup>28</sup> [https://www.autoblog.com/2023/11/04/some-tesla-workers-say-they-never-join-a-union-even-as-ford-and-gm-workers-get-big-raises/?guc-counter=1&guce\\_referrer=aHR0cHM6Ly9kdWNrZHVja2dvLm-NvbS8&guce\\_referrer\\_sig=AQAAAjw-T30fKzBv-TtN8omGfxtYCM0Mq0RtnNatjE8FmQeazifL-BUeecmp4hcvAVpD\\_rOEC\\_K3JLfZKYzP5qQilFIlg7JdWvWSJBSNfslN8jaKWUtP2JdanpsRTkkZbZMkTaPmoLjTNVEzTGncBcWjVTE7D8yPIRU0eH\\_J3zqYUKNgK](https://www.autoblog.com/2023/11/04/some-tesla-workers-say-they-never-join-a-union-even-as-ford-and-gm-workers-get-big-raises/?guc-counter=1&guce_referrer=aHR0cHM6Ly9kdWNrZHVja2dvLm-NvbS8&guce_referrer_sig=AQAAAjw-T30fKzBv-TtN8omGfxtYCM0Mq0RtnNatjE8FmQeazifL-BUeecmp4hcvAVpD_rOEC_K3JLfZKYzP5qQilFIlg7JdWvWSJBSNfslN8jaKWUtP2JdanpsRTkkZbZMkTaPmoLjTNVEzTGncBcWjVTE7D8yPIRU0eH_J3zqYUKNgK)

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### Sweden's Collective Agreement


*The collective agreement is an agreement between the union and the employer. It is based on an agreement that came into effect in 1938 between labor and employers. It contains the basic conditions for all employees in a certain industry or profession. When an employee works for a company with a collective agreement, that employee never have to negotiate independently about, holidays, the right to an annual salary review and occupational pension. It guarantees the lowest hourly rate of pay, as well as the range of salary increases for all employees of a company. It also establishes what an employee receives if he or she is out of work for an extended period of time, and an guaranteed amount of compensation in case of an accident on the job. Collective agreements are regularly negotiated between unions and employers' organizations. Rights to annual leave, parental leave, holidays, protection from unfair dismissals, working hours, overtime limits, and right to sick pay are governed by national law and are not part of the collective agreement.*

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This year was no exception. *TESLA TM* did what it has always done, rejected the agreement and closed the door to further discussions. They said they were not authorized to sign any union agreements. Perhaps emboldened by what was going on across the Atlantic with their Union brothers and sisters, *IF METALL* declared that if *TESLA TM* did not come to the table and negotiate in good faith, it would call a strike of *TESLA*'s service and repair workshops. *TESLA* stalled, probably believing that the union would not take such an unprecedented action. The union acted. On the 27<sup>th</sup> of October, it called out all union members from the workshops located in eight of Sweden's communities, and set up picket lines around all of them. Union members working at the *TESLA* facilities, who are obligated to honor a call for a strike, gathered up all of their belongings and left, most of them certain that they would not be coming back. On the 3<sup>rd</sup> of November, it struck seventeen workshops that are not owned by *TESLA* but provide service to *TESLA* vehicles.

*TESLA* still refused to do anything but talk. So the Swedish union machine pulled out all the stops. Dock workers refused to unload *Teslas* shipped to Sweden (and *TESLA* started loading their cars on passenger car ferries and unloading them in Danish ports and driving them across the Öresund Bridge to get around the blockade), truckers refused to carry *TESLA* parts, cleaning companies refused to clean any of *TESLA*'s workshops and offices. In what is probably a first,





the Swedish Musician's union, *Musikerförbundet*, has informed SWEDISH PUBLIC TELEVISION AND RADIO, that they may not play the music from a popular TV series about Sweden's history in any streaming apps that play in *Tesla*. They include *Spotify*, *Apple Music* and *Tidal*. On the 20<sup>th</sup> of November, the members of the union which represents postal workers will stop delivering letters, spare parts, and pallets to all of TESLA's addresses in Sweden. Sweden's former prime minister, Stefan Löfven, says he will refuse to get into a TESLA taxi. *"It should be obvious for a company to follow the customs that exist in the countries where it operates, but it looks like Tesla has planned to ignore the Swedish labor market model,"* said Löfven. *"Shame on you Tesla."*

In spite of these efforts, as of the 23<sup>rd</sup> of November, it appears that the strike was having little or no effect on TESLA's ability handle repairs and service. It's not clear yet what is happening with deliveries of cars that have been ordered, but it appears that Elon Musk is confident that the buyers of his cars are as averse to unions as he is. However, there is one response to the strike that Musk probably did not foresee: new buyers are being put off by Tesla's refusal to accept Sweden's model for a collective agreement. A recent survey of companies that purchase company cars revealed that 50% of them are stopping or delaying their purchases. *"Some are pausing their purchases in order to see where things are going, while others have decided that they don't want to have anything to do with Tesla and are canceling plans to buy cars from the company,"* says Ronny Svensson, managing director for the YNNOR AB, the company that conducted the survey.

On the 22<sup>nd</sup> of November, the same day as Paris Hilton cancelled her company's advertising agreement with Musk-owned TWITTER/X, Elon Musk finally, for the first time, commented on the ongoing strike in Sweden on his X platform. *"This is insane,"* he wrote. (It was translated as simply *"Madness"* in the Swedish press. That's it. I wonder if anyone told him that the postal company that has the contract for delivering license plates to his vehicles has decided to stop deliveries, and that he cannot cancel their contract because it is regulated by Swedish laws. I wonder if anyone in his organization has dared to give him the really bad news: Sweden's first in Europe, but it will not be the last. A strike

has been called by a Swedish supplier to the TESLA factory in Berlin.

On the 27<sup>th</sup> of November, TESLA sued Sweden and Postnord postal service because of Postnord's support of the strike and the refusal of their (unionized) postal delivery personnel to handle TESLA licenses. Talk about how to make friends and influence people. A lower court ruled in Tesla's favor on the evening of the 27<sup>th</sup>.

*The arrow of time flies only in one direction*

The stakes were high for the Luddites in the 18<sup>th</sup> century in their fight to hold onto their livelihoods that were being replaced by machines. The stakes are equally high for the dwindling numbers of automobile manufacturing workers who build machines that are being replaced by new machines that do not require their manual skills. I have found no evidence of a discussion in the 18<sup>th</sup> century about how a transition could be made from manual to mechanical labor that would have eased the economic and psychological pain experienced by the artisans. I have found no evidence of a discussion today about how to make a similar transition from ICE to BEV. Instead, there have been enormous subsidies from governments for BEVs, both to build them and buy them, to quicken the pace of their acceptance and to end the production of ICE, all in the name of climate change.

I have to admit that I feel a tickle of joy when I think of the TESLA technofiles here in Sweden steaming over the late deliveries of their new 3s and Ys and Xs, and fuming over having to use their old BMW X5s while their Model S sits in a garage waiting to be repaired or repainted. I'm sure old Ned Ludd is smiling too.



Options

- IF Metall - gives up
- Tesla signs the agreement
- Tesla goes out of Sweden as the employer and turns over the work to a company that has a collective agreement

## About Michael L. Sena

Through my writing, speaking and client work, I have attempted to bring clarity to an often opaque world of highly automated and connected vehicles. I have not just studied the technologies and analyzed the services. I have developed and implemented them, and have worked to shape visions and followed through to delivering them. What drives me – why do what I do – is my 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. Most importantly, I put vehicles into their context. It's not just roads; it's communities, large and small. Vehicles are tools, and people use these tools to make their lives and the lives of their family members easier, more enjoyable and safer. Businesses and services use these tools to deliver what people need. Transport is intertwined with the environment in which it operates, and the two must be developed in concert.



**Michael L. Sena**

**Editor**

**SUNDBYVÄGEN 38**

**SE-64551 STRÄNGNÄS**

**SWEDEN**

**PHONE: +46 733 961 341**

**E-MAIL: [ml.sena@mlscab.se](mailto:ml.sena@mlscab.se)**

**[www.michaellsena.com](http://www.michaellsena.com)**