

TRUCKNET

DIGITAL MAGAZINE



**“The Tinder
for the Logistics Industry”**

BUSINESS INSIDER

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“During this year we experienced witnessed that technology is the key answer making our lives easier and more productive”

Hanan Fridman
Trucknet Funder & President

FORECAST 2021

From the CTO's desk



Hanan Friedman

Founder & President

Dear friends and partners,

This year has been difficult for all of us in different areas of business. The new modern world affected markets as well as personal lives. The changes brought us a new ideology, in which we have found a new reality. During this year we witnessed that technology is the key answer for making our lives easier and more productive. We confronted a new world with new boundaries that helped us to realize that technological development is the most relevant way to move forward during the lockdown.

The logistics industry was hit hard by overloaded tasks during the pandemic; the sector has become the important one, and was one of the first to understand how to find a solution and make fast decisions. Digitalization helped us to create a new domain of transportation systems. Nevertheless, the situation was complicated. However, we have found better and improved ways to use new platforms in order to create connectivity, of stakeholders, in the logistics chain in one ecosystem.

Our future now depends on connectivity that can respond to current environmental emergencies. This is the part of smart and sustainable mobility that connects port/airport and railway in one system to reach an effective and green path for business development. In this journal I would like to share with you some articles from our blog and news.

Have a Happy New Year! We wish you and your family a successful year, full of efficiency and sustainability. Keep yourself safe! I hope in the end we will be optimists like in the song of John Lennon “Imagine”: “you may say I’m a dreamer, But I’m not the only one, I hope someday you will join us And the world will live as one”.



TRUCKNET

*Merry Christmas and
A Happy New Year!*

FROM OUR BLOG



THE OPTIMIZATION OF TRANSPORTATION IN PORTS

Hanan Friedman Trucknet, Founder & President

A port (harbor) or airport is a complex environment where multiple systems and strategies are operating continually and processing data. At the port management level, Business Intelligence (BI) in operations provides immediate visibility to vast amounts of significant data to analyze the port and terminal performance. Strategic planning using BI leads to improving and optimizing the performance of operations. The port environment is strategic for national security and modern ports are often multimodal distribution hubs providing transport links using sea, road, rail and air routes. Port management plays a major role in the interface between sea, air, rail and land for handling the loading and moving of freight from the moment of arrival at a terminal. One small error can lead to unnecessary costs, delays of delivery and inefficiency. Effective terminal management provides port security, knowledge of regulations, links with supply chains, and more. Transportation and logistics play a significant role in the supply chain process for the movement of products to the customer. The amount of trucks on the road continues to increase every year, contributing to more air pollution and greenhouse (GHG) emissions.



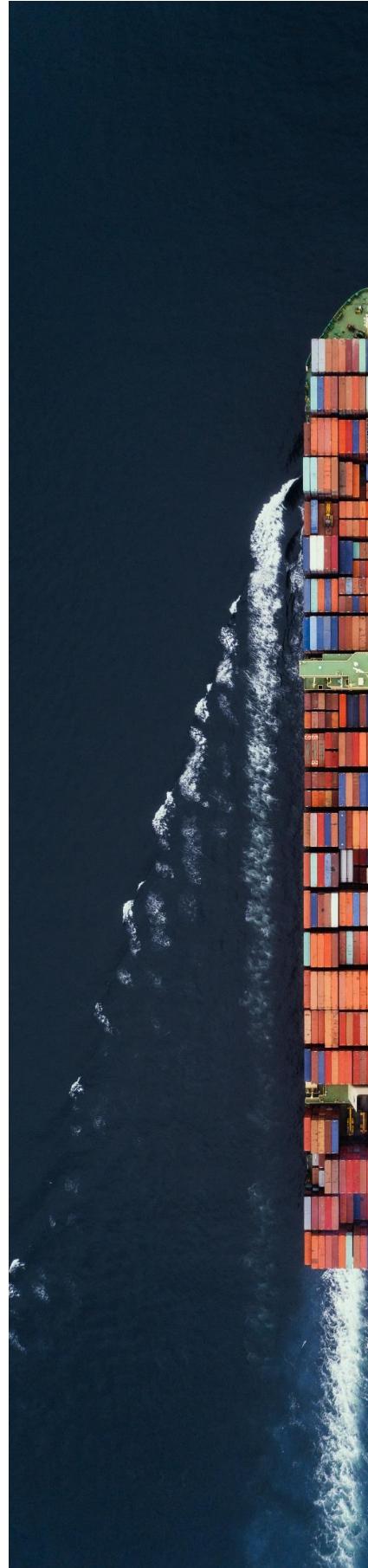
TRUCKNET

It should be noted that the European Union (EU) prepared a roadmap, the “Green Deal”, for making their economy sustainable, competitive and carbon neutral by 2050. This growth strategy is in line with the long-term objectives of the Paris Agreement. More than 50% of goods are transported by road and today transport accounts for 25% of GHG emissions in Europe. For the EU to become climate neutral by 2050, a 90% reduction in transport emissions will be required,

What are the main problems in port transportation?

The air cargo industry is still largely paper-based. Many types of documents are required for shipments beginning with the shipper all the way to the final terminal. Much of this is prepared with copies of very large amounts of paper. With the Covid-19 pandemic, the industry confronted the huge impact of increasing the demand for air cargo. Imagine the thousands of copies of documents that have to be physically touched by many during the Pandemic. In some cases, the air cargo paper documentation is shipped separately from the actual cargo via express couriers. Validation of data in this situation requires human input, often resulting in the need of gathering hundreds of employees.

The total time a truck spends in the terminal area is called turnaround time. It includes the time from the arrival, loading, and unloading of containers, inspection of the truck, filling out the documentation, and going out from the terminal. Extended truck turnaround time can cause an increase in port congestion that slows down the movement of cargo out of the terminal. The longer the turnaround time, the chance that a port may run out of storage facilities will increase. In addition, if a truck does not exit the port quickly, it blocks new trucks from going in, which reduces efficiency and increases the expense of port operations. Demurrage and detention (fees that companies must pay for using containers after they have gone over the allotted time for usage) bring significant costs for cargo companies. In September 2020, the EU issued a Call for Proposals for research and innovation projects relating to the European Green Deal, its major initiative for achieving climate neutrality by 2050. The Call is looking for concrete and effective solutions to respond to the current environmental emergencies. There are ten areas in which projects will be funded, including sustainable and smart mobility. There are two available topics in this area of the Call: green airports and ports as multimodal hubs for sustainable and smart mobility.





It should be noted that transport is a significant part of both topic areas when planning and establishing sustainable and green airports and/or ports. What are the possible solutions? Since the cargo industry is still wrestling with the issue of paper documentation the solution will need to be full digitalization of the workplace, in which all stakeholders are connected in one ecosystem.

The diverse main players across the board come from various regions of the world, with different regulations; therefore an online digital platform is essential. Launching one ecosystem would not only unlock the dependence on paper documentation for the cargo industry, it would also offer a platform for matching cargo. In other words, a truck would have the option of combining a few deliveries rather than taking one shipment only. This optimization method would bring all the relevant players in the cargo supply chain together in one system. The Port of Rotterdam, the largest seaport in Europe, is an excellent example of an efficient logistics hub where smart technology is being implemented. Their digital platform assists in finding the best options for shipping routes, including all transport modes, via Rotterdam with minimal CO₂ emissions. Trucknet's cloud-based platform aims to optimize freight routes and the company intends to advance to including multi-modal solutions through the implementation of smart technologies. Additional suggestions for measures in line with Green Deal policy for contributing to green airport/port planning would include operating E-trucks, fuel optimization, alternative fuel for trucks and aircraft, sustainable waste disposal, and even supplying meals with a lower carbon footprint; this would be in addition to the effective integration of transport modes within and around the airport/port.

If the terminal area is targeted for last mile delivery, reverse logistics can save time. New cargo can be available and ready to be picked up so that the truck will not have to leave the terminal empty, thereby reducing deadhead miles. In this manner we can avoid congestion and decrease the number of trucks inside the port, leading to improved efficiency and creating profitability with less cost. Connectivity along an intermodal transport chain (from ship to truck to rail) provides the information and physical movement between the connection points of the supply chain. This integration throughout several dimensions provides elements necessary for significantly improving freight transportation.



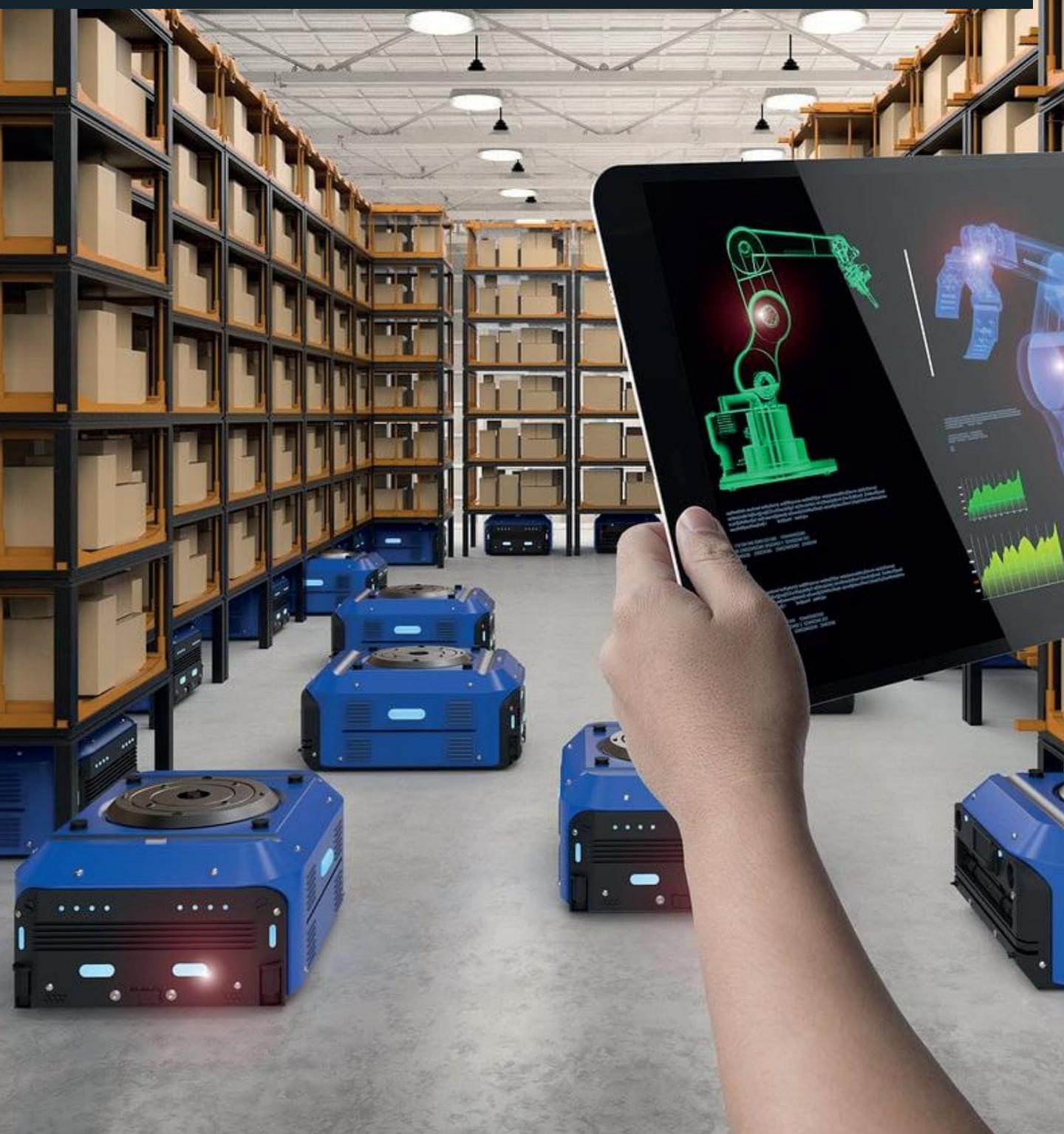
“Modern technology

has become a phenomenon for civilization - the defining force of a new social order in which efficiency is no longer an option but a necessity imposed on all human activity “



WAREHOUSE ROBOTICS

Hanan Friedman, Trucknet Founder & President





Automation opens up great opportunities for logistics businesses.

What will be our next step in the world of robotics?

In recent years, the area of warehouse robotics has gained prominence in circles of supply chains, distribution centers, and warehouse management. It plays a significant role in warehouse automation with technologies that increase productivity. The warehouse is in the center of manufacturing and supply chain operations, as it provides the storage and holds responsibility for the safekeeping of goods. Warehouse robotics uses automated systems for the handling, picking, sorting, and replenishment of products with precision. This innovation can guarantee high levels of accuracy in order fulfillment and warehousing operations, for inventory management.

What are the benefits of automated warehouses?

The increase of automation worldwide is leading to a decrease in the need for human labor and many people are feeling this shift. The idea behind automated warehouses is to have machines operate the heavy weight tasks, while humans remain in supervisory positions. Warehouse operators will be able to handle much larger volumes of goods per day.

Automated warehouse robots can increase accuracy and accelerate repetitive processes when collaborating with human employees. The system can also lead to reduced expenses connected with human labor, such as sick leave days. Safety in the workplace cannot be overlooked. Robots can take the most stressful and dangerous aspects of operations, for example, retrieving inventory from heights and lifting heavy machinery. This assistance reduces physical accidents and can ease the mental pressure on human workers. Lessening this emotional stress can lead to a boost in employee productivity and creating a healthier work environment. Using appropriate robots in the warehouse will lead to reducing human error. Employees can focus more on complex tasks and save time that otherwise would be wasted on going back and forth from different

areas of the warehouse. Smaller chances of mistakes will also lead to a noticeable improvement in the transmission of information within the warehouse. In addition, with robots involved in warehouse management working hours of the warehouse can be extended to 24/7, resulting in much more cargo loading and deliveries.

What are the negative sides of using automated systems in the warehouse?

By bringing in robots to the workplace we often remove people from their jobs. Workers can be replaced when technology develops and improves, especially when machines can take on more complicated and difficult tasks.

Purchasing equipment for work in the warehouse demands that a company consider the long-term benefits, due to the high investment price for automation. Although labor costs may be reduced (fewer insurance payments and employee benefits), the warehouse still needs to pay for maintenance and programming. We must keep in mind that robots are limited in terms of their flexibility and as opposed to humans they are not able to analyze and apply critical thinking. Humans can still outperform the machine in many respects. In addition, robots are not able to respond appropriately to changing circumstances or unpredictable situations.

- Warehouse Management Systems (WMS)

The big game-changer for warehouse automation was the development of the Warehouse Management System, a cost-effective method to achieve improved efficiency and more accurate inventory. A warehouse management system is a software application providing better support and optimization of warehouse functionality and distribution center management.



This system facilitates warehouse management in daily planning, organizing, staffing, and more. It also assists in directing the utilization of available resources by providing real-time inventory to move and store materials into, within, and out of a warehouse.

As mentioned a WMS offers support to staff in the performance of material movement and storage in and around a warehouse. To ensure efficient logistics and supply chain management, a WMS is often integrated with other related systems, such as ERP (enterprise resource planning), transportation management systems (TMS) and inventory management systems.

This integration with cargo management systems can open up a new way of improving transport in the supply chain. When a truck comes into the warehouse to collect cargo, an automated truck loading system will be ready, therefore the truck will not need to waste time waiting in a line. It works the same in both directions - a loaded truck arriving at the warehouse with cargo will have a robot waiting that prepares the area for delivery. Much time and resources can be saved. In the near future, when autonomous trucks are expected to be on the road for transporting goods, they will be able to connect directly with the automated warehouse. The modern world shows us that automation opens up great opportunities for logistics businesses, and robotics can assist in tackling current and future challenges of logistics management. With reduced labor costs, fewer accidents and increased safety - as well as 24/7 service - we will be able to significantly increase efficiency.

Robots are autonomous machines that can offer effective solutions for productivity and security. We are in an era in which companies have the opportunity to reinvent their organization and their business model. They have the chance to not only automate the existing infrastructure, but they can also build new operating platforms adapted to robotic machines. Nevertheless, automation and robotization should have limits. To be the most effective, automated machines should work side-by-side and in harmony with people.

**“I do not fear computers.
I fear lack of them.”**

Isaac Asimov 1920-1992

Isaac Asimov, creator of the three laws of robotics, 1942 (rules from his science fiction short story “Runaround”); the author of “I, Robot”, 1950



Transport management systems and Telematics

Hanan Friedman, Trucknet Founder & President

Imagine the workplace of a heavy vehicle fleet manager. On his desk there is chaos from computer operating systems like Windows and computer screens. With so many tools he has a lot of data to analyze. He tries to be efficient and to be involved in the management process in full. But how can he be even more proficient and what tech systems could help him?

A transportation management system (TMS) is a logistics platform (or web page) dealing with monitoring, organizing, managing, and handling of everything related to the transportation of products from the beginning of an order until final delivery. TMS assists the fleet manager plan and schedule operations.

A Telematics system monitors vehicles by gathering information through GPS and onboard diagnostics systems (OBD). Available data allows us to track how a vehicle is behaving internally, such as its engine status. Besides, unsafe driver behavior can be identified and recorded in real-time, with the installation of a camera in the cabin. OBD systems can provide an analysis of various vehicle subsystems like the history of accidents and fuel consumption. Today data from these systems can even be used to search for the best route for the next truck ride.

What are the main functions of TMS?

No matter what the size of a logistics company, we find that its main task is to increase efficiency and profitability for clients. The main function of a TMS is to manage route schedules and delivery operations. The importance of telematics in transport systems cannot be overlooked.

Efficient transportation management and licensing result in reduced vehicle wear and tear and increased vehicle uptime (ensuring the vehicle is always ready to perform). Analyzing engine status and driving behavior can reduce fuel costs by 10% on average, often equating to a payback of millions. Freight transport operations are a major source of CO₂ emissions, while efficient management and performance can reduce the carbon footprint and promote more sustainable logistics activities. It should be noted that a TMS does not analyze the data that is conveyed to the fleet manager.

What are the telematics information resources?

For transport fleets operating in competitive markets, even the smallest amount of time and resources become critical issues in determining success. It's here that a vehicle tracking device alone is not enough. The telematics system uses a few sources of information. Actively managing your fleet's fuel consumption can save you money, increase productivity, and even improve safety.

One way to reduce the amount of fuel used is by improving poor driving behavior. It has been proven time and again that fuel is consumed unnecessarily when drivers speed, idle their vehicles, brake and/or accelerate harshly. These behaviors not only waste fuel but may also cause excess vehicle wear and tear, which leads to the need for more frequent fleet maintenance.

Studies show that a fleet management tracking device does an excellent job of monitoring the location and activities of a vehicle. Also, reports published on fleet management software show that it provides the best means to mitigate risks, such as dangerous driving behavior, and to identify who may need professional driver training. A carbon footprint calculator allows us to measure a truck's CO₂ emissions. Certain heavy vehicle fleets are already required to calculate and report GHG emissions. A CO₂ calculator can assist companies with this time-consuming job.

What is the new generation of TMS?

Full visibility has been a long-time dream. Freight companies were looking for real-time tracking for many years and saw solutions implemented as Amazon clients began tracking their shipments. Uberization brought the idea to shippers that they could shop for transport through mobile applications on smartphones. These applications can handle so-called "easy-freight" - for example, specific spot-market last-mile delivery. Short-term spot-market transactions have become

extremely popular among start-ups and even among more established companies. For those companies trying to create an online freight marketplace, a BID system (bidding price, like an auction) would offer the client the opportunity to compare and find the best match for the price. This type of coordination using live updates and documentation can greatly improve freight management. Digitalization is a big game-changer for the new generation of TMS. With pre-installed features for all cargo documentation, the tax process can proceed faster and smoother. This saves much time and delay; for example, at a port when a truck is forced to wait for hours before moving on. Today cargo companies prefer to have trucks with built-in Telematics in their fleets. Manufacturers have made a new business model in which they not only provide the device, they also provide the service, which contributes to a more profitable business. Machine learning can be applied to predict the need for vehicle maintenance. Methods for predictive maintenance combine on-board data and off-board database sources, which analyze the data for deviations (based on vehicle usage statistics and maintenance records). Business Intelligence (BI) resources make it possible to create value from big data. Some examples of these technologies include dashboards, data warehouses, data analysis through graphs and more. For example, BI tools can improve logistics management by providing a view of the entire supply chain, and offer an analysis of where delays are most likely to occur. The biggest challenge today for TMS is visibility. The system streamlines the entire supply chain process, with automated communication between suppliers, customers, and service providers.

TMS and Telematics, and even BID, are not enough for today's cargo companies; there is a lot of data but it is not automatically analyzed. Below you can get an idea of the high percentage of trucks traveling empty on roads throughout the world, leading to extreme inefficiency:

GLOBAL STATISTICS FOR EMPTY TRUCKS



OECD North America commercial vehicle fleet

The goal of the transportation and logistics industry is to connect and integrate data from all sources into one platform. AI (Artificial Intelligence), BI and Machine Learning can provide a detailed analysis of all factors and at the end of the day offer excellence to the fleet manager. He will be able to make better decisions for increased efficiency and sustainability.

Here at Trucknet, we call this an All-in-One solution and we are applying our resources to assimilate these components into one platform to make it easier for logistics and transportation companies.

Some areas in which this can be seen include:

- *Supply chain efficiency around the world (e.g. Moovit - simplifies urban mobility)
- *The collective intelligence factor - crowd wisdom (e.g. Waze)
- *Quick and easy to use global cargo marketplace (e.g. Booking).

My point of view is that the solution is ALL-IN-ONE.

This is my opinion and I stand by it.





Self-driving trucks

Hanan Friedman, Trucknet Founder & President

23 Oct 2020

A self-driving truck also known as an autonomous truck, or robo-truck, requires no human driver, which is similar to self-driving cars. The interest in developing autonomous vehicle technology extends beyond passenger cars. Some companies that manufacture cargo vehicles such as GM and Ford also are taking a closer look at the importance and potential for driverless semi-trucks (a combination of a tractor unit and one, or more, semi-trailers to carry freight). Trucking industries aim to increase their efficiency and move more cargo between destinations with less expense. The international standard (J3016) of the Society of Automotive

Engineers (SAE) defines six levels of driving automation. Level 0 represents no automation, in which the driver is in full control and Level 5 represents full automation in which the driver only needs to start the car while the car does the rest. Today we are at Level 3, that involves conditional assistance in which the driver has access to automatic devices that steer, brake, accelerate and shift gears for the vehicle. However, the driver must be ready at all times to take over if necessary. Typically, these features are used on the open highway under good driving conditions, with the driver resuming control when leaving the freeway.

Level 4, high automation, in which the driver turns on automatic driving when safe to do so and then he/she is no longer needed; this is still in the testing process for experienced drivers as the participant subjects. Level 5 will be implemented in the future when a vehicle is able to handle all driving tasks. Test runs of autonomous trucks are already being carried out today. The trucks can be programmed to travel from point A to point B without drivers, under limited conditions. However, human drivers still are in the trucks for safety reasons and can take over the car controls (steering wheel and floor pedals) in case of emergency.

What are the benefits that autonomous truck tech brings us?

In everyday life more and more cargo companies are needed to deliver goods. Autonomous trucks will bring greater efficiency to the trucking market. With the same number of drivers or even fewer, self-driving car technology allows for moving more freight. Today the self-driving car system is more suitable for the highway as long as for the first and the last mile, human drivers are in charge. Labor regulations for professional truckers are different in each country. When taking into consideration 10 hours of work followed by 8 hours of rest, the labor costs for a company can be high while some companies may put 2 drivers on the road for a non-stop run. The self-driving car technology system can make deliveries 24/7 and avoid the busiest traffic time by going out at night instead of early morning. Working on the highway is difficult, stressful, including long hours without sleep. However, it is much simpler than

driving in city streets, where one has to deal with pedestrians, complex traffic, pets on the road and other factors that make autonomous driving technology hard to analyze and navigate. Autonomous driving technology brings big benefits to safety. Every year, trucks are involved in hundreds of thousands of collisions, resulting in thousands of deaths and tens of thousands of injuries. Out of 100 fatal accidents on the road, an average of 35 are caused by heavy vehicles. Traveling during off-peak hours helps to reduce accidents during the busiest time of the day. Besides, the autonomous truck doesn't need to take a break and rest like a human driver, avoiding the human factors that cause accidents. Reducing costs is another advantage of self-driving systems. For example, fuel costs are a huge part of the overall maintenance of cargo companies, and the customer pays a high price, depending on these costs. A trucker drives with emotion and every time he pushes on the gas and brake pedals, this consumes extra fuel. The autonomous system automatically chooses the optimal route to take. Trucks that are equipped with features for vehicle platooning -the linking of two or more trucks in convoy, using connectivity technology and automated driving support systems - will be able to decrease fuel consumption and reduce CO₂ emissions. Platooning allows heavy vehicles to travel closely and safely together following a lead vehicle that controls speed and direction through wireless communication, - a kind of mechanical coupling, similar to "road trains".

In addition to lowering fuel costs, this technology utilizes road capacity better and saves time and emissions. When trucks align in a close group using connectivity technology (radar, GPS, WIFI) and automated driving support systems, the air resistance or drag is reduced. The small distance between vehicles decreases wind resistance and improves fuel economy.

What are the disadvantages?

A very real concern focuses on truck drivers' jobs. It will not happen overnight but more and more truckers will be replaced by new technology. Nevertheless, humans still will be involved in the cargo industry as new job positions will be created to support the new system. Another drawback considers security since hackers and other criminals look for vulnerabilities in new software that is being tested. Even if for now we don't take the human drivers out of the cabin, there is still a high risk that hackers could compromise the control system.

We may still be far away from putting fleets of autonomous trucks on the road, however, there are already legal liability issues. There are many unsolved questions about potential accidents and responsibilities.

The big companies which are now developing autonomous vehicles, such as Otto or Chinese Pony.ai, outline the importance of taking a closer look specifically at self-driving trucks, not at the passenger vehicles. Otto is concerned about the number of highway fatalities.

The need to make the truck safer is one of the company's goals since 70% of freight in the US is delivered by trucks.

Pony.ai is best known for applying a self-driving system in the passenger car but recently realized that the technology for trucks will be implemented much earlier because of the tremendous interest, already seen today, and support in commercializing autonomous trucks. Our next step will be to find the solution so we can connect the transport management system (TMS) to the autonomous truck system such that it will be responsible all the way, respond to every change on the road route and bring the client full visibility.

Remember the song of John Lennon "Imagine":

"you may say I'm a dreamer But I'm not the only one I hope someday you will join us And the world will live as one"

Maybe now all this seems far in the future, but don't forget just in the 1950s we gave up the idea of using elevator operators!





LAST MILE AHEAD

A new generation of last-mile service

Hanan Friedman, Trucknet Founder & President

23 Oct 2020

Last mile logistics is the final step of a delivery process from the distribution hub to the end customer. In a supply chain, cargo or parcels can be delivered to a central hub through various modes of transport, such as planes, ships, trains and trucks. The typical final destination of a product's journey is to a private residence or storage in a large cargo warehouse. This issue of the "last mile" has become a high priority for companies mainly because of the high costs involved in moving goods. Although, this final step is called "the last mile", its actual distance can range from a few blocks to hundreds of kilometers.

What solutions have delivery companies already created?

Big shipping companies such as DHL, UPS, FedEx have to deal, as well, with the issue of unattended parcels. Amazon found a solution and launched its own delivery channels for improved last-mile service to the customer's door.

If no one is home to receive a package they offer a few options including the use of pick-up locations. They aim to earn clients' trust, reduce delays and save money for the company. In the past few years, Amazon introduced a system of small drones in big cities that provides fast delivery within 30 minutes for parcels (within a 20km radius) weighing up to 2.3 kg. A challenge for large delivery companies and their expanded networks is how to focus on and optimize the last-mile route, for reducing logistics costs and improving efficiency. TMS (Transport Management System) software is used to create better routes and can identify additional risk, cargo emissions, traffic conditions, fuel costs and even labor costs. Blockchain in transportation and supply chain management is a technology that improves visibility and connectivity as well as other shipping criteria such as secure billing operations and scheduling. For example, during

peak holiday shopping season, logistics optimization needs to be precise, efficient and flexible and blockchain offers the necessary innovation. Another field that cargo companies are developing is reverse logistics. This refers to a situation in which a customer may use the last mile as a beginning point for the next shipment. For example, when a truck comes into the port terminal to unload cargo for storage, other goods must be ready and waiting for loading to start the next shipment. Companies are looking to improve reverse logistics, such as identifying damage-free products that could be simply repacked and shipped, avoiding the need to restock items.

What is the last mile solution I think is the best?

New emerging technologies can offer original solutions for optimization. All of our ideas bring us to the main point which is to create a one-stop shop platform to manage the supply chain ecosystem. This is something like a flowchart, where there is connectivity between the many possible transport steps: ship, airport, train, truck, and all the way to the people who load and unload the trucks; finally connecting the distribution to the client. Full digitization connects all the cargo documentation including tax information according to the law of each country.

The ecosystem involves every little detail: what is the most efficient way to deliver cargo. Each truck arrives at the warehouse where the system automatically calculates the conditions and prepares the cargo for distribution.



Efficient cargo delivery requires connectivity with timetables, cargo storage, traffic conditions, fleet emissions information, and more. When more and more users are connected to an online platform, the sharing economy model can promote efficiency and cut costs. For example, route optimization matches can be found between different transport and logistics companies, allowing empty trucks to be reduced from the roads. A one-stop shop online platform for fleet managers is a great solution as all the data is available in one place. This state-of-the-art system is being developed through programming from artificial intelligence (AI), Business Intelligence (BI) and machine learning providing us with future journeys that will be extremely efficient.

Let's be part of the ecosystem!

Fuel substitutes in the world

Hanan Friedman Trucknet Founder & President

23 Oct 2020

A sustainable vehicle is one that produces less harmful impacts to the environment than a conventional internal combustion engine vehicle. It can use liquefied natural gas (LNG), compressed natural gas (CNG), biofuels and more. However, a truly eco-friendly vehicle needs to meet specific requirements and can include electric cars, hybrid-electric vehicles, fuel cell vehicles and more. These vehicles are powered by alternatives to fossil fuels (gasoline, natural gas, diesel) and do not produce tailpipe greenhouse gas (GHG) emissions.

Why do we need alternative transportation fuel?

A combination of several factors affects how we address the need for alternative fuels. There is environmental and ecological awareness, concerns about high oil prices and uncertainty regarding the time when world oil production will peak, all influencing the priorities set by governments and vehicle manufacturers for developing cleaner fuel sources and power systems for vehicles. The outcome from the UNFCCC Summit in Paris in 2015(COP21) was the approval of the historic Paris

Agreement in which the countries of the world committed to, among others, significantly reducing global GHG emissions. A key lever in strategies for achieving the Paris Agreement targets is moving from fossil fuel use to renewable energies, including nuclear power, and advancing towards less energy-intensive economies. Needless to say, the transport sector generates a large share of GHG emissions. Both shippers and carriers have much to consider as they aim to diversify their mix of energy sources for transportation. It's a balancing act that requires weighing many factors such as capital investment, cost of energy consumption, available infrastructure, and individual sustainability goals.

We divide internal combustion engines into two categories: single fuel source (the most common) and multi-fuel source. Here we use battery-electric vehicles, solar, biofuel (biodiesel, bio alcohol, ethanol, charcoal, compressed natural gas etc.). Dual fuel vehicles use two types of complete fuel systems and can operate on either of the fuels (for example gas + liquid, gas + gas, liquid + liquid). Flexible fuel, known as flex-fuel/flexifuel in Europe or flex in Brazil, is used in vehicles with an internal combustion engine designed to run on more than one type of fuel. The most common flexible fuel vehicles on the market use a blend of gasoline and up to 83% ethanol.

What is the real answer to alternative fuel?

We can talk about 3 categories of alternatives to fossil fuels for transportation: biofuels, e-fuels, solar fuels.

These low carbon fuels greatly reduce the amount of CO₂ emissions to the atmosphere.

Biofuels, produced from biomass, are already available. Examples include ethanol made from sugar cane, corn, sorghum and biodiesel made from vegetable oils and liquid animal fats. These fuels are in a class of renewable energy, less toxic and much more sustainable than conventional fossil fuels, and can reduce emissions in the transport sector. Of course, there are challenges, such as the difficulty in using biodiesel in cold climates since it causes crystallization and the fuel tends to gel (freeze) which could cause severe damage to a truck's engine. As mentioned above, compressed and liquefied natural gas (CNG and LNG) are alternatives to petrol and diesel. CNG was actually in use before the Second World War in Europe, however, the problems of reduced storage space made travel distance very short - 50-70 kilometers. Today, this more sustainable lower-emissions alternative is gaining market share for heavy-duty transportation. Advancements in engine and fuel system technologies have contributed to the logistics industry's use together with its low and stable stock price.

LNG is more expensive than CNG to produce, store and transport. It emits slightly higher levels of GHG emissions. Its use is more common in Europe where there is a lack of pipelines for long distance CNG transport.

The United States has abundant resources of natural gas from the shale boom that enabled huge increases in production. There is a challenge around the specific type of engine and the availability of fueling stations for trucks using shale gas, which will require additional technology and infrastructure investments. CNG can be used in diesel engines with better fuel consumption. Regarding sustainability, it is still a fossil fuel and its production leaves a huge carbon footprint.

Energy storage for electric vehicles in the cargo industry is still a big challenge with regard to safety, size, cost and overall management of the battery.

The cost of truck downtime during charging may make it less appealing in some supply chains.

Besides, after full charging, a truck can run on average for about 350 kilometers, while most long shipments are 1000 kilometers or more.

We should keep in mind that the local electricity network gets its power from plants that are not necessarily emission free, so it can be difficult to measure actual emissions from alternative vehicles. For example, in Iceland almost all electricity production is provided by renewable energy, therefore vehicle charging stations are powered by the grid that generates electricity from hydropower and geothermal power. On the other hand, in the United States, most of the electricity generated is from fossil fuels.

The production of alternative fuels grows every year, nevertheless, many challenges remain. Even if we solve the problem of lack of resources, there are still several open environmental issues.

Based on the pace of hybrid vehicle development in the world, it seems to be the most promising idea for the next generation of trucks. This next period will be a middle step in the move towards electricity as the main fuel source. The EU, the USA and Japan already are improving efficiency through engine downsizing. Low Emissions Zones (LEZ) are becoming more popular in cities throughout the developed world.

This is a defined area where access is restricted to improve air quality. Polluting trucks are not allowed to enter, therefore this is an additional incentive for logistics companies to use more dual-fuel engines to ensure that regular cargo deliveries will not be interrupted.

After we see hybrid trucks on the market we will be able to think about how to make the full electric system more efficient. The solution is to find a way of charging the battery during the trip, using already existing technologies such as solar panels or wireless roads that charge the vehicle while driving.

Our goal for the moment is to create optimization by using a variety of digital technologies to manage efficiently heavy duty vehicle fleets.

Technology revolution in the logistics industry

Hanan Friedman Trucknet Founder & President

16 Aug 2020

A technological revolution is a series of events that could change the face of society following a leap in man's innovative abilities. Nowadays, the world seems to be moving at unattainable speeds: the benefits of technology have made it possible to automate and simplify communication, in turn bringing about a revolution in business and logistics processes.

The interaction between companies and customers has been radically transformed. Regarding the logistics sector, the challenge for these companies is to rethink the entire supply chain process. Technology plays a key role here for meeting the needs of customers and offering high-quality service. Optimization The ability to integrate large amounts of fully automated data in the logistics chain was a huge step within the industry that led to a Digitization across the supply chain assists companies in significantly reducing operating costs and improving administrative processes. In the context of digital transformation, new business

models can be considered and reviewed. Technological systems have revolutionized the logistics industry, an invaluable contribution in terms of process optimization. Measures such as geolocation (real-time vehicle locating system), planning, paperless trade, and the provision of high-value datasets all ensure improved decision-making options for management.

Big Data Big data challenges include storage and analyzing so much information as well as developing real-time analytic capacity and expertise. Data integration and validation (data governance) is a serious concern for companies as is security. In the world of logistics these challenges can be found in vehicle diagnostics, driving patterns, location information, traffic and weather data from sensors, forecast systems, operational systems and more. But the goal remains the same - to collect and analyze both structured and unstructured data (such as social media posts, web pages, multimedia content) rapidly and efficiently.

Recent research shows that big data is the new frontier for innovation and productivity, with transparent information and utilizable at much higher levels. Companies will more and more need to access and integrate huge amounts of information from multiple data sources.

Big Data analytics in the logistics industry can be used to optimize routing, for example, with major operational improvements possible regarding last-mile deliveries. This specific challenge in last-mile logistics can be tricky. It is often the most expensive component for shipping companies that have to navigate in urban areas, with traffic congestion and limited space, in order to reach a destination on time.

Shippers expect transparency and supply chain visibility is critical. If a shipment is late, carriers want to know about it as soon as possible to prevent serious complications in the supply chain. On the other hand, efficient deliveries carried out on time will be a merit for the carrier while the shipper will feel confident and customer satisfaction will increase. As mentioned, route optimization depends on quick data analysis, while keeping in mind that weather conditions could change, highway and roads could close, and the number of vehicles on the roads could increase, thereby changing the scheduled time frame. Based on the pace of hybrid vehicle development in the world, it seems to be the most promising idea for the next generation of trucks. This next period will be a middle step in the move towards electricity as the main fuel source.

The EU, the USA and Japan already are improving efficiency through engine downsizing. Low Emissions Zones (LEZ) are becoming more popular in cities throughout the developed world. This is a defined area where access is restricted to improve air quality. Polluting trucks are not allowed to enter, therefore this is an additional incentive for logistics companies to use more dual-fuel engines to ensure that regular cargo deliveries will not be interrupted.

After we see hybrid trucks on the market we will be able to think about how to make the full electric system more efficient. The solution is to find a way of charging the battery during the trip, using already existing technologies such as solar panels or wireless roads that charge the vehicle while driving. Our goal for the moment is to create optimization by using a variety of digital technologies to manage efficiently heavy duty vehicle fleets

costs and has led to a reduction of thousands of tons of CO₂ emissions..

Artificial Intelligence (AI), Business Intelligence (BI) AI provides the power to analyze huge amounts of data, allowing logistics companies to utilize data daily. One of the key goals of the logistics industry is to automate time-consuming activities, to increase efficiency and reduce transportation costs. AI provides a set of algorithms that offers complex outputs and decisions based upon incoming data. The combination of the fields will give us, among other things, the business intelligence (BI) that uses techniques such as data mining in order to improve business processes. Machine Learning - the computer's ability to learn and draw conclusions based on a database and we enjoy automatic service (A-Z) at the click of a button. Big data has changed warehouse operations considerably. By applying computer vision taking inventory has become automatic and of course much more productive. In the case of the autonomous vehicle, it still will take some time before we find such a mode of transportation on roads, without human supervision. Hanan Friedman Founder and President However, autonomous vehicles are already used to transport goods within warehouse areas, airports and harbors. The fast-changing world of technology brings us a new way of life. It has changed our way of thinking. We live our lives digitally in communicating with other people, -no matter if it is with our family, our friends, or at work.

Should we sometimes remind ourselves that messaging started with pigeon post over 2000 years ago?



Sustainable behavior in the logistics and transportation industry

Hanan Friedman Trucknet
Founder & President

12 Jul 2020

How does the market work today?

Today, more than 20% of global greenhouse gas (GHG) emissions come from the transportation and logistics industry. If you look at the official statistics of the OECD for North America's commercial vehicle fleets, you will find that about 36% of trucks are empty in the USA. At the same time, approximately 27% of trucks run empty in Europe and 40% in Asia.

The demand in the logistics world increases each year along with economic growth, strengthening the need for supply chain collaboration. Sustainability in the logistics sector means lowering the carbon footprints. This goal includes reducing CO₂ emissions, as well as noise pollution and accidents. Imagine the fleet manager's day. He used to be a driver himself, now he manages the operation of the company's trucks. During his shift, he may have a few problems to solve which are all connected with costs: per hour payment for drivers, fuel consumption, truck maintenance, etc. The company doesn't have time to deal with optimization and empty miles. Simply put, because this process is not automatic.





Every day a company has significant amounts of cargo and each load requires a set of papers. If someone makes a mistake, documents need to be changed and printed again. Even if the company tries to use technology for improvement such as TMS and/or GPS, they still use paper. At the end of the day, the only thing the fleet manager strives for is the financial aspect of the company and its benefits. Environmental concern is not taken into consideration.

In this case, transportation suppliers must find a solution and balance between financial profitability and environmental protection.

Outcomes from UNFCCC Many places in the world are still working with fax machines and printed paper, though technological developments already allow us to be much more resourceful

The Paris Agreement to the UN Framework Convention on Climate Change (UNFCCC) is a global response to the unquestionable threat of climate change. Its long-term goal is to keep the increase in global average temperature to well below 2°C (above pre-industrial levels) and to pursue efforts to limit the increase to 1.5°C . The historic Agreement was approved at the UNFCCC 21st Conference of the Parties (COP 21) in 2015 and entered into force in November 2016.

The Agreement commits all countries, developed and developing, to prepare national action plans for reducing greenhouse gas emissions and adapting to climate change. Governments are required to transparently report their progress.

What are the actions we can take?

We must begin to regard the economic co-benefits of lowering carbon emissions and company profit. Our goal is to put a company's profit along the same line with environmental needs. The logistics industry faces a challenge however, at the same time, also an excellent opportunity. The business strategy of a company must be focused not only on finding low-cost solutions when it chooses the supplier for its services. In the world today, we notice a lot of leading companies choosing environmentally sound solutions, such as reducing deadhead mileage.

Then, we moved to the idea of BI (Business Intelligence), a technology-driven process for analyzing data from a company's activities. Better information is provided that helps executives, managers and other corporate end-users make informed business decisions. Remember the fleet manager? His work is inefficient because nobody provided him with the tools he needs. For the manager of the fleet there is technology chaos on the table: TMS, Telematics, GPS and systems for route optimization. They are

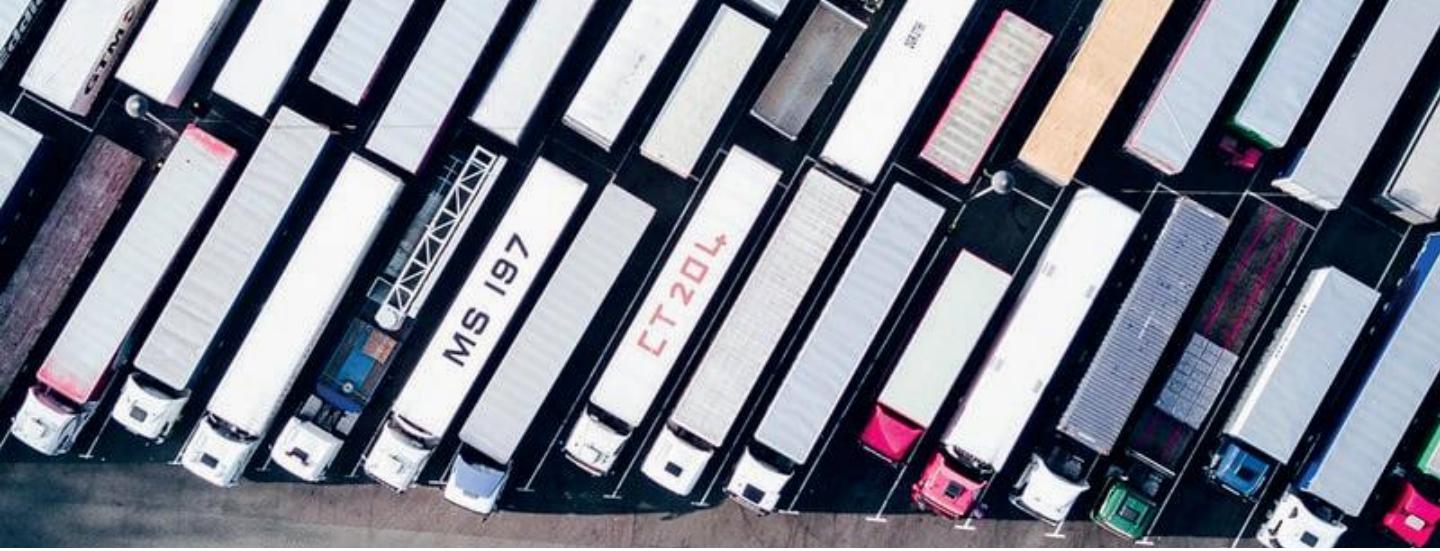
not connected. To avoid jumping from system to system requires a one-stop shop. One of the tools the fleet manager needs for a one-stop shop solution is an emission calculations device including an online dashboard.

The system supposed should be connected to all available data in order to calculate automatically optimized routes according to traffic, road situation, distance in a lifetime for the entire run. The search will bring a better solution for the smartest way for providing cargo delivery. The system will support the fleet manager and become his best partner of the day.

This is the time to change the culture of the industry of transportation and logistics and to recognize the importance of more sustainable behavior. Technology can help us find a better way to transport goods by improving fleet operations and lowering carbon footprints. The innovative option for calculating carbon emissions, based on the truck's specifications such as the year of manufacture, the weight of loads, fuel consumption and more, will greatly improve efficiency through route optimization.



**Save emissions,
save energy,
save money,
Make more profit.**



The transportation and logistics industry in the days of COVID-19

Hanan Friedman Trucknet Founder & President

18 Jun 2020

The world has changed. The income and profit of the world economy have dropped. Today we cannot talk about the modern world as if during the past few months nothing has happened. The changes have affected not only markets, schools ,relationships in overall performance, but our ideology has been hit, leaving us to experience this new reality. We used to live in a world without boundaries, and this world no longer exists. The new order that has taken over, with new boundaries, is causing us to think in a totally different manner.

What problems did cargo industries face?

The majority of difficulties in the industry existed before, but during the pandemic the bubble exploded when it came across a new reality.

Non-revenue generating miles or empty miles equal unnecessary movement. The impact from wastes of empty miles increases costs for shippers and carriers. But there are more consequences, beyond costs, in terms of damage caused to our environment. In our everyday world trucks must return to their home shipyard with or without a return load. Nowadays, suppliers attempt to increase return loads since this boosts the revenue generated by the asset and reduces the truck's carbon footprint.

The main challenges cargo industries faced during the pandemic were connected with delayed deliveries and the damage and loss of cargo in the perishable goods industry. Furthermore, the freight market still involves an array of people involved in preparations starting with loading, through to packaging and documentation.

The main challenges cargo industries faced during the pandemic were connected with delayed deliveries and the damage and loss of cargo in the perishable goods industry. Furthermore, the freight market still involves an array of people involved in preparations starting with loading, through to packaging and documentation.

Despite the widespread introduction of digital technology and the use of modern communication systems, documentation procedures are a crucial part of the process. Forwarders, carriers, customs authorities and even banks – all deal with paperwork, performed by people.

How have we adapted to our ordinary life?

During the lockdown, suddenly we realized almost everything can be done digitally. You don't need to go to the office – the office comes to you with Slack and Zoom meetings with your colleagues. If before, we could have only 4 meetings per day, now we can have at least 6. Online grocery shopping shows us how much time we can save without standing in line or waiting in traffic, especially after work hours. Studying from your home wasn't invented by Corona, as we had Coursera and Open University before. What about sport? It moved into our living rooms with yoga apps and YouTube home gym devices. The widespread use of the internet has brought us to the sharing economy. It got our attention from the beginning with the ideas from AirBnB and Amazon.



What will be our next move to reach the middle of the recovery path?

The critical time showed us the inefficiency of using only manpower in the field. We used to live in a world in which we took stock every quarter/year period. Now the situation around us changes daily, therefore stocktaking must happen instantly. We are beginning to think out of the box to create new income in exchange for what we lost during the pandemic. The key to an optimized environment is utilizing resources to their full capacity. The transportation market is constrained by truck capacity, miles traveled per day and hours of service available to a driver. With open digital freight networks we optimize the demand with the available supply of shipping capacity, thereby enhancing efficiency. At this moment a network, not in one country alone but rather in several countries, must be connected to have more economical value.

We create an ecosystem of shippers, carriers, drivers to avoid the model in which every company, and even a single representative of the cargo chain, works separately. In practice, this means customers always have an overview of their freight, they can check its status and, in case of doubt, can change transport routes or modes, while being informed of any financial impact. The technology of TMS, E-POD, ELD integration helps to achieve the automated process.

This is particularly relevant in a crisis, where priorities of companies and societies can change rapidly. The recent crisis especially taught us that we must work together to succeed - and digitally. And the optimal solution is technology, technology, technology.

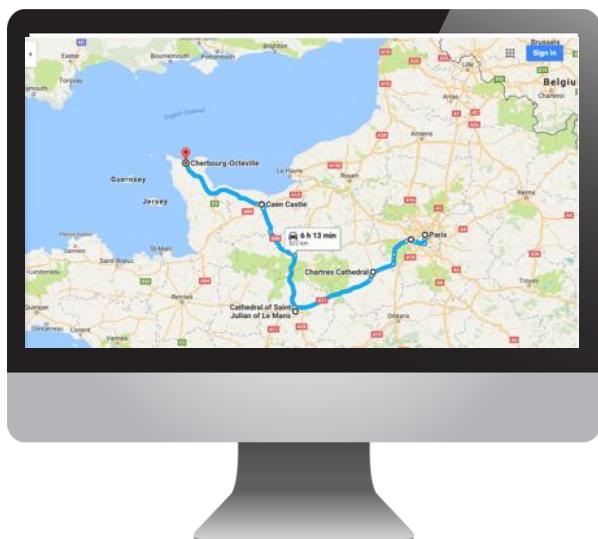
**Creativity
is contagious,
pass it on**

A. Einstein





Ronen Chen
CTO



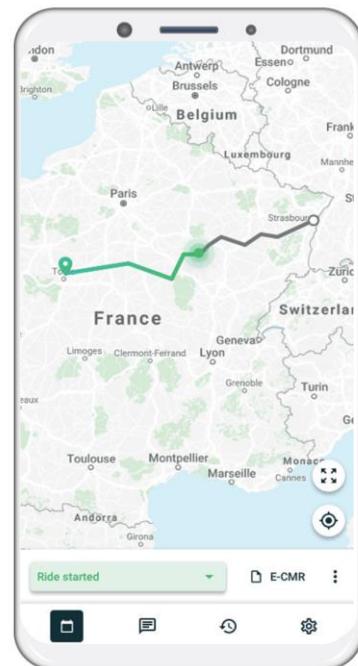
During 2020 the R&D team implemented new elements and features.

Trucknet structure

- Intermediate points for any ride, any time, any place.
- Added-value features on the maps: hit-map, geographical maps etc.
- Import list of rides via Excel sheet via automated micro services.
- Calculate emission on-line

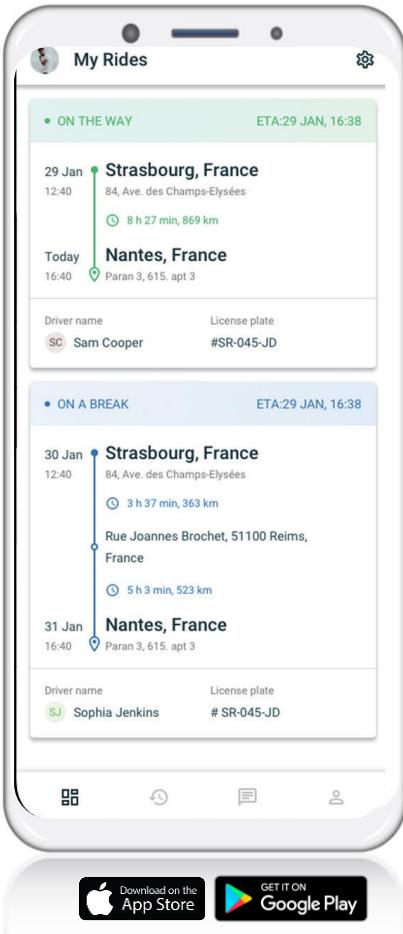
Driver Application

- 📍 Professional navigator new maps.
- 📍 New & updated worldwide maps.
- 📍 Automated signature on shipping certificate based on automated method.
- 📍 Daily working plan based on the driver properties.



Client Application

- 📍 Automated notification on the shipping process.
- 📍 View the notification on the application area.
- 📍 Truck arrival on the destination



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FORECAST 2021

New integration for trains, flights & ships for one eco-system to be integrated in the platform.

Development of AI, BI & ML for data to improve business management.





Hysteria is history

ROAD
DATA

Market
Place DATA

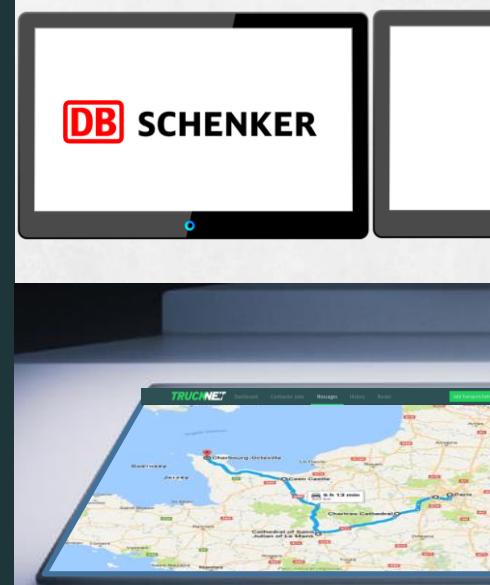
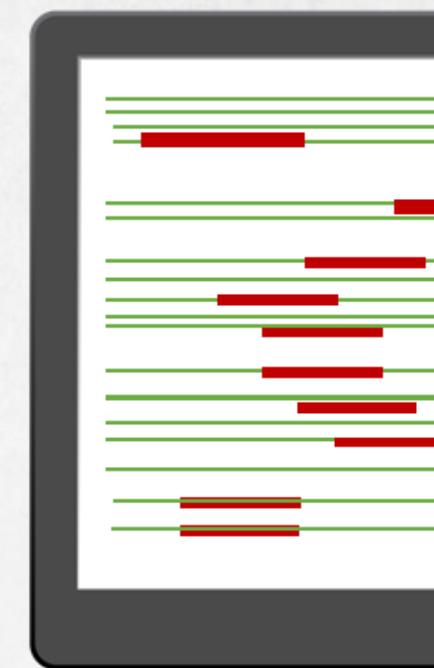
Cross-
Company
Sharing
DATA

Traffic
DATA

Carbon
Emissions
DATA

Regulation DATA

Telematics



Efficiency is Already Here



From press

BW BUSINESSWORLD

December 23, 2020



Bi-directional EV Chargers Share Energy on Demand

TruckNet Digital Launches Its Transportation Management Platform



Digital invoices, electronic proof of delivery, and anytime anywhere accessibility to logistics and billing helps customers reduce cash cycle times by a week or more.



**BUSINESS
INSIDER**

Economía Tecnología Estrategia Política Más temas



Suscríbete

Trucknet es el 'Tinder de los camiones' y pone en bandeja abaratar costes y reducir la contaminación en el sector logístico

Alba Asenjo 13 ene. 2020 8:17h.



Hosting a panel on technologies in the French Senate with the participation of TRUCKNET.

Automatic Cross Company Freight Transportation Optimization

→ Improving efficiency and profitability of transport routes while reducing environmental impact



Hanan Friedman with French President Emmanuel Macron and French Science Minister Mourir Mahjoubi;
Photo: Olivier Taieb ©



**BFM
TV.**



ISRAEL EILAT



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Sorin Teriteanu
GM Romania



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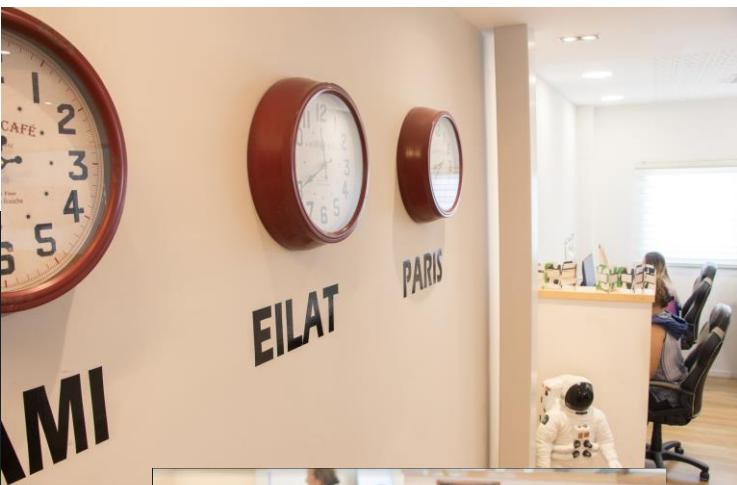


Galy Gal
Product Manager



Nurit Lebar
Director of
Customers
Service France

The people behind **TRUCKNET**





TRUCKNET

<https://trucknet.io/en/>