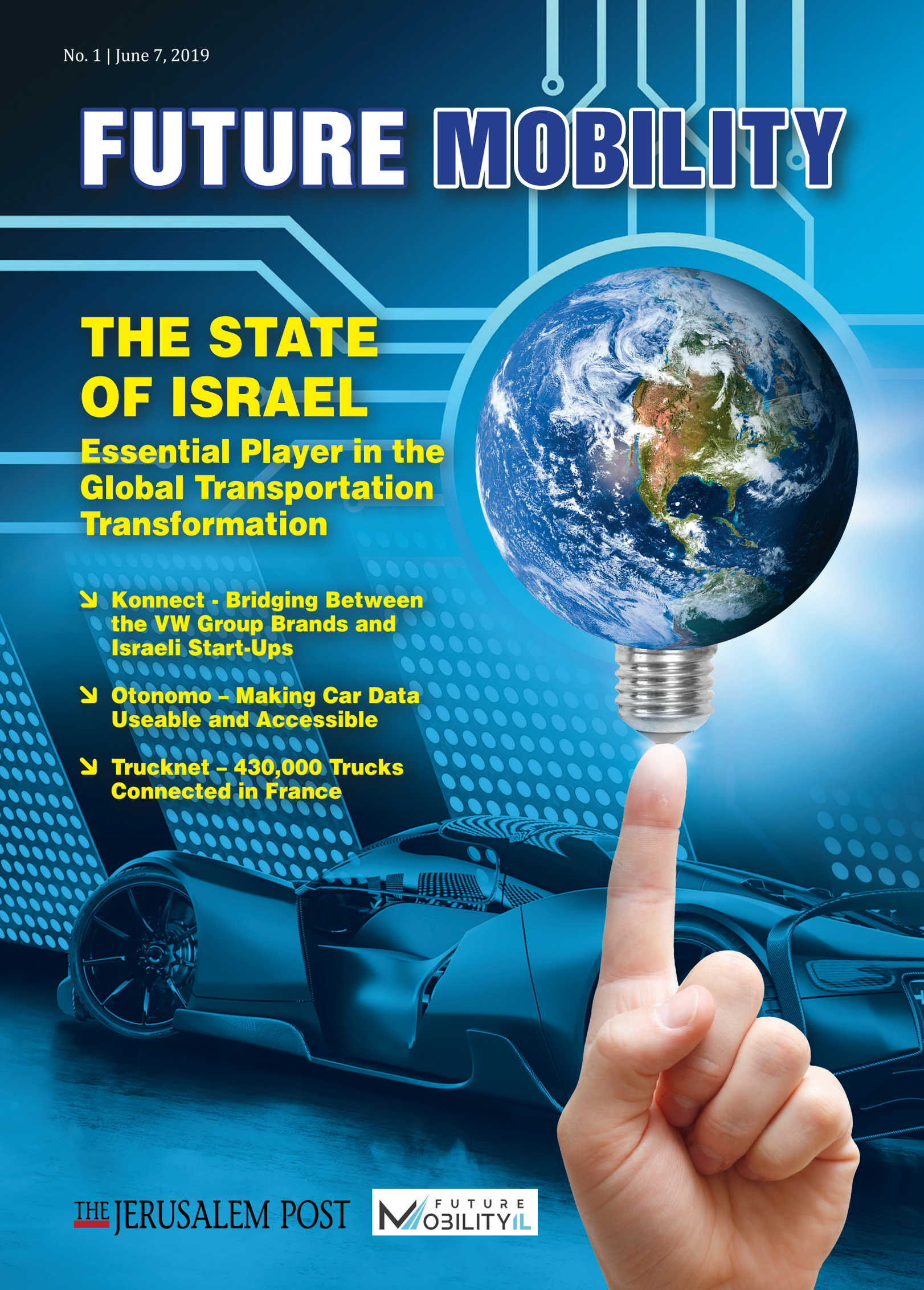
No. 1 | June 7, 2019

FUTURE MOBILITY

THE STATE OF ISRAEL

Essential Player in the Global Transportation Transformation

- Konnect - Bridging Between the VW Group Brands and Israeli Start-Ups
- Otonomo – Making Car Data Useable and Accessible
- Trucknet – 430,000 Trucks Connected in France



THE JERUSALEM POST

FUTURE MOBILITY IL

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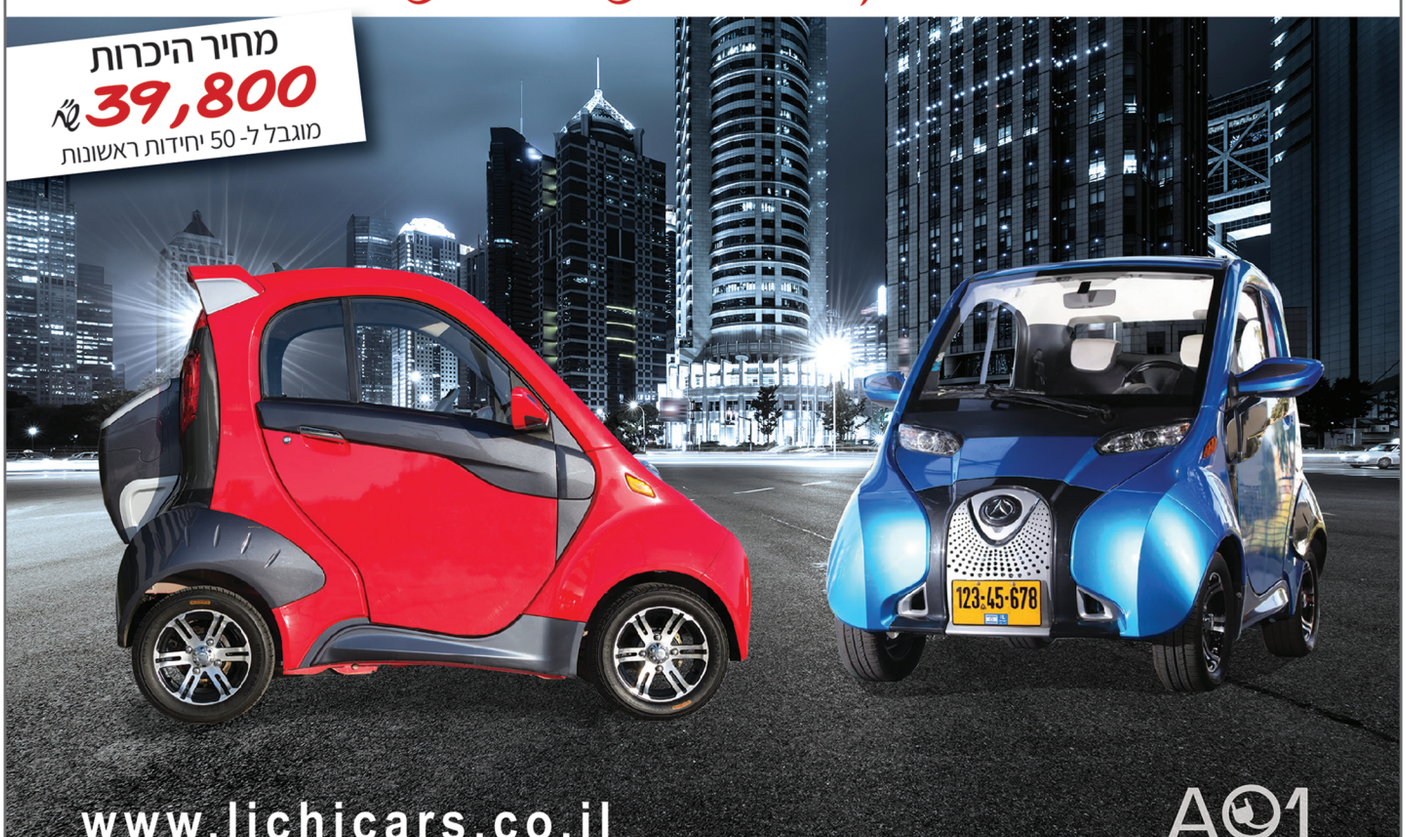
החשמלית העירונית החדשה

בפתרון המושלם לתנועה אורבנית!



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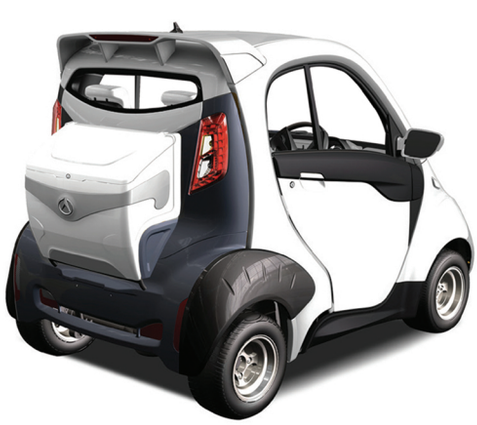

ProDesign

התקשרו עוד היום

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*מובהר כי טווח הנסיעה בפועל מושפע בין היתר ממהירות הנסיעה, אופי הנהיגה, טופוגרפיה, שימוש באביזרים ותנאי הסביבה.

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דרגת זיהום אוויר מרכב מנועי*

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*הדרגה מחושבת לפי תקנות אוויר נקי (גילוי נתוני זיהום אוויר מרכב מנועי בפרסומת), התשס"ט 2009

Dear Readers,
Dear Convention Participants,

Much was written and spoken about future transportation and about the expected changes following using smart technologies such as: AI, Big Data, IoT, V2V, V2X or other advanced products such as: autonomous cars, electric vehicles, flying cars and other creative solutions...

It seems that during day time following the morning commute, parking lots nearby private companies, municipalities, military bases and governmental offices are overflowing with cars. It is clear that private cars or cars given to employees as work benefits are not used efficiently and create one major reason for traffic congestion or worse, traffic jams. For me it seems that the emotional boundary between a "rolling can" and the Israeli driver is unbreakable...Here lies the biggest challenge. Actually, cars should be perceived as a meaning of transportation – from point A to B or further on to C i.e: from home to the office or to nearby train station, or from home to a shopping mall, or from home to a vacation site and so on. After it's done its duty, this "rolling can" should go to its next nearby assignment, according to local demand and based on AI predictions. Following this line of thinking, in the transformation time, a suitable public infrastructure should be built along with suitable financial initiatives/fines for those who don't/do use their own cars. This should be applied to almost everyone and *not* exclude high government officials, military and police officers and the like.

In my opinion, the biggest obstacle lies in educating the broad public to perceive cars solely as a transportation means or as a service, either solely (which will be then priced higher) or as a shared one - following this idea, breaking the emotional connections, between cars and their owners, are one of the most demanding challenges...

Wishing you all interesting and fruitful convection.

Yours,

Dipl.-Kfm. Uri Schlesinger
Editor & Producer - Eshel Initiating Production & Editing

Responses, suggestions, comments and enlightenments:
urischl1@yahoo.com

Dear Readers,
Dear Convention Attendees,

We are on the verge of a revolution in the field of transportation, which will significantly impact all of our lifestyles. This revolution will not only impact the individual, but is also expected to impact the economy as a whole and its realization shall manifest itself in the growth and productivity figures.

The outside observer could identify that the Israeli economy is preparing for the realization of the smart transportation revolution. The investments in Israeli companies that engage in the field continue to increase, every year new ideas and "disruptors" in the field are developed, companies expand their operations and labor force and nearly every international vehicle manufacturer is establishing a development center here.

On the other hand, with regards to implementation of solutions of the smart transportation revolution among transportation users in Israel, the state still has a long way to go until these problems are resolved. The problem of gridlock is increasingly burdensome, the public transportation is faltering and the regulation is hindering and delaying development in the market and a reduction of the problems.

The good news is that there is a solution, one that can be executed immediately and whose outcomes could become noticeable in the field in a significant manner and in a short period of time. The plan proposed by Future Mobility IL combines practical moves for changing the state of transportation in Israel in favor of a reduction of congestion and traffic accidents, and reducing the air pollution deriving from transportation.

We are doing everything to present the "gospel" of smart transportation and make it accessible to the policy makers, to convince them to take the actions that will drive the revolution, and to promote the solutions proposed for the transportation system that will promote an economy that is smarter, more advanced and of a higher quality for all the residents. We are promoting the plan alongside entities in industry and academia, and the first signs of this are already apparent in the field.

We must succeed in this mission because we, as a country, have no other choice.

Sincerely,

Michal Gelbart – CEO Future Mobility
michal@mobolityil.com

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THE JERUSALEM POST
Special Supplement

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Reducing Heavy Traffic on Roads by 50% within Two Years

Gridlock costs the Israeli economy NIS 50 billion - Future Mobility comprehensive plan overcomes the hurdles

Ori Yogev,
Future Mobility's Chairman
Photo: Haim Zach, GPO

According to **Future Mobility Chairman, Ori Yogev,** we have no time to waste. Following his explanation, gridlock is our most urgent problem at present. Millions of Israelis, who "spend" hours on the road or on public transportation every day on the way to work, would apparently agree with him.

The various studies, upon which the organization relies, indicate that gridlock costs the state NIS 50 billion per year, due to lost work and leisure time. The state began investing hundreds of billions of shekels in light rails and a network of subways in Gush Dan, in a fourth rail on the Ayalon Highway, which would dramatically increase the frequency of the heavy trains, and in a large project for construction of public transportation lanes in Central Israel. However, these infrastructures will be built sometime between 2025 and 2040, some of which, such as the fast lanes plan or the light rails, would even exacerbate the transportation problem during the construction work. And in the meantime, we are all stuck in traffic.

Incentives for Public and Alternative Transportation and Increasing Fees on Public Parking

"The state invests in transportation infrastructures, but these will only be completed in 15 to 20 years, and by then the population and the number of cars on the road will grow even more", says Yogev. "Our plan will enable us to reduce gridlock by 50% within two years, via applicable steps. The decisions here are not simple, such as a tax exemption on travel via public transportation and ridesharing, while conversely taxing parking for employees and increasing fees for public parking. But there are no dramatic decisions here such as cancelling pensions. We are using whatever the technology is providing us, which enables an acceleration of the change."

The plan is based upon improving utilization of our overcrowded roads, upon which over a million vehicles travel during rush hour, each carrying 1.2 people on average, by encouraging use of public transportation, ridesharing and alternative transportation such as bicycles and scooters companies, which have become fully operational over the past year. There are carrots, such as cancelling the annual licensing fee and a tax exemption on reimbursements for employees who did not travel with a private vehicle, and sticks, such as taxation of employee parking and increasing fees on public parking. Another step that is considered a "stick" is tolls – A payment for use of the road during times of congestion. However, the Company is proposing a model in which the tolls are collected instead of other taxes – And this is not a true "stick". There are those who would enjoy the plan and the "carrot" they receive will amount to about NIS 2,000 per year.

Will We Pay for a Toll Road rather than Licensing Fees?

Among other things, the plan proposes that the Finances Ministry cancel the expensive annual licensing fee for drivers that bring in NIS 4.5 billion per year for the state, and replace it with congestion fees for entering roads during rush hours, despite the state's difficulty giving up this income.

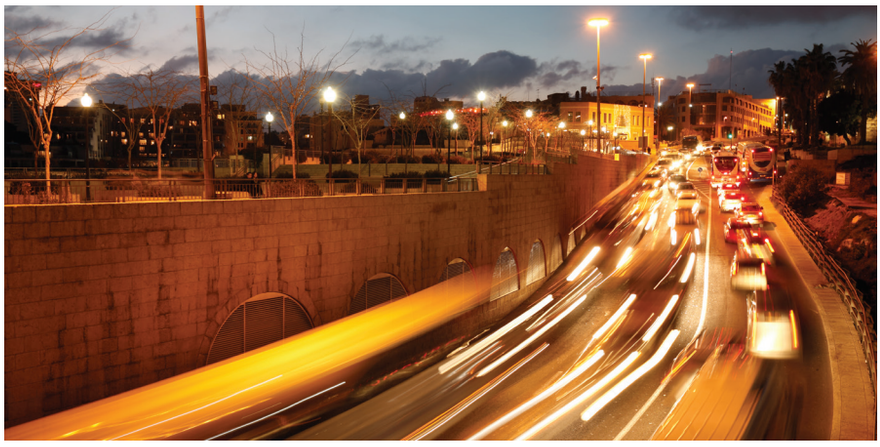
The congestion fees represent a demand management approach in transportation and in practice it is better to call them tolls – since the intent is to collect a price from private vehicle owners that are entering areas with heavy traffic at rush hours and pay a toll for the road they use. Thus, instead of demands in transportation being managed via waiting in line, i.e. in gridlock, which lead to huge losses in time and to air pollution, they will be managed via prices. In this manner, drivers that travel on the road at times of increasing demand – shall pay a higher price.

Key Points of the Plan for Solving Gridlock:

1. **Promoting Ridesharing:** After years in which entry of the ride sharing taxi company has been unsuccessful, to the point of almost terminating its activity, Future Mobility is actually proposing to promote ridesharing. This includes carpooling services for sharing rides on a private vehicle as well as commercial services, classical taxis and smart public transportation, which the Ministry of Transportation has allowed into Israel, and which began operating this year in Gush Dan via the Dan Company. According to Yogev: "such options need to be more expensive than the public transportation so that it is still worthwhile using the bus lines, but cheap enough to cause drivers to move to them from their private vehicle."

And how is this done? Changing the regulation prohibiting a private vehicle driver from charging payment from passengers, and a NIS 2 fine on any trip where there are less than 5 people in the vehicle (excluding taxis), which would encourage ridesharing drivers to travel with as many passengers as possible.

Taxis drivers, who are the strongest opposition to the entry of ridesharing that enjoys reduced costs and which would harm their livelihood, shall be compensated NIS 20 thousand for the expected decline the competition would cause to their Green



Number value, which grants a license to operate a taxi and is current sold for about a quarter of a million shekels.

Ride sharing in the periphery shall be subsidized so that it operates effectively as a substitute for the low frequency public transportation, Israel Railways shall rent its services in order to bring passengers to the stations efficiently and quickly, and carpooling shall be given a push forward by enabling any vehicle with 3 or more passengers to use the public transportation routes, which would encourage drivers to pick up passengers.

2. Payment for a Trip During Rush Hours on Roads and Increasing Parking Fees: "Congestion Tax" is the best-known term – Turning use of the road into an issue of supply and demand. All the roads shall be classified as Light Traffic (no payment), Medium Traffic (NIS 8 per trip) and Heavy Traffic (NIS 15). The estimation is that average payment per driver shall reach about NIS 2,000 per year, which would finance the cancellation of the annual licensing fee (an aggregate of NIS 4.5 billion), and reduction of the tax on gas by NIS 0.35 per liter.

At the same time, parking fees shall increase. A tax shall be imposed on parking benefits for employees, which shall be determined according to the ranking of each city as "Congested", "Moderately Congested" and not congested at all, and in each there will be two price rates. At the same time, a tax exemption shall be set on public transportation expenses for employees, reimbursement on use of buses, trains, rideshares and even shared bicycles and scooters. Public parking fees shall be doubled.

3. Promoting and Improving the Public Transportation: Allocating a public transportation route in each road with two or more lanes, incentivizing the public transportation operators not only by the number of trips they make but also by the number of passengers, so that the state pays the operators NIS two for each passenger over a 95% capacity, use of technologies for prioritizing pedestrians and public transportation. Adding systems of smart traffic lights in the city centers. More importantly, closing off the city centers to private vehicles in order to turn the city centers into vibrant locations that encourage walking.

Encouraging Usage of Bicycles and Scooters: These vehicles, that already enjoy popularity today, are a cheap, available and efficient solution in terms of using land to move over short distances within cities, or as a complement to travelling by train. Suitable routes must be prepared on an accelerated basis and enforcement of riding laws must be increased in order to create a safe environment for the other riders and the pedestrians. On the other hand, Future Mobility are warning of excessive bureaucracy that deter users from these vehicles, such as requiring license plates.

The plan is based upon improving utilization of our overcrowded roads, upon which over a million vehicles travel during rush hour, each carrying 1.2 people on average, by encouraging use of public transportation, ridesharing and alternative transportation

Promoting Electric Transportation: Electric transportation is the basis for an autonomous vehicle, which will revolutionize the field of transportation in the foreseeable future. A country that lacks suitable infrastructure for the autonomous vehicle – will find it difficult to contain it. Electric transportation is also more environmentally friendly in terms of air and noise pollution. In order to encourage penetration of electrical private vehicles, taxis, buses and trucks, penetration objectives shall be set, thus maintaining the certainty regarding taxation on an electrical vehicle that by 2023 the sales tax will stand at 10%, and there will be a discount equal to the usage of a chargeable electric or hybrid vehicle. The state shall purchase electrical and chargeable vehicles for its vehicle fleet, promote the establishment of charging infrastructures and prepare a public relations campaign to encourage a transition to an electrical vehicle.

4. Subsidizing Municipal Authorities to Adopt Smart Transportation: The plan proposes an annual call for proposal in the amount of about NIS 200 million for authorities that promote smart transportation. Each municipality may choose the steps it takes to handle congestion – from assimilation of a traffic light system that prioritizes public transportation, promoting walkability in town, to upgrading bus stations so that they are available for use by public transportation.

5. Work Hours Flexibility : Spreading out the employees' arrival times at their workplace and increasing the options for working from home will reduce the employees' need to head to work during rush hours. Yogev proposes the creation of a mechanism for flexible work arrangements via a legislative change, by transitioning to calculating the work and rest hours on a monthly rather than a daily basis. The Goal: To enable employees to work a long day at the office, since this would require them to travel during rush hours, but only arriving the following day for a short day and not adding vehicles to the roads. We would require a new mechanism here for calculating overtime, so as not to diminish the employees' income.

6. Handling the Regulation: Adapting the Israeli Law to the era of smart transportation, by aligning it with the emerging regulation in the United States and Europe for autonomous vehicles, encouraging vehicle manufacturers to conduct autonomous pilots in Israel, and establishing a center for collecting data from vehicles and which shall serve as a basis for developing technologies and new services.

Leveraging Vehicle Big Data to Drive Savings

Advanced remote vehicle asset management solutions aimed at maximizing businesses' performance and cutting operational expenses

Micky Zilberstain, COO GalooliOTO

One of the promising endeavors in the Israeli Smart Mobility market is GalooliOTO. Future Mobility met **Micky Zilberstain, COO of GalooliOTO** and one of the driving forces behind it, to learn about the company and its unique solutions.

Generally observed, what is the solution that GalooliOTO provides? What is it based upon?

The accessibility of sensors, camera modules, and advanced computing are making the car industry more data-driven than ever. Yet, traditional telematics systems mostly enable customers to use only 20-30% of the data and generate poor-value insights.

GalooliOTO's mission is to utilize its AI predictive models in order to provide the world's biggest automotive companies with smart remote management SaaS (Software as a Service) solutions for connected vehicles. With a distinct focus on maximizing fleet and workforce performance, our sophisticated machine learning-based platforms enable businesses to translate multivariate data points into bottom-line financial savings.

Compared to other solutions in the car industry, what are the advantages of your specific solution?

Our AI-based system makes it easy for businesses to visualize the big picture and make data-driven decisions through full-coverage of their workforce's connected vehicles:

a. Smart profiling of groups and fleets

The uniqueness of our system lies in the fact that it provides first-class analysis and smart profiling of vehicle performance vis-a-vis the organization and similar vehicles globally. Every customer, every driver, every car is a unique world to us, so we are profiling it to sharpen the results.

b. Agile and customized monetization of data

While traditional telematics systems take the "one size fits all" approach and provide no flexibility as if all customers are the same, GalooliOTO converts big data into practical & useful business intelligence tools and provides tailor-made actionable recommendations. In addition, GalooliOTO increases businesses' revenue by carefully identifying areas where the company is overspending. Using our AI-based solution, customers can utilize 70% of the data being collected, analyze real-time reports and convert them into actual money-saving measures.

c. Innovative AI & BI for OPEX (Operational Expenses) savings

GalooliOTO's AI system provides maintenance recommendations, customer-based insights, real-time fuel and engine diagnostics, and more. By utilizing its advanced BI tools, it improves fleet safety and discipline, reduces the fleet's fuel consumption by up to 40% and its maintenance costs by up to 20%.

What is your AI Driving Behavior Score and what are its benefits?

GalooliOTO AI system has a revolutionary driving behavior scoring method that can analyze drivers' behavior by comparing groups with similar characteristics. The AI Driving Behavior Score measures real-time driving metrics, embedded in a Final Driving Behavior Score, to provide fleet managers a broader picture of the driver's / fleet's overall performance and help them follow up on their team's improvement over time. Thanks to smart AI clustering (vehicle type, industry, geographical region, etc.), our scoring method fits all types of vehicles, within different sectors of industries including taxi, bus, small deliveries, supply trucks, etc.

What advantages does Galooli provide for EVs (Electrical Vehicles)?

As the global use of electric vehicles grows, the importance of the battery as an integral part of the vehicle increases. As a result, EV fleet owners are longing for a battery breakthrough that will extend its lifespan. Our Smart Battery Management Solution turns every industrial battery globally into a smart battery. The solution converts battery data into practical & useful business intelligence tools that enable complete control over the battery health: optimizes the battery lifespan to last longer, provides real-time tracking and alerts to prevent battery theft, and more. On top of that, our recent innovative development is our battery lifetime prediction tool, that provides an accurate prediction of the battery status according to its voltage, current, temperature, internal resistance, and overall battery health. Just imagine how much money and trouble the automotive industry could save if it knew in advance when a battery needs a replacement.

Which kind of OPEX the KPIs (Key Performance Indicators) enable in fleet/car operations?

Our smart remote management solution is based on a KPI process that leads to cutting OPEX costs and adding real value to fleet managers. We do that by focusing on the main components of our clients' businesses, which are likely to spend excessive resources if not managed efficiently: Reliability, Visibility, Fuel, Energy, Operations, Maintenance, and End Users. Relying on our system alerts, smart reports, and data analysis, we can pinpoint the inefficiencies of their business and help them define their desirable KPIs in order to reduce their expenses. By defining the KPIs and implementing the suggested measures, our customers can truly create a transformational change in their businesses' overall performance.

GalooliOTO - Smart Remote Management Solutions for Connected Vehicles

Buy a Vehicle? Mobility as a Service!

Eyal Gur - CEO
Shlomo Holdings

No doubt Israel has great technological ventures, but can we get to the next stage in smart transportation?

Our world is moving towards a particularly exciting transportation revolution - consumers no longer need to own their vehicles, rather transportation is viewed as a service that provides them with their mobility needs.

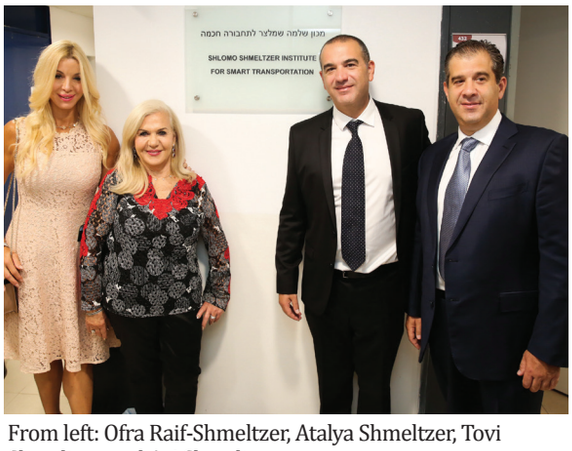
Mobility as a Service, or MaaS, is the leading trend in the automotive world and offers transportation consumers a basket of solutions that will enable them to get from one point to another according to their needs. According to this perception, consumers are no longer interested in the product itself, in the understanding or planning behind the scenes, what is important to them is to receive a service that will meet their needs and bring them in the best way to their destination.

The Netherlands

This revolution is spreading throughout the world. An interesting example of this is the Netherlands. While not considered a vehicle powerhouse, the residents of the Netherlands enjoy electric public transport, convenient digital infrastructure and advanced charging infrastructures. The underground trains and electric trains in the Netherlands are strictly electric, and scattered across the country are public charging points, many of which are powered by wind energy.

The Netherlands were able to reach significant achievements in the smart mobility world thanks to a political initiative that sought to raise the issue of smart mobility on the public agenda. In order to promote cooperation between academia and industry, the state has provided assistance and support, thus leading these parties to join hands and work together to promote smart mobility.

This activity yielded welcome initiatives, such as the Dutch government's Green Deal program, in cooperation with various agencies, for the establishment of a nationwide network of public and fast-charging points for electric vehicles. To promote intelligent traffic management, the Netherlands has established the National Better Utilization Program to establish a digital transport management infrastructure. Cooperation between regional authorities and the transport and road authorities provides access to vital public data, information on transportation and transportation management services. Collaboration between regulators, industry and research has also led to the advancement of start-up projects such as Epyon, which offers fast-charging solutions for electric cars; Fileradar.nl, predicting traffic congestion; and Gomecsys, which develops fuel-saving technology.



From left: Ofra Raif-Shmeltzer, Atalya Shmeltzer, Tovi Shmeltzer and Asi Shmeltzer.

The Change in Israel

Here too, in Israel, the new consumer perception of preferring mobility as a service without the need for ownership is emerging, and more consumers are emphasizing the availability and comprehensive service that will facilitate their movement in the various vehicles.

But can we get to the next stage in Israel? There is no doubt that Israel has great technological ventures and many companies in the industry are working to advance technological initiatives. The technological advancements required for this shift are already here, and yet our streets are still covered with soot and smoke, the buses are late and the drivers are stuck in traffic jams. The reason for this is that each of the factors in Israel that can advance the mobility revolution as a service operates from their own narrow angle. Without regulatory actions that push for connections between the various services and emerging technologies, we will not be able to reach significant achievements.

Shlomo Group – A Range of MaaS Solutions

One of the leading companies in the MaaS concept in Israel and already providing the Israeli consumer with a range of solutions is the **Shlomo Group**, which through its subsidiaries enables its customers to enjoy a variety of services for their vehicle without having to own it through its leasing services to individuals. In addition, it provides related services such as insurance and road services, which are always available according to the needs of drivers. And all this is before we even talk about the new technologies the group is working on towards the next stage in the world of transportation.

In addition, the group founded the **Shlomo Shmeltzer Institute for Smart Transportation** at Tel Aviv University, where it conducts extensive activities that combine research in the transportation world and in combination with the world of industry and start-up companies, which will lead to an upsurge in the MaaS world. The group promotes the new concept as much as it can within the constraints of the group and the regulator's authority, but in order to move the revolution to the next stage and to promote smart mobility in Israel, we must follow the models that succeeded in the Netherlands and in other countries.

One Step Ahead...

Bringing the right technology to the right business partner in the Volkswagen Group – Driving Group business development and innovation

By Uri Schlesinger

Stephanie Vox,
Managing Director, Konnect
Volkswagen Group Innovation Hub TLV
Photo: Elad Malka

When visiting a German company's office either in Israel and surely in Germany, visitors can expect to encounter a very polite yet very formal attitude. During my visit to the **Konnect – Volkswagen Group Innovation Hub in Tel Aviv**, located in a midtown building, I received a completely different impression.

The young **Managing Director, Stephanie Vox,** 34, welcomed me with a friendly and informal "Hello," wearing a sporty, elegant outfit with casual sport sneakers. On the spot, I felt the existence of a new wave of change that was confirmed during our meeting and conversation.

It looks as if the very traditional automotive group is heading towards being more international, more innovative, younger and female – it is clearly open toward new ideas, ways of thinking, operating and implementing concepts

It seems that the local Volkswagen Innovation arm in Israel represents this new spirit of change, which is the new face of the Volkswagen Group. It looks as if the very traditional automotive group is heading towards being more international, more innovative, younger and female – it is clearly open toward new ideas, ways of thinking, operating and implementing concepts. Stephanie, and definitely not Ms. Vox, was kind enough to explain to me what it is all about...

What was the motivation for setting up Konnect?

Israel is known as the "Start-Up Nation" with about 6,000 start-ups – of them more than 10% in the area of smart mobility. Those start-ups are backed with a broad pool of technological talents and about 350 R&D centers, which all together make Israel a greenhouse for innovation and new ideas.

During my first visit in Israel, three years ago, I encountered the technological landscape and hi-tech scene. Parallel to that, we realized that there is no Volkswagen Group innovation entity in Israel. Since the summer of 2017, I worked jointly with Hemdat Sagi, Konnect Head of Strategy and Business development, on the concept to establish a local entity in Israel. Together, with our colleagues from the Volkswagen Group Brands, we defined the scope, the service and the set-up of Konnect.

In which segments of smart mobility are you concentrating your efforts? Who should approach you?

Generally, we are interested in cutting-edge technologies for our future mobility solutions. Segments such as: autonomous vehicles (i.e.: sensors, smart navigation and mapping etc.); new mobility and urban services (shared mobility and traffic management etc.); connectivity (v2v, v2x, in vehicle telematics etc.); electrical mobility (batteries, charging, management and so on); ride experience and maintenance; cyber security; big data, as well as out-of-the-box mobility and unique tailor-made solutions.

Approaching us requires doing "homework" and assuring that the suggested ideas or solutions are relevant to our Group's vision. Furthermore, endeavors should not be at the beginning stage. We should be able to test and implement their ideas or technologies.

I believe the future of mobility is already here and evolving all the time. For us, as the innovation arm of Volkswagen Group in Israel, we aim to support the Group to find solutions that provide a cleaner, safer and more convenient customer experience

How does your hub name, Konnect, reflect your provided services?

Konnect builds a bridge between the Group Brands and the dynamic Israeli start-up scene. It is therefore all about connecting. We are the business development arm for our brands in Israel, so we are in the market to find new technological solutions, to screen and evaluate start-ups and to introduce them to our headquarters. Additionally we are the gateway to Volkswagen Group's Brands for the Israeli start-up scene, being accessible and approachable. We believe that this support adds many values to both: our internal Brands and the Israeli start-up scene.

Could you practically explain what it means being the home

Approaching us requires doing "homework" and assuring that the suggested ideas or solutions are relevant to our Group's vision. Furthermore, endeavors should not be at the beginning stage. We should be able to test and implement their ideas or technologies

base for the Volkswagen Group Brands?

The Group Brands are actually our clients – we see ourselves as a service provider. Whenever it is about innovation topics or about cooperation with start-ups In Israel, we are the partner, on the ground, to help the brands find the right company or assist them in implementing their projects or eventually initiating new ones. As so, we need to know and understand the needs and demands of the Brands. Once those are clear, we can scout, evaluate, propose and match the right technology or solution.

Furthermore, the whole team has its eyes and ears open to new trends and to new technologies – to be one step ahead and to constantly introduce new start-ups. This is the reason why we are here in the market. When we find something very interesting, and very promising we are introducing it to relevant contact persons within the Brands. But first, we have to know to whom. We are a big Company. As so, we have our internal network to match and connect the right start-ups to the right department.

How does the space at the hub serve you?

This space is part of our provided services. We conduct workshops, networking events and host project teams. This space is for the brands - it serves as a working place for the Volkswagen Group and Brand experts coming to Israel. We organize B2B meetings for different Brand business units and departments. They are interested in very specific technological topics so we match them with the right solutions in the Israeli start-up ecosystem. In addition, we are initiating leadership journeys for brand managers in Israel as part of a transformation process, and to integrate a culture of innovation. One example is the failure culture – trying things out. This is what we can perfectly learn from Israel and from this market. It is very difficult to transport those messages in a power point presentation at the headquarters – it is much more authentic and efficient to have the Volkswagen managers that drive innovation come over here to Israel and have them experience and learn about it from different start-ups. For about 3-4 days, we are introducing the whole picture to the visiting managers. Those decision makers become our ambassadors when they go back to their headquarters. They get new inspiration, new ideas on how to drive innovation internally and it helps them to create a whole new mind-set when it comes to innovation.

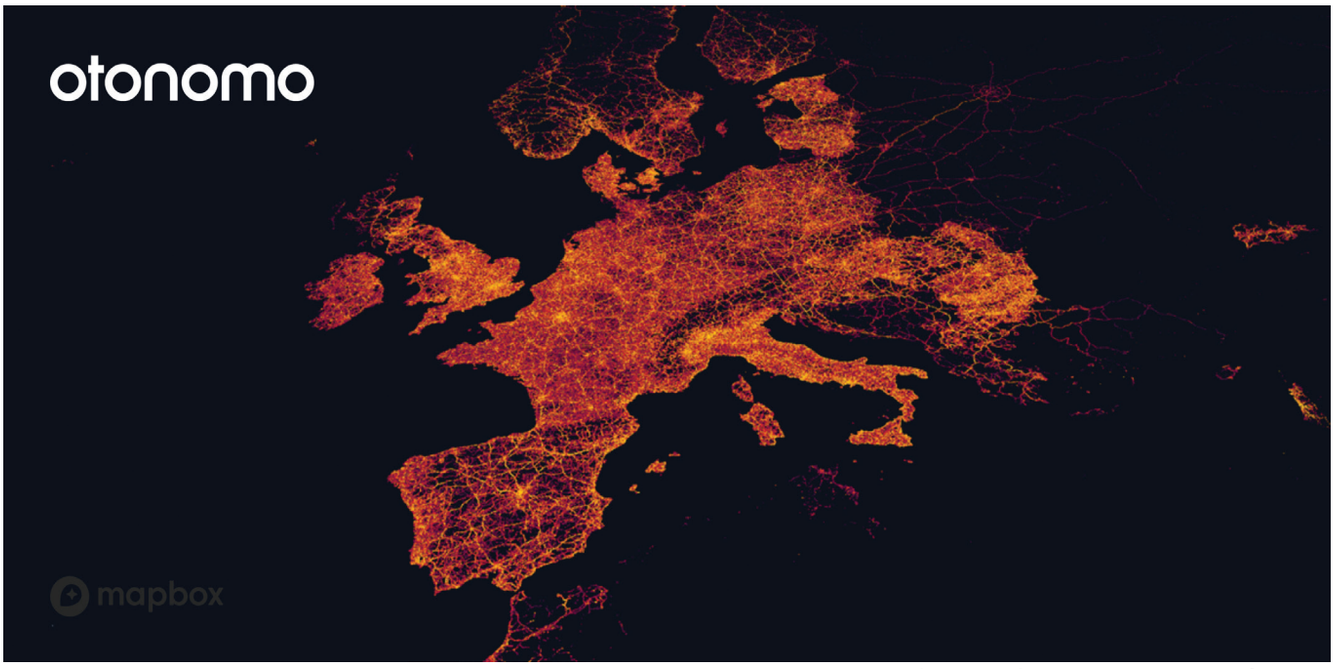
Could you, on the other hand, explain how are you acting as a gateway for start-ups?

Anyone who has once worked with the VW Group knows how difficult it can be to find the right person, the right department or both. Our mission is to make it much easier and more accessible. For example, it takes time to get an answer from VW HQ - we can support, translate and accelerate the process. Our Konnect team, being on the spot, can assist the start-ups and others with many topics, such as: contracts, non-disclosure agreements, dealing with our systems, on boarding companies when they become our suppliers and more. We are also bringing high-level speakers from VW HQ to present and share our Group's vision as well as relevant technological topics of our interest. In these meetings, we learn deeply about start-up technologies and solutions but we are also presenting them the kind of solutions that are relevant for us. Both parties profit from those kind of connection.

Finally, could you share your personal mobility vision?

I believe the future of mobility is already here and evolving all the time. For us, as the innovation arm of Volkswagen Group in Israel, we aim to support the Group to find solutions that provide a cleaner, safer and more convenient customer experience. The future focuses on new driving technologies to constantly reduce emission, e.g. by investing into e-mobility. Additionally, apart from being a car manufacturer, the Volkswagen Group is also becoming a software service provider. Our goal is to become the leading mobility provider in the future. The exciting part is, that new mobility solutions are not just a vision in the future, but already the present. As Konnect, located in Tel Aviv and being surrounded by this great start-up scene, we feel it every day.

The Konnect team visits Volkswagen HQ in Wolfsburg – here at the Autostadt



Otonomo Car Data Density Map of Europe

Taking Car Data to New Places

Automotive data offers new value by enhancing driving experiences and safety

By Ben Volkow

Ben Volkow, Otonomo CEO and Founder

By the end of next year, there will be 255 million connected cars around the world. That is what research firm, Gartner, is predicting. These cars are ones that transmit data and send it to their manufacturers for use in vehicle operations. Otonomo offers a car data services platform that receives, reshapes and enriches this data so companies can use it to develop new apps and services. The huge quantities of data generated by connected cars – up to 25 gigabytes per hour – provide tremendous possibilities for improving the driving experience, safety, as well as the way that everyone interacts with transportation in urban environments.

I am Ben Volkow, a serial entrepreneur, and Otonomo is my fourth company. Shortly after I sold my previous company, Traffix Systems, to F5 Networks in 2012, I was approached by a large automotive manufacturer to do a special engineering project. The project was to build a database for the data coming out of connected cars. As I learned more about these cars and worked through the problems inherent to car data, the initial idea that ultimately became Otonomo began to take shape.

I realized that within a few years, virtually every vehicle on the road would be generating data and that automotive OEMs (original equipment manufacturers) would collect it. I could imagine many possible uses for this data, from diagnostics to fleet management, streamlining traffic and new apps and services for consumers. I also realized that each make and model of each car would collect and store data in a "different language," and that a universal translation engine would be needed for this data to be successfully used. Even these days, there are no acknowledged standards emerging when it comes to connected car data. Even within the same OEMs or Tier-1 suppliers, we often see among other topics, inconsistent field names, units of measurement and measurement intervals. With the vision of creating Otonomo, I approached Bessemer Venture Partners, a previous investor in my companies, to help me get the company off the ground.

Why OTONOMO?

So why did we decided to call our company Otonomo? We came up with the idea of connecting the Hebrew word "oto" (meaning car) with the four wheels of a car (the four O's). The name made it easy to come up with a captivating logo that really speaks to what we do. There have only been two downsides:

Some people think the Oto means autonomous and have confused us with the many start-ups building software to power self-driving vehicles. We don't compete with those companies; in fact, a number of them are using our data to train and operate their machine-learning algorithms.

People who speak different languages tend to pronounce the name in very different ways. In the US, I hear "AH-ta-no-MO." In Japan, "oh-to-NO-mo." In Great Britain, "A-tonomo" Pronouncing au-TO-no-mo can be an interesting conversation starter!

Making Car Data Useable and Accessible

Creating an ecosystem for connected car data turned out to be a much bigger task than software development. Otonomo had to invent ways to reshape car data, which

is designed for operating a vehicle, to make it compatible for diverse service providers and their unique purposes. In fact, we have registered 22 new (pending) patents, which make our innovative solutions compatible for all users and standards. However, we have faced several additional challenges. We've had to develop a business model for using the gathered data. How does it get repackaged from the groupings from which it exits in the car, into bundles of data parameters that make sense for a specific service, like roadside assistance or traffic management? What are the right licensing models? What are the best practices for protecting consumers' privacy? How do we convince global OEMs to share data with innovative start-ups when there are few precedents? We faced the classic problem: "Which came first? The chicken or the egg?"

Global OEM Partners

After testing out these ideas in pilots with early-adopter OEMs and service providers, we have a clear idea of how to execute. We are currently engaged with 15 OEMs, have 18 million cars from 112 countries and ingest over 2 billion data points a day. We have a network of over 200 service providers both testing and using car data all over the world. Daimler AG has selected Otonomo as its partner for managing consent for personal services and for its neutral server initiative, which stems from principles set forth by the European Automobile Manufacturers Association (ACEA) to promote fair competition within the connected car revolution.

A Host of New Services

Service providers are using car data to offer personal services such as:

Fleet management: Optimizing workloads and routes based on real-time conditions on the road. For example, PTV Group is a software provider with which we're collaborating.

Usage-based insurance: Capturing odometer readings and driver behavior directly from vehicles to support Pay-As-You-Drive (PAYD) and Pay-How-You-Drive (PHYD) insurance products. Connected cars eliminate the cost and failure points of traditional tracking mechanisms such as dongles or smartphone apps.

Parking payments, fueling, subscription-based fueling, and EV charging: These services all become simple and seamless with data generated by connected cars.

We're also working with service providers who are creating what we call "concierge services," including apps that help drivers with roadside assistance, real-time hazard notifications, "car-as-a-wallet," and even in-car package delivery.

Service providers are using aggregate anonymized data for traffic optimization, real-time weather, smart cities, and similar use cases. Waycare and Fleetonomy are two interesting Israeli companies with whom we're collaborating on optimization and smart-city applications. Before long, we believe that car data will be a central part of how drivers and passengers experience their time on the road.

Evolving Towards New Capabilities

As these varied use cases have taken shape, our developers have continued to evolve new capabilities within the Otonomo Platform.

Otonomo had to invent ways to reshape car data, which is designed for operating a vehicle, to make it compatible for diverse service providers and their unique purposes

Our development strategy has been two-fold:

First, we're focused on making car data as easy to consume as possible, so that the ecosystem grows faster. We believe that the nature of car data – its disparate formats and varied uses – creates powerful network effects. The easier we can make it for companies to realize the value from car data, the faster our network will accelerate. We're investing in machine-learning algorithms to address data quality and standardization. We're also working on ways to reshape the data so that it's more usable. For example, we make location data more usable with precise polygons, which are created on a map layer to represent boundaries of closed geographical areas. These small changes make a big difference in route optimization and smart-city applications.

Data Protection and Privacy

Even more importantly, we're focused on putting driver privacy first. Beyond simply meeting regulations such as the EU General Data Protection Regulation (GDPR), we're looking for ways to put consumers in the driver's seat, so to speak, when it comes to their car data and personal privacy.

The Otonomo Consent Management Hub provides a simple, straightforward process for drivers to give or take away permission for the specific services they want that consume their personal car data, and for OEMs to ensure that data is not shared with service providers without explicit consent. Drivers can make changes at any time using a mobile app.

We also offer a Dynamic Anonymization Engine that applies a sophisticated combination of techniques to protect driver data when it's aggregated for different anonymous uses. The purpose of this engine is to preserve the value of data when it's being used for specific purposes while preventing it from being combined in ways that could re-identify the driver. It looks at data points such as location or trip patterns that are not traditionally considered personally identifiable information (PII). For example, a route optimization application simply needs to know how many cars are traveling at what speeds at which headings on a particular GPS coordinate, whereas a weather application may need aggregate observed temperature, windshield wiper usage and GPS coordinates.

From Vision to Reality

Otonomo has now been in business for almost four years, and we're growing fast. Our Herzliya office houses our research and development team, which has doubled in the last year. Our engineering leadership team brings experience from the 8200 intelligence corps of the IDF, which has really helped with our focus on data security and privacy. We're building a strong culture around collaboration at work and team fun and charity activities after work. My favorite activities have been volunteering with the elderly, handing out food to poor families, and going on weekend hikes as a team.

Internationally, we now have a presence near the major automakers: in Detroit, Frankfurt and Berlin, and Tokyo. We also have a presence in Silicon Valley near our investors, and the auto-tech innovation centers.

Since I started Otonomo, the connected car revolution has gone from a big vision into something that will be mainstream in the next few years. I'm proud of what we've accomplished, but also respectful of what's still left to do.

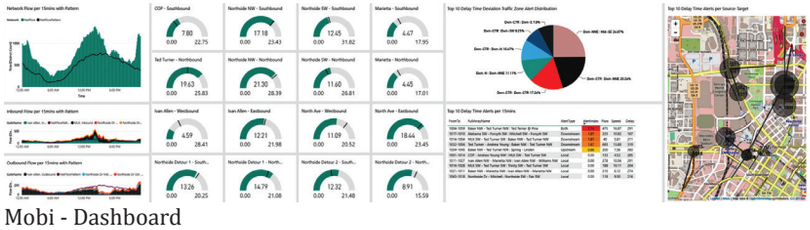
Shaping the Future of Mobility

Mobi
Mobility Insight

Running traffic networks – from reactive control to proactive management

Dov Ganor, Mobi's CEO and Founder

By Uri Schlesinger



Mobi - Dashboard

Many things have been said and written about Mobility Insight (Mobi), so I wanted to get a more comprehensive understanding of the company's solution and its achievements. The first words I heard from **Dov Ganor, Mobi's CEO and Founder,** when I met him were, "We are shaping the future of mobility to be smarter, efficient and flexible. We are improving the level of mobility services that the city provides its residents, and enhancing economic growth."

What is it all about?

Nowadays, road networks in cities have come to experience traffic congestion not only during commuting hours or special events – traffic jams are emerging throughout the day, as the demand in urban environments keeps rising, and supply doesn't succeed in meeting its call. This is predicted to worsen unless a creative solution, such as Mobi's, will be adopted by cities. The challenge is to bring about a paradigm shift – to make the seemingly unmanageable mobility network possible, to unlock the traffic grid.

Mobi's 4-Step Solution

Mobi's future mobility shaping solution comprises four steps.

Data Harvesting: Collecting valuable data from multiple information feeds. Fusing data from Mobi's IoT and V2X sensor network with external sources, such as cellular data, GPS and app data, as well as cities' legacy system data.

Analytics: Utilizing AI analytics on complex data structures with actionable insights. Providing real-time mobility situational awareness, including performance indexes, trend notifications and congestion buildup alerts.

Management: Real-time simulation of possible solutions for emerging congestion, helping to plan preventive measures. Complementing a hybrid simulation with machine learning in optimizing preemptive traffic control courses of action.

Operation: Turnkey solution for traffic control automation and policy implementation. Mobi's decision support system brings actionable insights to fruition in various applications, from optimizing operationalization of existing traffic control tools, to introducing novel approaches maximizing policy-oriented impact on the network's performance. Transportation becomes more accessible due to better planning. The mobility population reaches its destination quicker on both regular and special event days, due to improved traffic control. Mission-critical vehicles, public transportation or other designated vehicles – all are given greener lights due to applied prioritization. Mobi has already shown an 8.7 factor for the city's return on investment, and with the connected vehicle era around the corner and Mobi's V2X applications ready for operationalization, this factor is estimated to rise significantly.

Implementation

"Mobi's solution is already fully functional," emphasizes Ganor. "The company's system is operational in several sites around the world," he adds, "such as in Atlanta, Georgia, USA. On top of regular hectic traffic, downtown Atlanta includes a high in-demand events area, with the Mercedes-Benz Stadium and State Farm Arena hosting weekly Falcons, United and Hawks games, as well as large-scale concerts and shows. Our system in Atlanta has been successfully facilitating traffic management 24/7 since late 2017. In Israel, we've been awarded a nationwide contract by the Ministry of Transportation to provide mobility analytics, and we're also active in supporting traffic control and transportation planning in Haifa and Tel Aviv. At the border control in Canada, we've been piloting Mobi's V2X application for time-reduction crossing. These are but a few examples of Mobi's endeavors."

The Recent Super Bowl

On February 3, 2019, Atlanta hosted Super Bowl LIII at the Mercedes-Benz Stadium. As Super Bowl week commenced, the downtown area attracted more and more people coming to the various daily events held in and around the stadium. On Super Bowl weekend, not only did demand rise substantially, but road closures were added to the challenge. Atlanta's planning toward the main event was at its finest, preparing unique flushing and platooning plans, designating detour routes and operating the MARTA (Metropolitan Atlanta Rapid Transit Authority) train service around the clock. Mobi's system was operational at both planning and controlling phases – continuously monitoring the network and supplying analytics and actionable insights in real-time. Notwithstanding the rise in demand and supply restrictions, on Super Bowl game day Atlanta's traffic control succeeded in limiting network slowdown to a similar degree as in a regular large-scale event. They achieved success through mobility optimization – applying the right changes, at the right time, and actualizing them well. Which is exactly Mobi's goal.

Looking Forward

After establishing its success in Atlanta and Israel, Mobi is looking forward – the company is growing its business collaborations with smart city and mobility-as-a-service players, and is developing its pipeline in the US and Israeli markets. The only question is which city will be next?

Automatic Cross Company Freight Transportation Optimization

Improving efficiency and profitability of transport routes while reducing environmental impact

Hanan Friedman with the French President Emmanuel Macron and the French Science Minister Mounir Mahjoubi; Photo: Olivier Taïeb ©

Some people are convinced that trying to find an interesting start-up outside Tel Aviv is a waste of precious time. But someone hinted that a promising start-up is located far away in the southern city of Eilat. Future Mobility flew all the way to Eilat to meet **Hanan Friedman, Trucknet's CEO and Founder,** at the company's home base to hear, first hand, about the economic as well as environmental revolution that he brought to the old and traditional world of freight transportation.

What is the main challenge that Trucknet is solving?

Many different researches in Europe came to similar results. About 30% of all trucks and buses on the road are traveling empty, and as such, that increases a company's operating costs and its environmental footprint.

Doesn't a company's internal transportation management software (TMS) tackle such hurdles?

Companies' in-house TMS can try to optimize internal transportation routes *only*. Our cloud-based transport optimization platform uses economies of scale and optimizes all system-registered transportation routes – which means, currently on a local – and in the future on a global – scale.

Could you be more precise with your explanation?

Everyone that is registered on the Trucknet platform – whether it is a company with fleets of trucks or a single operator with one truck – can add a freight transportation order, which includes an exit point, route, freight destination and the truck's final destination. Our platform knows how to connect to most of the types of TMS software being used, as well as telematics. And if there is one unknown TMS/telematics system, we connect it to our platform manually. Once our smart software has located that for a portion of a transportation route a truck will be traveling empty or partly empty, it could match/suggest other/additional freights ordered by other transport companies for that specific part of the route. Both sides need to then agree to the terms, conditions and payment for this freight transportation.

Additionally, we created a digital CMR document, which is an international agreement that contains the rights and obligations of parties involved in road transport: the shipper, carrier and addressee. The driver can digitally sign and confirm this document and agree to its terms. This document simplifies and improves the cooperation and transactions between the companies.

To summarize: Smart freight exchange transactions, via our platform, are completely secure and confidential. This all improves efficiency and profitability of freight transportation while reducing environmental impact, because the platform reduces the number of trucks on road.

Which kind of additional benefits does Trucknet's platform offer to transport operators?

The platform enables the management of all of a company's transports and vehicles with ease. The operator can schedule new and manage existing transports, assign vehicles to orders and communicate with drivers directly from the Trucknet scheduler.

Both software, for the operator and smartphone application for the driver, are user friendly, and the operator can control work orders, truck locations, truck routes, travel time and schedules. The screen offers automatic proposals to fill empty/or partly empty journeys with correspondences adapted to the specific journey.

Additionally operators can extract data and statistics related to their business.

A modern and simple-to-use dashboard and reporting tools enable the operator to see how many rides were performed or outsourced in a given time period, revenues, work schedules and truck usage for the next days and so on…

In which major countries is Trucknet's platform used?

After my presentation at the Paris Climate Conference in 2015, I strategically decided to start our European activity in France.

Since then we were able to connect more than 430,000 trucks from more than 4,800 companies in France. Our business partners in France are leading companies, such as: Groupe La Poste, Geo Post, Business France, Crédit Industriel et Commercial (*CIC*), CMA CGM and many more…

What are your short- and medium-term plans?

We are expanding our activity to Eastern Europe and our local office there will be located in Romania. Currently, we are also running a pilot in Portugal using the Mobileye 8 system with one of La Poste's subsidiary companies, Chronopost. In October 2019, we are planning to start our activity in England, and according to our business plan, we will expand our activity to Germany in 2020. Additionally, in Israel our system was chosen to run in two pilots. One with the IDF and the second one with the Israel Postal Company.

What is your long-term vision?

Our long-term vision is divided into two main working fields:

A. To efficiently manage autonomous transportation and logistics.

B. To connect and optimize the global logistics system i.e.: airplanes, trucks, trains and ships, as well as messengers.

Threats and Opportunities Posed by Electric Cars

Electric cars are shaking up the car industry; Are they going to be part of the mainstream?

By Dr. Avner Barnea*

Avner Barnea

In mid-October 2018, the Israeli Energy Minister presented an ambitious plan for the energy sector, including halting the use of polluting fuels in less than a decade and a half. The plan estimates that it will save the economy almost NIS 6 billion a year starting in 2030. One of the biggest obstacles to the program is the interest groups that profit from fuel refining, the sale of cars that consume it, and its taxation, which puts a lot of money into the coffers of the state.

Another big question mark is how willingly consumers will eventually trade their petrol-powered cars for newly rechargeable models? It's also seems that Electric transport would be part of our future, how long will investors have to wait for the venture to pay off?

The Near Future

For the next 5 or so years, the purchase price of an electric vehicle will probably exceed the price of an average petrol-fuelled family car by several thousand dollars. The difference is due mainly to the cost of designing vehicles that can drive for extended distances on battery power and to the cost of the battery itself. What's more, the infrastructure for charging the batteries of a large number of electric vehicles isn't in place, nor is the industry capable to produce them on a large scale. In any case, it seems that for now, consumers aren't exactly clamoring for battery-powered cars.

Push from Governments

Optimists are speculating about generous support by governments. They think that concern over energy security, fossil-fuel emissions and long-term industrial competitiveness will motivate governments by creating incentives to change the market to battery-powered vehicles. In fact, governments in many countries are starting to act in this way. In some countries, such as Israel, electric vehicles already make economic sense because buyers get substantial tax breaks from the government. Business models designed to make electric vehicles more attractive to buyers are key success factors of this new venture.

Changing the Automotive Industry

Sooner or later, I predict, electric vehicles will take off, changing several sectors profoundly and could dramatically remodel the fortunes of the automotive and utilities' sectors and generate the rise of a battery industry.

The concerns are high for companies in these industries. In the near future, executives should determine how to garner revenues. Planning should also begin on building markets and demands and on programs and ways to build capabilities if early adoption creates a sustainable market.

Electric vehicles pose an enormous threat to incumbent automakers as the automakers will have to reinvent their businesses to survive. Competitors face significant entry barriers, including such as manufacturing scale, customer management, and capital. Incumbent automakers are not staying behind and build strategic alliances to offer attractive designs of electric vehicles to the consumers.

Electric vehicles are also opening up opportunities for incumbent automakers. Auto executives will need to consider develop new strategies for electric vehicles. The plans of the automakers, for example, must include an evident understanding about the way they will prioritize R&D across the vehicle platforms, from hybrids to plug-in hybrids, to battery-electric models and cars powered by internal combustion engines.

Automakers should also consider how their relationships with the battery makers will develop, as well as the role of technology standards will play in fitting batteries into vehicles. Battery makers will try to secure the value implied in by owning core skills, including innovation in batteries and in the new features they could make possible.

Major Factor – Battery Costs

The economics of electric vehicles starts with the batteries, whose cost has been declining by 10 percent annually. Analysts predict that it will continue to fall over the next years as production volumes rise. Still, the price of electric cars would be quite high.

Subsidies could help bridge the difference. Business innovation could address costs too. Innovators are considering similar models to cover the battery's upfront cost and recover the subsidy by charging for services.

To attract buyers, electric vehicles of various kinds such as hybrids, plug-in electric hybrids, or all-electric cars must be cheaper to operate than petrol-fueled ones. The difference between the total lifetime costs of a car with an internal combustion engine and an electric car will depend for some time

on the difference between the price of petrol and the cost of the battery and of recharging it or the cost of leasing a battery and of recharging services.

Hugh Investments are Needed

The growth of electric vehicles also requires an infrastructure, such as recharging stations. For example, China's electric vehicle (EV) charging stations are currently not meeting the demands of its growing EV flee and the government is working on a plan to change that. Some 90 percent of new energy vehicles (NEV's) in China are electricity-powered and charging facilities are one of the important contributors to the sustained growth of the sector. China is already speeding up plans to build charging facilities, and Hawaii has announced plans to build as many as 100,000 charging stations for electric vehicles and a few other US states are already following such Investments. China and the United States have already committed large investments to help companies manufacture batteries and also for government programs to encourage car makers to produce larger numbers of more fuel-efficient vehicles, including electric ones.

Of course, consumers may decline to buy electric vehicles for any number of reasons. The distance drivers can go before recharging, for example, may undermine acceptance. However, I assume, on a more fundamental level, electric vehicles will go to mainstream as a step determined by governments action to make petrol more expensive; to reduce the cost of producing, buying or operating electric vehicles; or some other combination of these approaches.

The Breakpoint to the Mainstream

There is a little point in trying to predict how many electric vehicles of one kind or other will be on the road in any given year because so many factors are unpredictable. Governments could aggressively promote the use of electric vehicles, for example, and then lose tax revenues when drivers spend less money on petrol. Besides, it is too early to say how the rate of adoption by consumers in different segments will grow or how costs will be optimized.

Electric vehicles would enter the mainstream if about 10 percent of all cars on the roads were battery-electric or plug-in vehicles, running solely on electric power.

In Europe, plug-in electric vehicles will rise from roughly a 2% share of total new sales in 2017 to around 9% by 2025, reaching nearly 1.5 million vehicles by the middle of the next decade. Meanwhile in the U.S., tougher fuel economy regulation will likely push automakers to expand their EV offerings, but not with the same degree of urgency as in Europe. In Israel, while past attempts to introduce electric cars to the Israeli markets ultimately failed, recent change in global momentum coupled with Israel's needs and know how, the Ministry of Energy believes that it is now time to go back to the drawing board. By 2020 the number of EVs in Israel is expected to be between 9,000 to 29,000, accounting for 0.3% to 0.9% of the total fleet that year (avg. of 19,000 and 0.6%). By 2025 the number of EVs in Israel is expected to reach between 87,000 to 288,000, accounting for 2.3% to 7.7% of the total vehicle fleet that year (avg. of 188,000 and 5.0%).

... it is too early to say how the rate of adoption by consumers in different segments will grow or how costs will be optimized.

Electric vehicles would enter the mainstream if about 10 percent of all cars on the roads were battery-electric or plug-in vehicles, running solely on electric power

Conclusions

In my opinion, electric vehicles will become a reality. That will change the competitive landscape of the automotive, battery, and utilities sectors and have an impact on several others. Companies that act decisively and in a timely manner will probably enjoy significant gains; those that don't, will not survive. However, timing is critical: Jumping in too early or too late will be costly. As the electric vehicle is becoming a reality, it will change the competitive landscape of many sectors in the car market, and those attached to it.

After years of stagnation, the electric car is shaking the car market. To meet the challenge, all players involved in this market have to strengthen their strategic competitive intelligence capabilities to be able to assess where this market is heading. There is a critical need to broaden perspectives and to look forward to 10 years henceforth. In order to survive, car manufacturers, battery suppliers and other suppliers of services have to make sure they do not miss the coming changes. Implementing this proposal will improve significantly their decision-making process. Tactical intelligence may not be useful in strategy development one piece at a time, but used in the aggregate, can provide an insightful picture of into where competitors and the marketplace seem to be heading. Thus competitors' and market insights are critical factors in successful planning.

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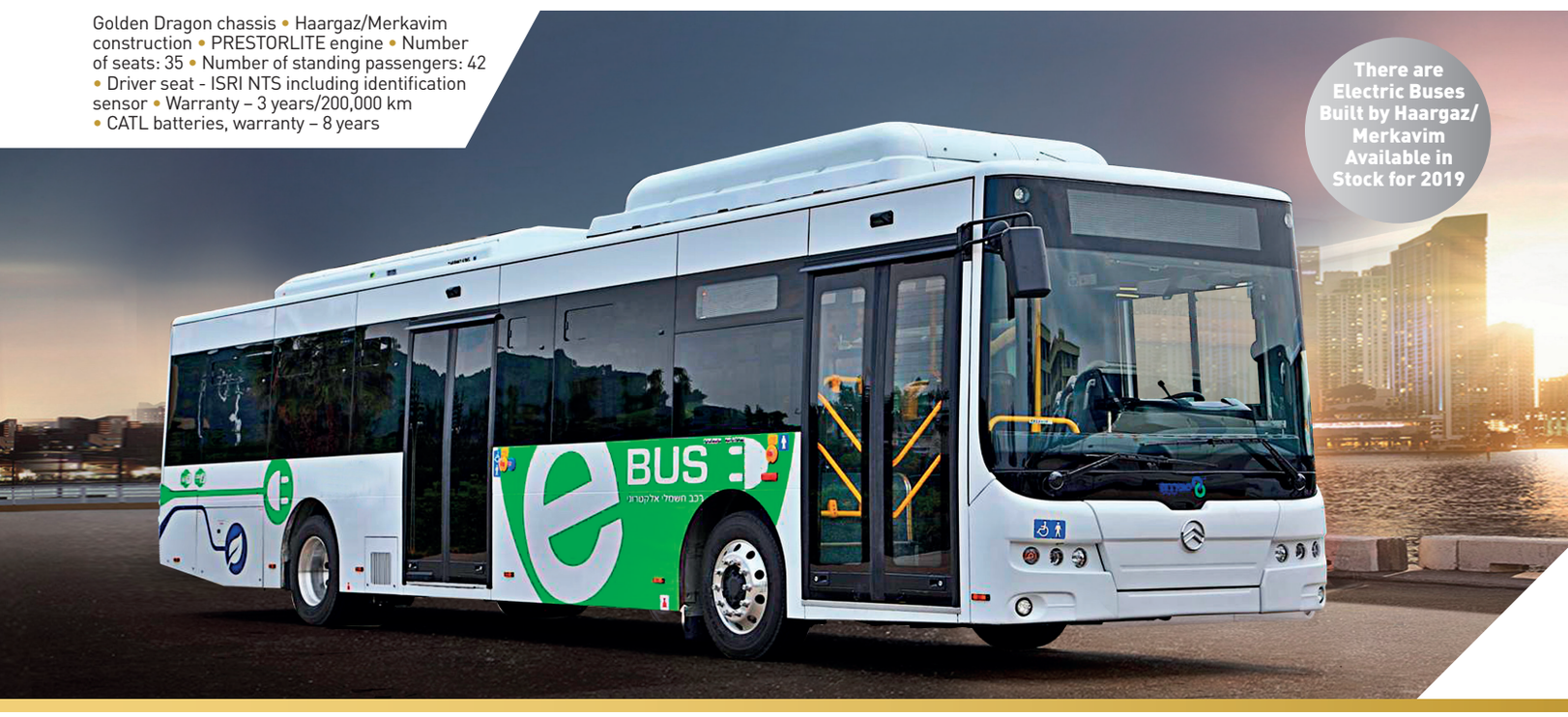

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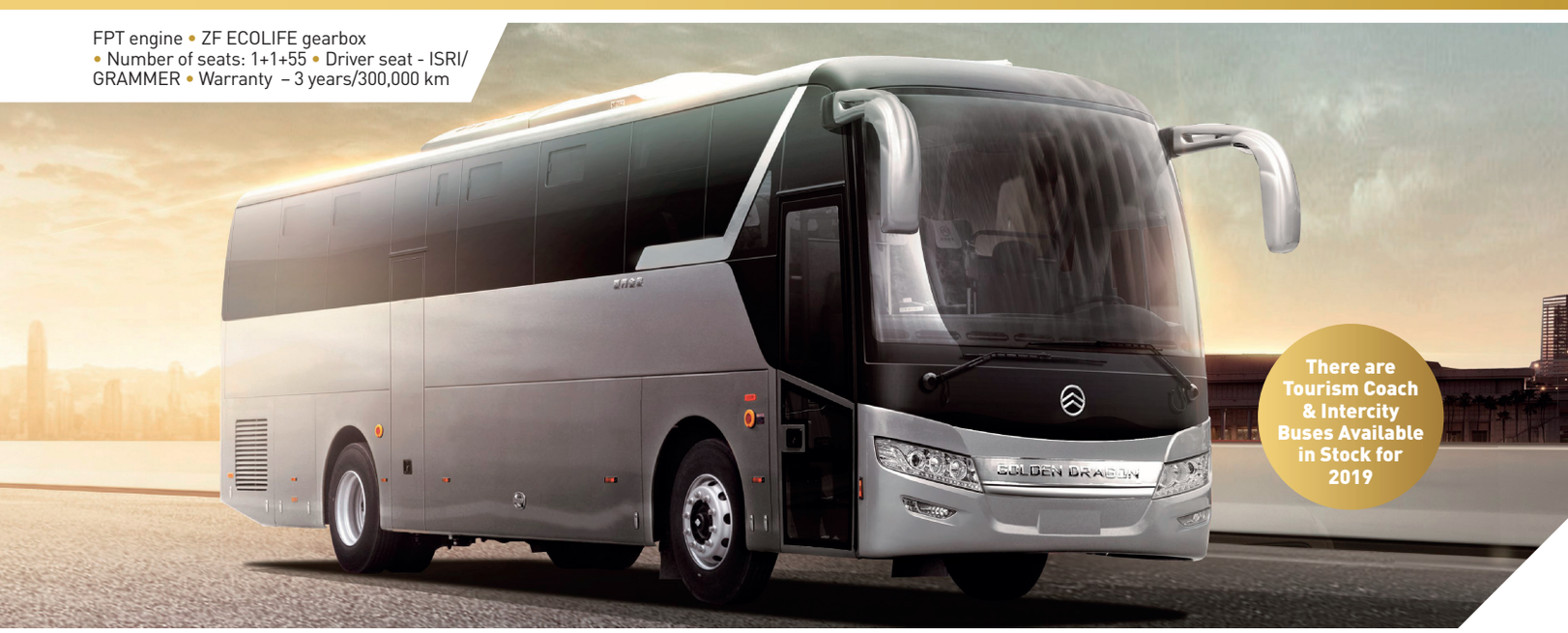

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