

White Paper

Leading the Automotive Revolution

Top-50 most Innovative Startups¹

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Alex Bondarenko, Mark Koops

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Abstract

Every great venture starts with a dream and a dreamer. When a dreamer takes an action to stop blaming others and start making his dream real — the world changes. Now he is an actor in his life, building up what others felt impossible or too risky. He needs to have a courage and a vision of the future and huge persistence to deal with all odds, because our life is nothing more than a moment when you stop fearing and start acting.

Two and a half years ago I was with my family in a taxi in downtown Kiev. It was a great April day with a perfect weather and the air spreading fresh and positive emotions. The idyll changed suddenly when our driver crossed the road on a red light. I've heard about such cases, but never have I thought I could find myself in one of them. At that moment my life has changed. I couldn't think about my typical mental "noise" anymore. Suddenly, the only thing I had in mind was "praying about the second chance". If only I had another chance — I would do things differently...

Once this happened, I could barely do my regular job (back then I was a McKinsey management consultant). I couldn't stop thinking about the experience we just faced. I had to start moving fast and my way of changing this world's reality in the road safety seemed inevitable to me. I had to take a leadership position in my life. Revolution (either automotive or social) doesn't come in place easy, but once the critical mass was there — I was ready to go.

First, I had to check the size of the problem I faced. As an ex-consultant, I spoke to many global leaders in the automotive industry and knew that there was no good solution (any solution actually) for road accidents prevention. This seemed awful to me, considering that over 1.3 million people lose their lives in road accidents every year. Once I got a sense of the depth of the rabbit hole, I formed a team and shared my vision with them that we shall be the first company in the world to bring the best of technologies to fight the problem and reduce the number of accidents down to zero.

Many people, especially later, asked me "why us" shall succeed. Well, we were young, passionate and very driven of changing the world. We took it (and keep doing it today) personal and would love to use our own product ourselves. We actually are the biggest fans of our product. On top, we aren't a large corporation with its own KPIs, bureaucracy and global evil ambitions. We wanted to bring value and for us the value is a number of lives we saved. And only after that we may start thinking about the financials...

Two and a half years passed by. We won so many awards and received amazing traction with the technology and product that we build, that we can be proud, but yet not calm. We have been offered to sell our technology/product/company to the top companies of this planet, but anyone of them wants to have exclusive rights on what we develop. And we believe it's just wrong. Shall anyone's life depend on what kind of car you drive? We believe that anyone shall benefit from our technology — regular people, who want to keep their lives and just return back home safely.

To make our vision real we added blockchain technology, which we considered as a perfect add-on to our System 'Eye'. Now our solution, built on AI, big data analytics, IoT, was ready not just to prevent accidents, but also to solve a massive number of road inefficiencies. In a few months, we reshuffled the solution so that any driver, who leverage System 'Eye' for his daily purposes, could benefit (and got paid) for the valuable data he gathered. The fewer inefficiencies — the better the world we live in. And I'm talking here about stolen cars, wrong parking, etc. — the segments we got data about, but couldn't use it.

Now, the entire setup looks solid. On one side, System ‘Eye’ allows us to capture, analyze, share valuable insights about the road in order to save lives. On another — now we can help drivers who pay for their cars, gas spend their time while driving, make a return on their efforts via contributing to the better world. Win-win approach. Especially as we are talking about \$1.5 trillion market by 2030.

To make this vision real, now we have to build drivers community and raise extra funds. As we don’t want to be dependent on third-party organizations and corporates due to our differences (we want drivers to get most of the value from System ‘Eye’ and automotive data) we decided to go for an ICO. Initial Coin Offering allows us to go through a unique way to build up our community and engage with our supporters so they can endorse us with their attention, efforts, and funds. We are going to build a global community of people “who care about solving road accidents problem” and cover all the costs necessary for a successful roll-out of the technology.

We have a clear view of how to do that. We plan to start our trials this year in Spain and then roll-out globally. With every passing day we come closer to the ultimate mission of our enterprise — to revolutionize the automotive industry in order to make roads safer. We believe in what we do and invite you to participate in this unique journey, where you can become one of the early supporters of System ‘Eye’ and help in making the world safer.

Thank you and good luck,
Faithfully yours,
Alex Bondarenko
Founder & CEO of Discoperi, Inc.

Company Introduction

Headquartered in Madrid, Spain, Discoperi relies on its diverse and experienced team. Team members have made contributions in fields such as Automotive Technologies, Connected Cars, Telecommunication Networks, Artificial Intelligence, Big Data Analytics, Blockchain Development and Business. The company has already built viable and original solutions which Discoperi is currently taking to the market. It has already overcome initial challenges inherent to transformational projects.

Milestones

2016	May	CEO Alex Bondarenko had the vision of a novel approach to the old car-collision-avoidance problem. R&D core team members started a “state-of-the-technology” survey.
	June	
	August	HQ moved from Kiev, Ukraine to Madrid, Spain.
	September	First product prototype delivered. Deep-learning process of the algorithms starts.
2017	January	Further team additions. Company approved as an Associate Member of Khube (KPMG Hub for Entrepreneurs). EQT Ventures takes Discoperi as a project. System ‘Eye’ prototype can recognize cars.
	May	
	June	Discussions with top insurance companies regarding System ‘Eye’ system.
	October	Won UVCA competition in Ukrainian top-10 IoT hardware startups. ICO preparation.
	November	Showcased Discoperi to Ford Motor Company management team. Received very positive feedback from Ford’s focus groups (9 out of 10 people would like to use System ‘Eye’ daily).
	December	Recipient of the ICEX 2018 Spain award: one of the top-15 startups in Spain.
2018	January	Attended CES 2018 in Las Vegas presenting the System ‘Eye’ concept. Expanded Advisory Board with professionals in finance, telecom, and insurtech.
	April	Completed the White Paper, v 1.0.
	May	Secured initial ICO funding from a prominent crypto fund.
	June	Opened a new R&D office in Kiev, Ukraine. Won Startup4Export award at Impact CEE’18 as the best startup in Europe.
	July	Updated a web-site. Started preparation for presale. Presented System ‘Eye’ in Dubai.
	August	Updated a web-site. Started preparation for pre-sale.
	September	Presented System ‘Eye’ at TechCrunch Disrupt in San Francisco.

Core Team

The Core Team manages operations and executes strategy as agreed with the Board. It oversees product development, operations, sales and partner management as well as commercial management. Core Team competencies span across various technical and business fields.



Founder & CEO – Alex Bondarenko. Prior to Discoperi, Alex worked as a consultant at McKinsey & Co. and corporate & investment banker. He also founded few businesses between 2004 and 2010. Holds an MBA degree from Madrid IE Business School.



Board Member & COO – Videia Mike. Ms. Mike has 20 years of experience working as an auditor with Moore Stephens and on multiple positions within the insurance industry (Aspen Insurance, StarStone Insurance, Swiss Re). Today she works as Financial Manager with Envisionation, Managing Director with Videia, a Founder with Questus Solutions and Advisor with Pingvalue.



Board member – Mark Koops. Prior to Discoperi, Mark worked as a Regional VP with Ericsson, Sales Consulting Director with Oracle, Head of APAC PreSales, Solutions and Program Delivery with Motricity, Consulting Partner at Amdocs, etc. Holds a degree in Telematics.



Chief Software Developer – Oleksandr Balyszyn. Prior to Discoperi, he worked as a database senior architect and sustainable-web-oriented systems engineer in several IT companies.



Chief Commercial Officer – Yash Thakrar. Prior to Discoperi, worked for Aurora Health Care and DistroKid. Holds an MBA degree from Madrid IE Business School.



Vasiliy Chernenko – AI Senior Developer. Prior to Discoperi, worked on multiple R&D and engineering roles in international organizations. Has extensive experience in object recognition, deep data analytics, and machine learning.

Advisory Board

An experienced team of professionals from diverse fields helps shape company vision and suggests a strategy to turn it into reality.



Joe Haslam – Serial entrepreneur. Co-founded Hot Hotels, Member of the Board at HeyPlease, President of Spanish Irish Business Network, Angel Investor at Alterkeys and Executive Director of Owners Management Program & Associate Professor at the Madrid IE Business School.



Salil Kanhere – Blockchain Advisor. Currently, Mr. Kanhere works as an Associate Professor at UNSW, Australia. Researched Internet of Things, blockchain, pervasive and mobile computing, security and privacy. He has co-authored over 170 peer-reviewed articles and delivered over 25 tutorials and keynote talks on these topics.



Yaroslav Tonkovidov – Currently is a CIO at FinForge Fund, Head of IR at Credits, Investment Consultant at IC Fund. Prior worked on multiple M&A and bonds-issuance in CIS.



Andrea Febbraio – Advises Discoperi on development and execution of the best-in-class marketing and communication campaigns with the purpose to create a unique brand perception of our company and engage with a billion of drivers globally.



Jose Manuel de Rueda – Product strategy Advisor. Currently Mr. de Rueda is leading AI at Hyperloop Transportation Technologies. His previous experience included innovations in Artificial Intelligence both from the business and government.



Gang Liang – Currently Senior Expert at McKinsey. He has previous experience in a Senior Director at AMD and has also worked as a Director at Intel. His background in technology is backed by a Ph.D. from Vanderbilt University.



Fernando Becerra – Currently Managing Director at SSW Early Fund. He has experience as a Co-Founder & Chairman at Startup Academy Madrid. Worked as a Partner & Member of the Board at Sinensis Seed Capital SCR.



Ian Campbell – Insurance Tech Advisor. Currently, Mr. Campbell works as Chairman with Questus Solutions. Prior that, he occupied a Group CFO position with Ecclesiastical Insurance Group, Torus Insurance Holdings Limited, was a Group Head of Finance with Aspen Re and Principal with KPMG.



Chris Goss – Currently a Senior Program Director at Autonomo. Has experience as a Business Transformation Director in EMEA at Camso. Holds an MBA degree from Madrid IE Business School.

Awards

Several independent organizations have ranked Discoperi among world's most prominent startups:

- ▶ Startup World Cup 2019, Regional Champion
- ▶ The best startup in Europe, Startup4Export, 2018 — Impact CEE'18
- ▶ Top-15 best Spanish startups, 2018 - ICEX
- ▶ Top-10 Ukrainian hardware IoT startups, 2017 — Ukrainian Venture Capital Association (UVCA)
- ▶ Top-20 automotive startups-participants in “Make it drivable challenge”, 2017 — Ford Motor Co.
- ▶ 2nd place in nominee “The best innovative project”, 2017 — Startup Lab, IE
- ▶ Top-50 high-potential startups, 2017 — G-Startup, Tel Aviv
- ▶ Top-50 innovative startups of the world, 2017 — The New York Venture Summit, Young Startup Ventures

Note: Discoperi has been recognized in various competitions as a startup with spectacular business perspectives.

Partners

Discoperi maintains business relations with many prominent international companies and is continuously looking to expand, in support of its vision.

Some of our current partners are:

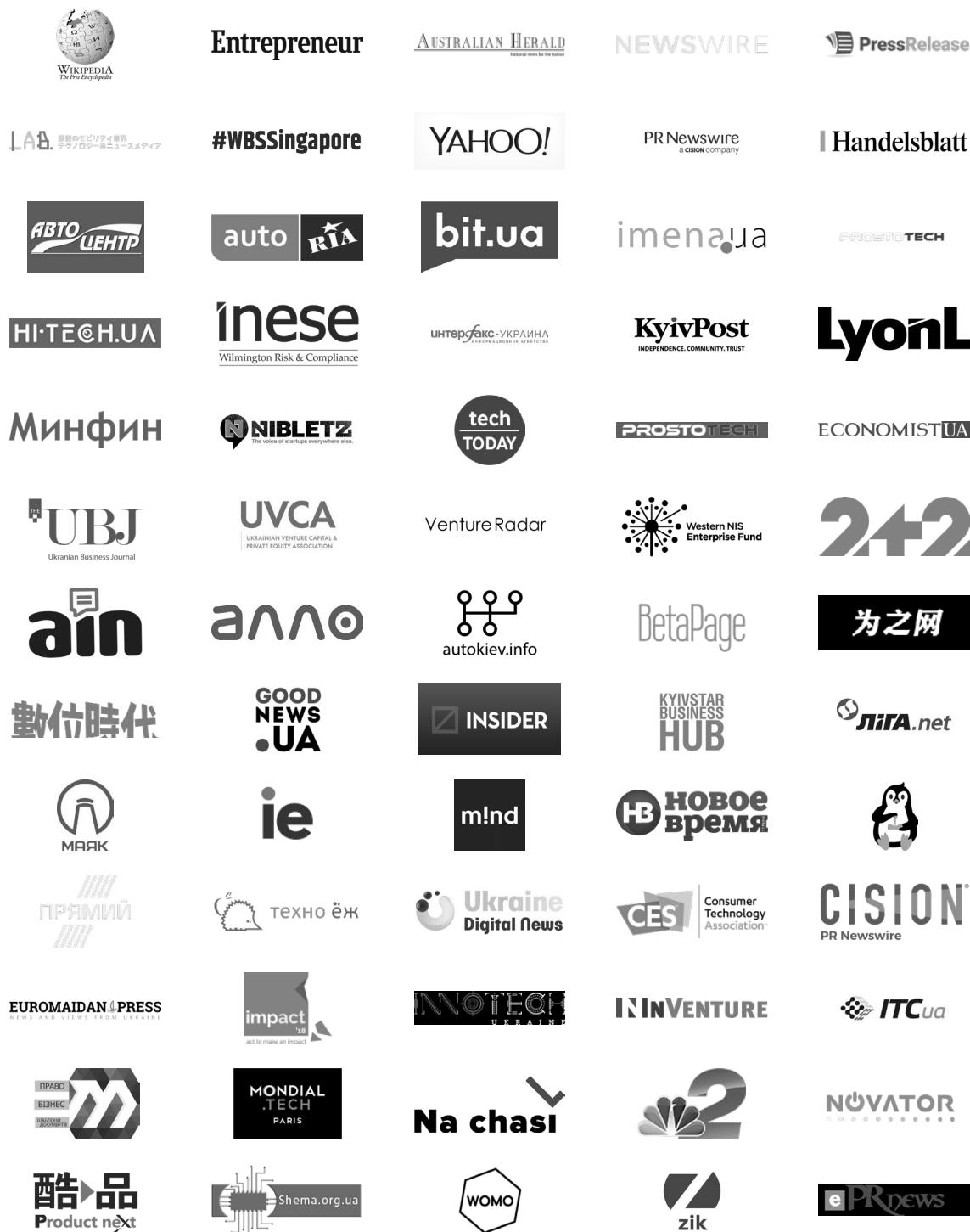
Figure 1 – Discoperi’s Current Partners.



Media Coverage to Date

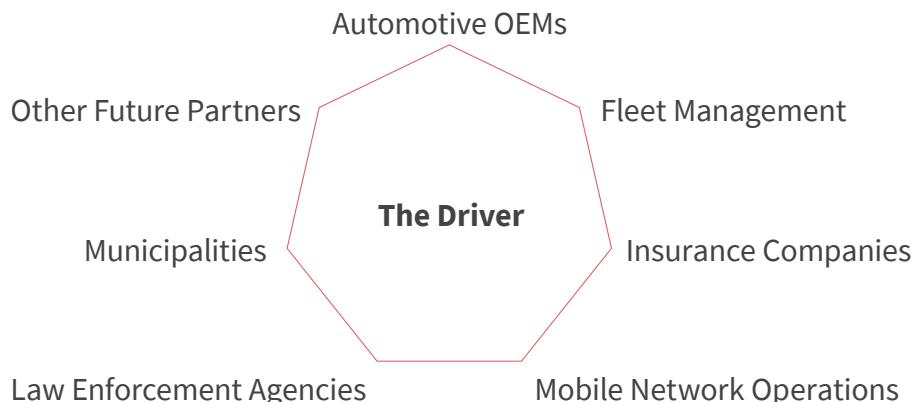
Discoperi's significant contributions to road safety improvement, AI visual recognition and blockchain industries have been already positively reviewed in the press.

Figure 2 – Press Coverage of Discoperi.



Discoperi puts the Driver in the center of the automotive ecosystem. We work with any and all partners who share our vision and allow the drivers to monetize their data, while bringing them value in parallel.

Figure 3 – Driver-centric partnerships.



Discoperi transforms multiple industries which are heavily interlinked with the automotive sector:

Automotive OEMs	Substantial value from having access to an end-2-end data set versus the limited data they collect today. Ability to collaborate with competition to drive innovation and technological breakthroughs.
Municipalities	Better use of taxpayers' dollars by being able to prioritize and address any (road related) issues in near real-time.
Insurance Companies	Considerable value from being able to assess driving behaviors, and related discounts and rewards for safe drivers.
Mobile Network Operators	MNOs revenues are under pressure, the automotive data transmission is providing huge opportunities to utilize existing network infrastructure.
Fleet Management Companies	Autonomous fleet management has the potential to become the biggest revenue pool in urban mobility.
Law Enforcement Agencies	Detailed records on accidents, stolen vehicle identification, numerous scenarios.
Other Entities	Leveraging the enormous knowledge capital stored in the data, we can imagine an unlimited number of usage scenarios.

Vision

Current State of Road Accidents

Road accidents are a problem with almost 150 years of history. Still, with today's technological advancement level, more than 1.3 million people die on the roads annually. Automotive companies, which are supposed to fight this problem, suffer from the internal bureaucracy and long go-to-market cycle. This results in tremendous time delays. For example, the ABS concept has been first demonstrated in 1908, yet mass adoption started in early 1970s — how many lives could be saved during these 60 years?

Figure 4 - Go-to-market life cycle for chosen automotive safety innovations.



ABS

1908 — Concept.

1928 — Karl Wessel patented ABS.

1950s — Dunlop's Maxaret anti-skid system used on UK jet aircraft Avro Vulcan and English Electric Lightning.

1971 — First computerized all wheel ABS comes with Chrysler Imperial.



Airbag

1951 — Invention by John W. Hetrick.

1950s — Technology becomes widely adopted by Mercedes-Benz, GM, Ford and Chrysler.

1990s — Industry standard.



OBD II

1980s — First introduction of the technology. Today used by only 40% of vehicles.

Today the industry puts a lot of hopes on autonomous driving. However, in order to guarantee accidents prevention at a global scale every single vehicle on the road shall be driverless and connected to every other vehicle. By many, it is expected to be achieved not less than within 30 years. The current level of self-driving cars technologies misses a massive data set, which results in ultimately negative performance (it worth to mention Uber, a leading company in the autonomous space, fatal case, where a self-driving car killed an individual in the US in March 2018²).

A Better Way

In Discoperi vision, road accidents problem may be solved by instant identification of all potential road discrepancies and risks. Multiple factors shall be considered: road conditions, weather, drivers on the road and their behavior. Having a precise understanding of all parameters and calculating a holistic risk rate gives a chance to navigate drivers outside the risky area, and lower number of road collisions by far. Thanks to Discoperi's System 'Eye' this is possible to achieve in an easy and smooth way.

A large chunk of System ‘Eye’ success is given to network externalities. Similar to the deployment of cell phones in 1990s, the more people use System ‘Eye’ the higher value they share as an ecosystem.

Key: AI and Drivers Community

Artificial intelligence has approached the stage where, if educated enough, it can manage a volume of information and calculating power way beyond any of human beings. If AI works simultaneously on multiple cars and employed by connectivity features (Discoperi System ‘Eye’ and Fast Short Message Protocol), a level of road accident risk may be lowered down to a zero.

Current State of Automotive Data

Today, car manufacturers collect vehicle data and keep it private, other than occasionally using it for maintenance updates. History has shown this approach to be outright dangerous as car manufacturers have often prioritized profits over the drivers’ safety. In addition, the large amounts of data car manufacturers collect allow them to profile the driver in ways the driver had never imagined. Often car manufacturers sell the data to third parties without the driver’s explicit knowledge.

The current system is also patently unfair. Car data should belong to the driver/owner of the car, who has paid for the car, and whose driving generates data which he should be able to monetize as he/she sees fit.

Having automotive data sit in separate, car-manufacturers’ data lakes is suboptimal. Knowledge and technological exchange among all participants in the automotive market generates more value and hastens innovations benefitting the entire society.

In sum, the current way of handling automotive data is dangerous, infringes upon drivers’ privacy, fails to compensate drivers and doesn’t serve the interests of society at large.

A Better Way

In the Discoperi vision, automotive ecosystem participants own, share and transact data in a fair and transparent way on Discoperi’s Discoperi Ecosystem (DE) via Discoperi’s utility token, called DISC. Data transactions are blockchain secured, preventing data tampering and ensuring data remains accurate, transparent, secure and easily accessible. Free trade of the data on the DE ensures the fair market price for each driver-generated data byte, at all times.

Society benefits from automotive knowledge being freed from many proprietary data lakes and pooled together. Previously unknown insights are now available from the larger and heterogeneous ecosystem data.

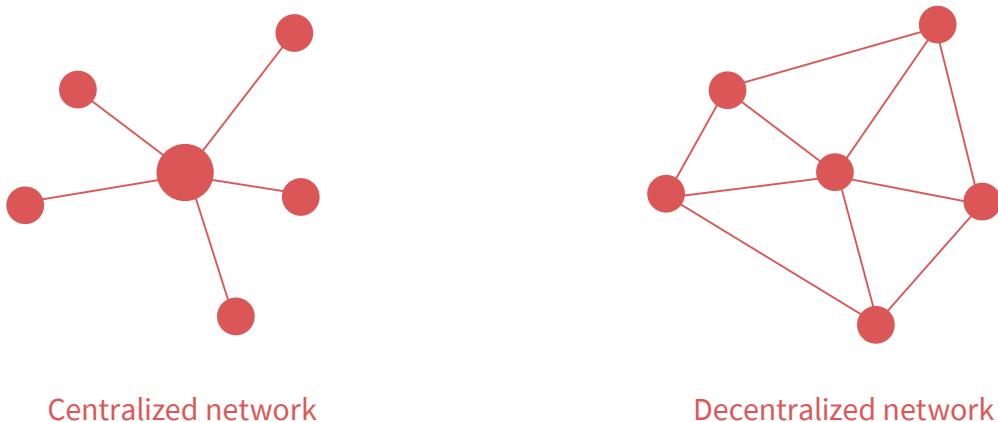
Discoperi also believes that a Decentralized Network of Connected Vehicles (DNCV) is best suited for its data democracy vision. The **DNCV** offers significant and immediate advantages in comparison to the traditional centralized-network approach.

Social insects’ hives and swarms offer a good DNCV analogy. Ants, wasps, and bees rely on biochemical signaling to share sensor-acquired data in a **fully-decentralized network**. Social insect colonies deliver **sophisticated collective problem-solving in the face of variable constraints³**. Yet, left alone, any single social insect quickly becomes disoriented.

Like an insect in a hive, today’s car generates a sizable and significant amount of data. The bevy of embedded sensor-equipped micro-computers are the car’s ears, eyes, and other Internet-of-Things (IoT) sensors.

A network which separates drivers from each other instead of enjoining them into a community denies the benefits of the collective intelligence of the community. Discoperi believes that a fully-decentralized network of connected vehicles transforms the fleet from a collection of separate cars into a sophisticated collective problem-solving entity.

Figure 5 – Centralized vs Decentralized networks.



Simple diagrammatic representation of Centralized versus Decentralized Networks. Each dot represents a car on the road⁴.

A problem-solving fleet will help mitigate the daily chagrin of road collisions, parking unavailability, suboptimal traffic flows, all without the expense of a complex network of traffic and road signs.

Key: The Connected Car Ecosystem

“The modern car is not only a feat of engineering, it is also a mobile supercomputer. Hidden beneath the steel or aluminum body is the computing power of 20 personal computers, dealing with around 100M lines of code and holding more processing power than any of NASA’s early spacecraft, including the original Apollo lunar module⁵”.

Not a single solution provider can ever hope to monetize this enormous amount of data. Instead, the key is a well-formed ecosystem of partners and solutions, from sensors and on-board-processing, through various wireless network technologies, complemented by Analytics and Artificial Intelligence processing. Ecosystem players are drivers, car manufacturers, insurance companies, government agencies, law enforcement, the legal community and research institutions. They all benefit from accessing each other's data at market price, in order to correlate and enrich their own data set.

Discoperi envisions its solution as a complement and enabler of various other connected car approaches either currently in the market or in the design process. It envisions a horizontal DE, ensuring reliable operation and processes formation for the entire ecosystem of data and applications. The approach has two distinct value propositions. First, it will drive rapid market adoption of Discoperi's own pioneering solutions. Second, it will help leverage the collective intelligence of the ecosystem, engendering application excellence and usability across the entire ecosystem span.

⁴ Understanding Media and Culture: An Introduction to Mass Communication, University of Minnesota Twin Cities

⁵ The Economist Intelligence Unit, Driving to the Future-Development of Connected Cars”, 2014

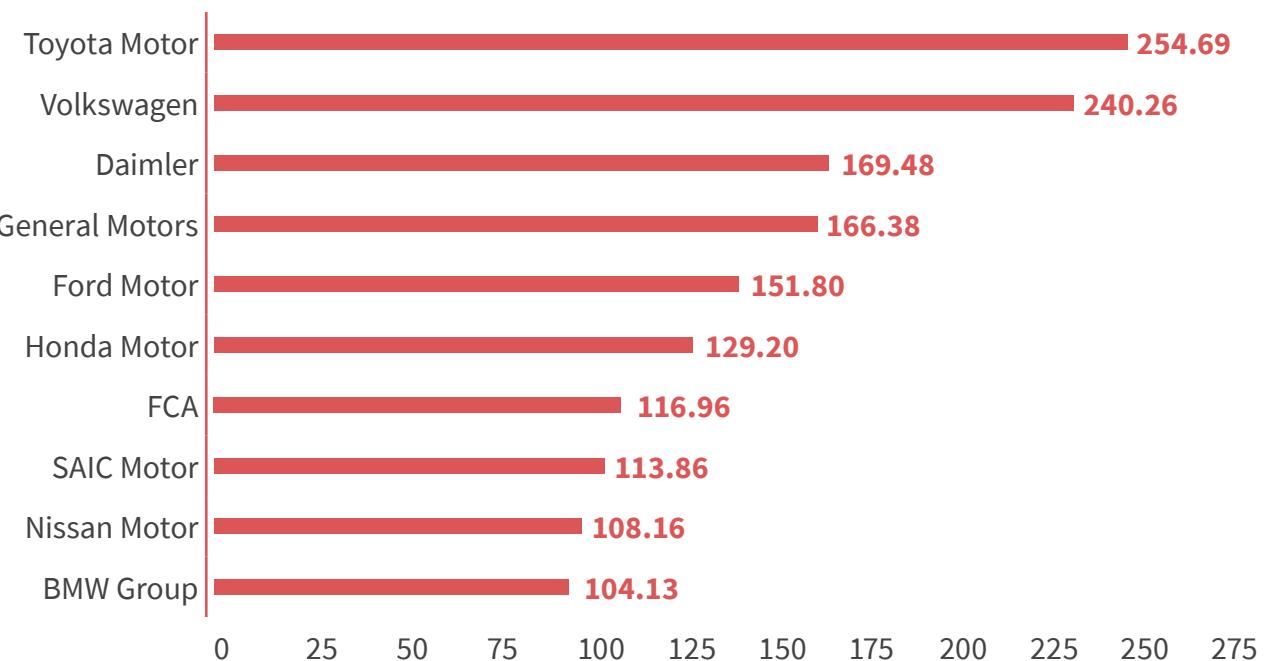
Addressable Market

Growth of the Automotive Market

Global sales of passenger cars hit 78.6 million vehicles in 2017. Next to China, the United States is among the largest automobile markets worldwide, both in terms of production and sales. About 6.9 million passenger cars were sold to the U.S. customers in 2016, while 4 million cars were domestically produced in the same year. Toyota, Volkswagen, and Daimler topped the list in 2016, while the automotive supplier industry was dominated by Bosch, Continental, Denso, and Magna.

Most analysts expect the global automotive market size to keep growing, powered by electrification and by car autonomy. According to the Global Automotive Outlook 2017, the global automotive industry will reach 114 million in worldwide sales annually by 2024 and an increase of 45% over the 2017 levels.

Figure 6 – Revenue of Major Car Manufacturers Revenue (Statista 2018).

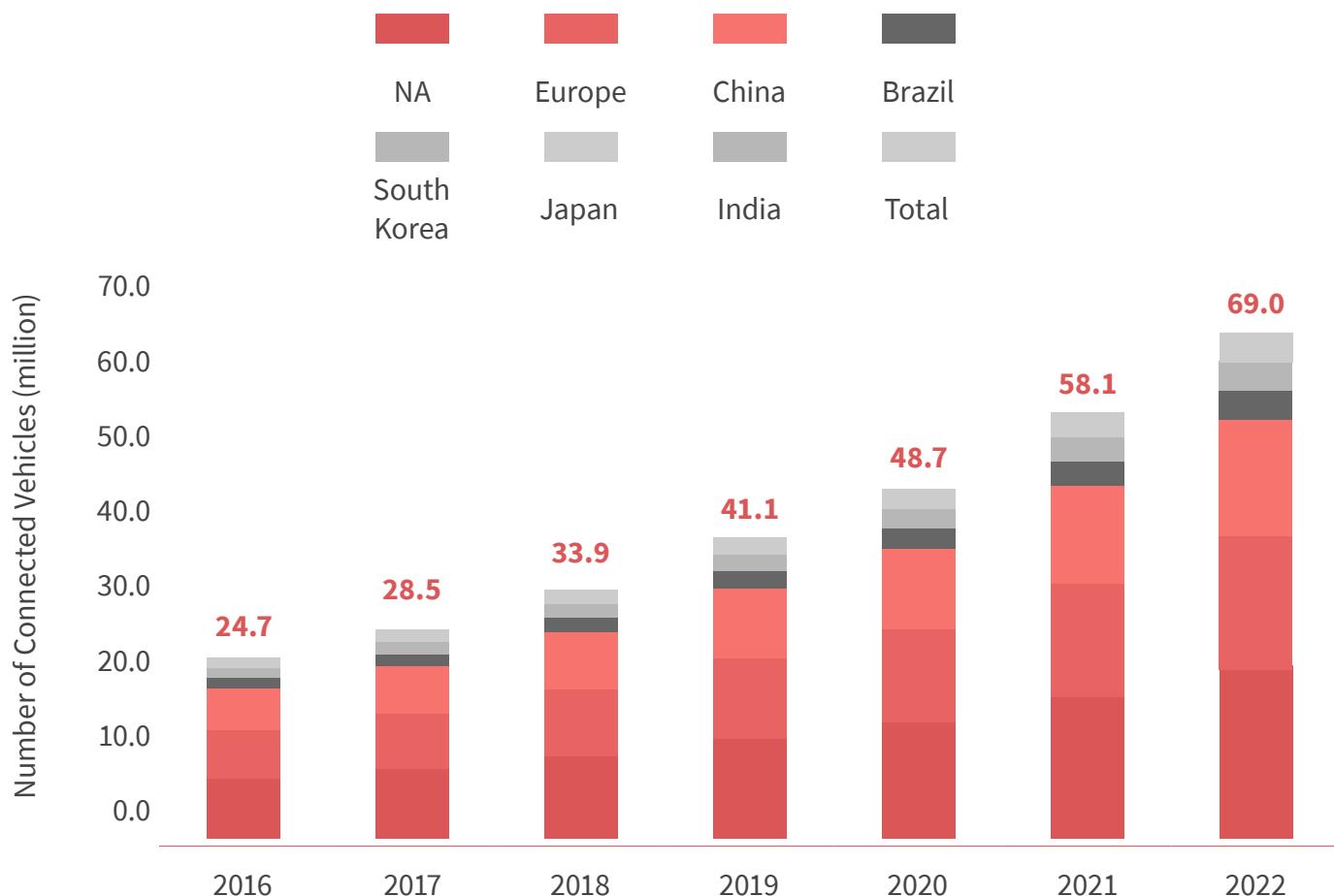


Connected car technologies and autonomous vehicles will greatly stimulate the automotive market. Analysts expect the global market for autonomous driving hardware components to grow from \$400 million in 2015 to \$40 billion in 2030.

Connected Car Market Size

The connected car market is growing exponentially. Industry consensus (automotive OEMs, their suppliers, insurance companies, large fleets, etc.) estimates the current market in a \$2-5 billion range, expected to reach \$50 billion by 2021. In addition, Frost and Sullivan estimates the number of connected vehicles to more than double between 2018 and 2022.

Figure 7 – Number of Connected Cars, 2016 – 2022, forecast⁶.



Another metric is the sum-total number of connections within the connected car fleet. In their 2016 “Connected Cars: Worldwide Trends and Forecast 2013-2025” study, Analysis Mason estimates no less than 719 million connected car connections by 2025. In conjunction with previous Frost and Sullivan estimates for connected cars, the metric forecasts that by 2022 the average car will have roughly 7 connections.

Market for Connected-car Data

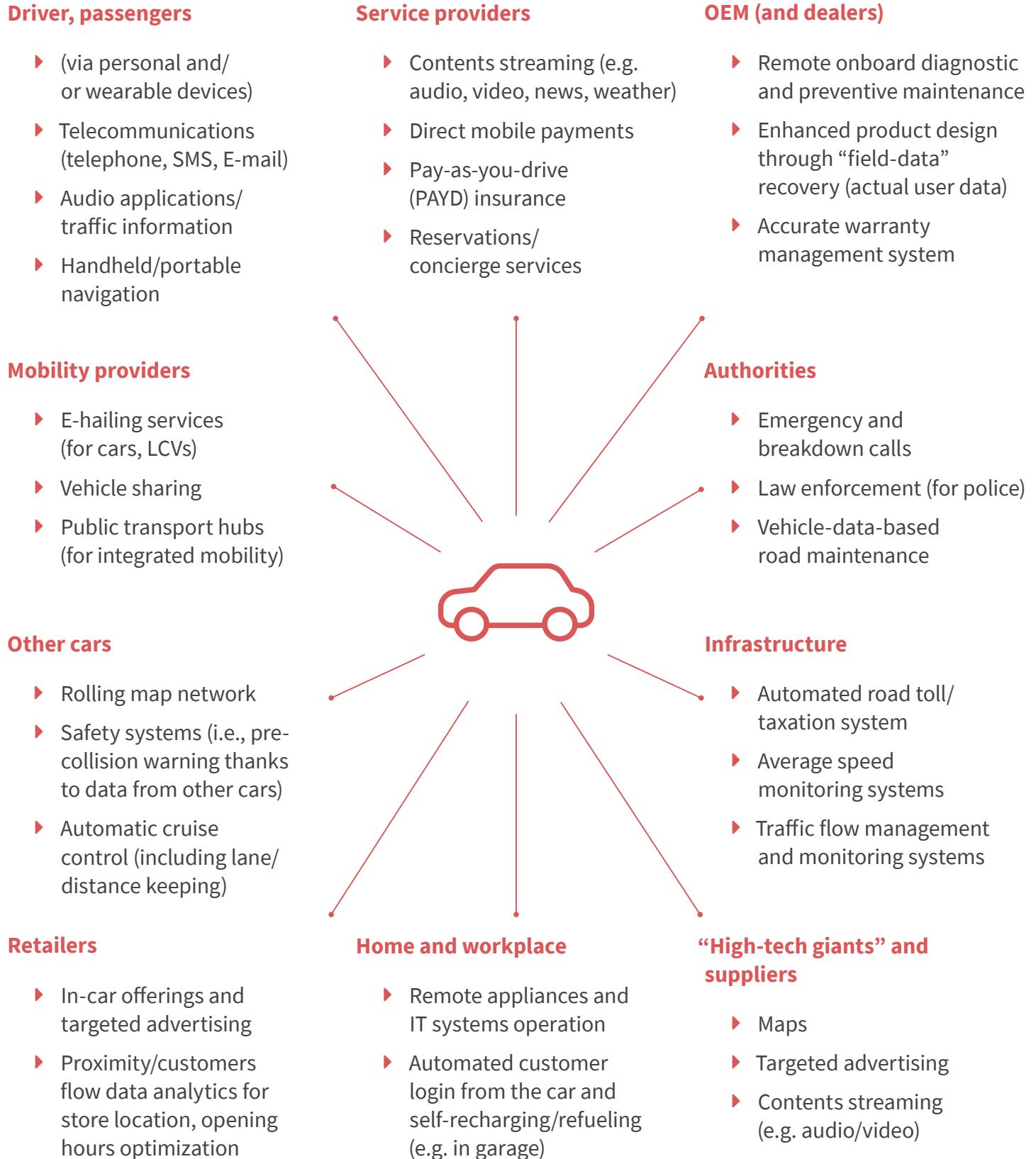
The entire analyst community anticipates the phenomenal increase in car-connectivity to result in a tsunami of highly significant and actionable data. McKinsey estimates the market value of this data to exceed \$1.5 trillion by 2030⁷.

McKinsey also offers a convenient representation of the data flows between the car embedded sensors and the end-users of the data in Figure 8.

6 Frost & Sullivan (Global Connected Car Market Outlook, March 2017)

7 “Car data: paving the way to value-creating mobility Perspectives on a new automotive business model” McKinsey & Company 2016

Figure 8 – Data flows of a Connected Car.



Car data monetization is the process of collecting and parsing it for features and/or services ultimately resulting in a set of insights valued and needed by external third parties.

Discoperi aims and believes it will lead and excel within this exponentially-growing market of car data and shared mobility.

Business Model

Discoperi earns revenues as follows.

Data Revenue

Discoperi takes a small commission fee for every data sales transaction in the ecosystem.

Discoperi also takes a recurring revenue fee from third parties for accessing the data (transaction based). The Recurrent Revenue Model is central to Discoperi's Business Model. It guarantees, via annual DE access subscriptions, a revenue stream to maintain and evolve the platform.

Discoperi will market annual subscriptions to its basic DE services as a prerequisite for any 3PP⁸ access.

Consulting Revenue

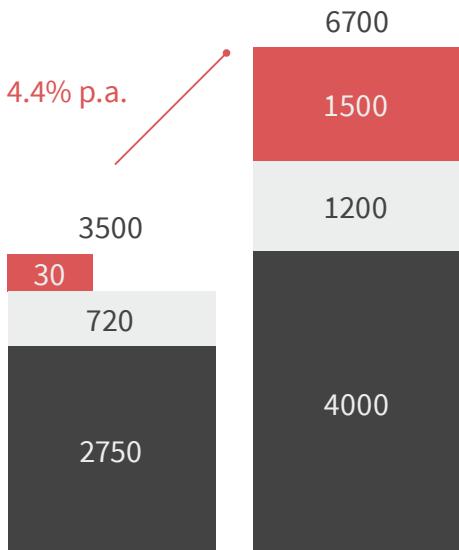
The Discoperi network mandates deep learning analysis and processing capabilities. Discoperi expects to generate significant expertise on the topics of mobility and safety and may be willing to share this knowledge with third parties. In such cases, the company will charge a consulting fee on a case-by-case basis. The services variety may be significant, from the data analysis to the reconstruction of government transportation policy.

Device and Application Sales

Discoperi will offer System 'Eye' for sale to the Driver Community. The device for System 'Eye' will be manufactured both in-house and outside. In addition, a free iPhone and Android app will be developed.

Figure 9 – Automotive Revenue Market.

The automotive revenue pool will grow and diversify with new services potentially becoming a ~ \$1.5 trillion market in 2030¹.



Recurring revenues

- Shared mobility penetrates dense and suburban cities with new car sharing and e-hailing business models.
- > \$100 billion from data connectivity services, including apps, navigation, entertainment, remote services and software upgrades.

Aftermarket

- Growth with increased vehicles sales
- Higher annual maintenance spend for shared vehicles
- 20-30% lower maintenance spend on electric powertrains
- Up to 90% lower average crash repair per autonomous vehicle

One-time vehicle sales

- ~ 2% annual global increase in vehicle unit driven by macroeconomic growth on emerging economies
- Price premiums paid for electric powertrains and autonomous driving technology features

¹ McKinsey & Company

Discoperi's Solution

Existing Operational Platform

System ‘Eye’ is an existing solution, in-use today and developed by Discoperi, which consists of three main components:

1. A smart IoT device called ‘Eye’.
2. AI algorithms developed by Discoperi to recognize risky driving behavior.
3. A protocol, which connects all devices into a single network (the DCNV).

System ‘Eye’ is installed on the windshield of a car, truck, motorcycle, etc. More than “just a camera”, it is a smart IoT device able to identify and parse data such as road situations, weather factors, vehicles characteristics and status, driving behavior. Upon capture, ‘Eye’ transfers it to the cloud, adding new elements to the collective intelligence of the local community.

Figure 10 – System ‘Eye’.

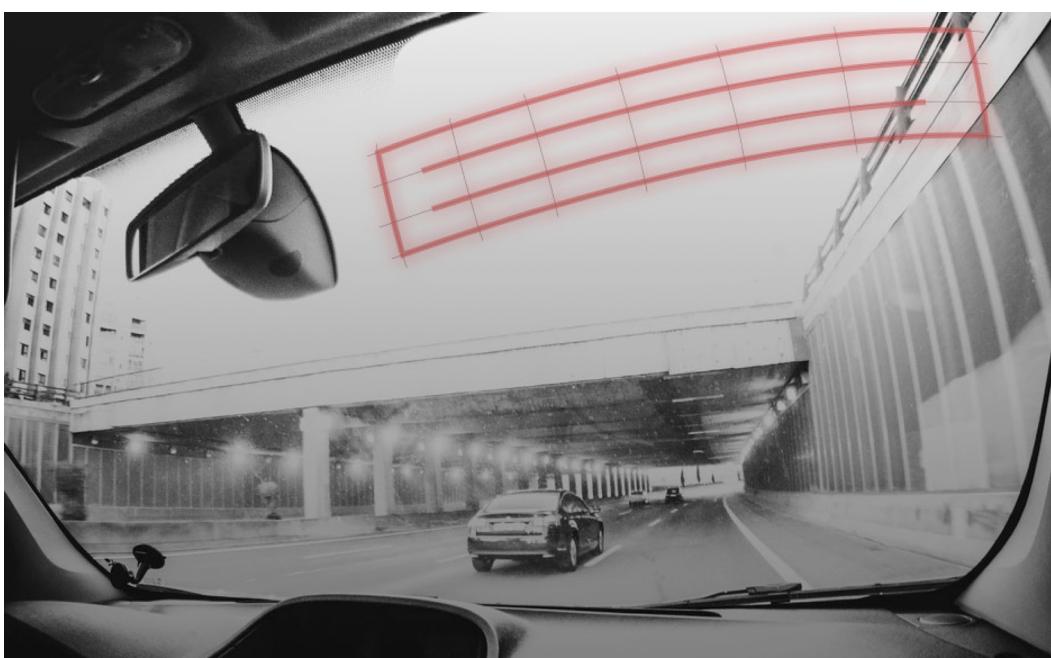
Core characteristics of ‘Eye’:

- ▶ GPU with 256 cores
- ▶ 12MP IR camera
- ▶ 120 degrees front view
- ▶ Full HD
- ▶ High speed connection (10+ Mbps)
- ▶ 3G/4G/5G



Although ‘Eye’ leverages cutting-edge technology, it is not the company’s main focus. Discoperi is engaging with leading electronics producers and car manufacturers to start production and/or integration with ‘Eye’-compatible devices.

Figure 11 — System ‘Eye’ recommended installation position



Video Recognition

System ‘Eye’ can recognize data in 4 categories:

Road conditions:

- Infrastructure
- Road lights and signs
- Traffic
- Potholes

Vehicle credentials:

- Type (e.g. SUV, sedan, truck)
- Brand (e.g. Ford, GM, Chrysler, etc.)
- Model (e.g. 1 series, ML, etc.)
- Generation (e.g. Gen 1, A)
- Color (e.g. black, white, silver)
- Plate number (e.g. AA0001BB)

Meteorological conditions:

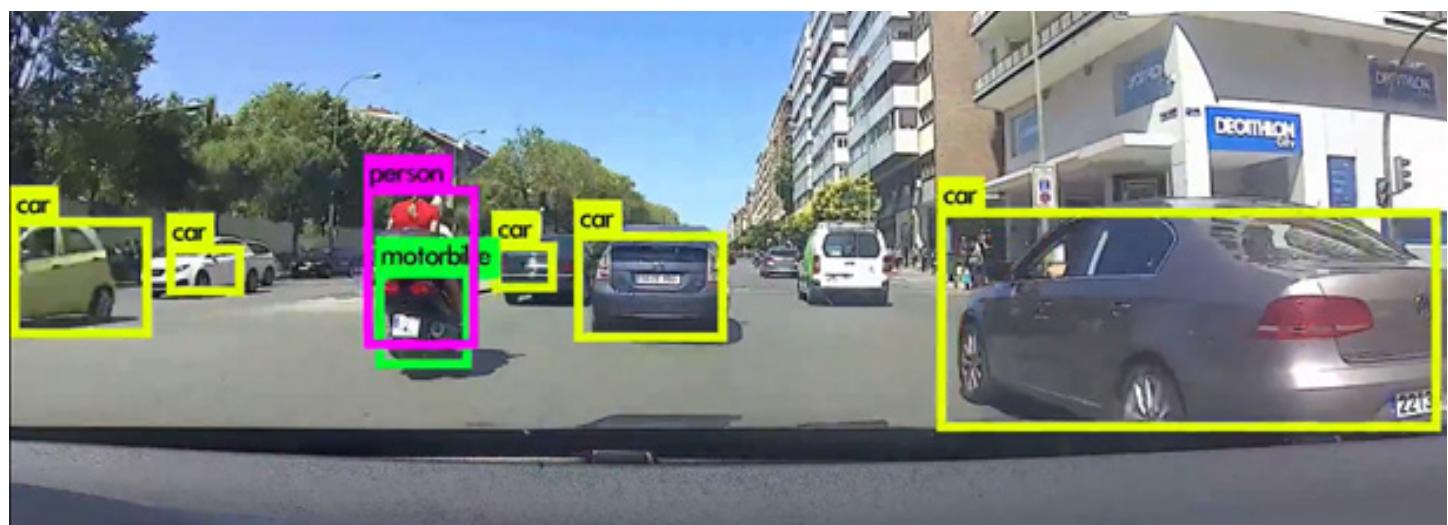
- Weather
- Season of the year
- Daytime

Vehicle behavior:

- Speeding
- Breaking
- Overtaking
- Parking
- Using lights, etc.

System ‘Eye’ is built on artificial intelligence and deep machine learning. The accuracy of its algorithms will increase with the usage time and number of users. Video recognition technology (and sound) has many additional advantages compared to existing lidar and radar solutions.

Figure 12 – Snapshot of System ‘Eye’ testing in Madrid, Spain, Spring 2017⁹.

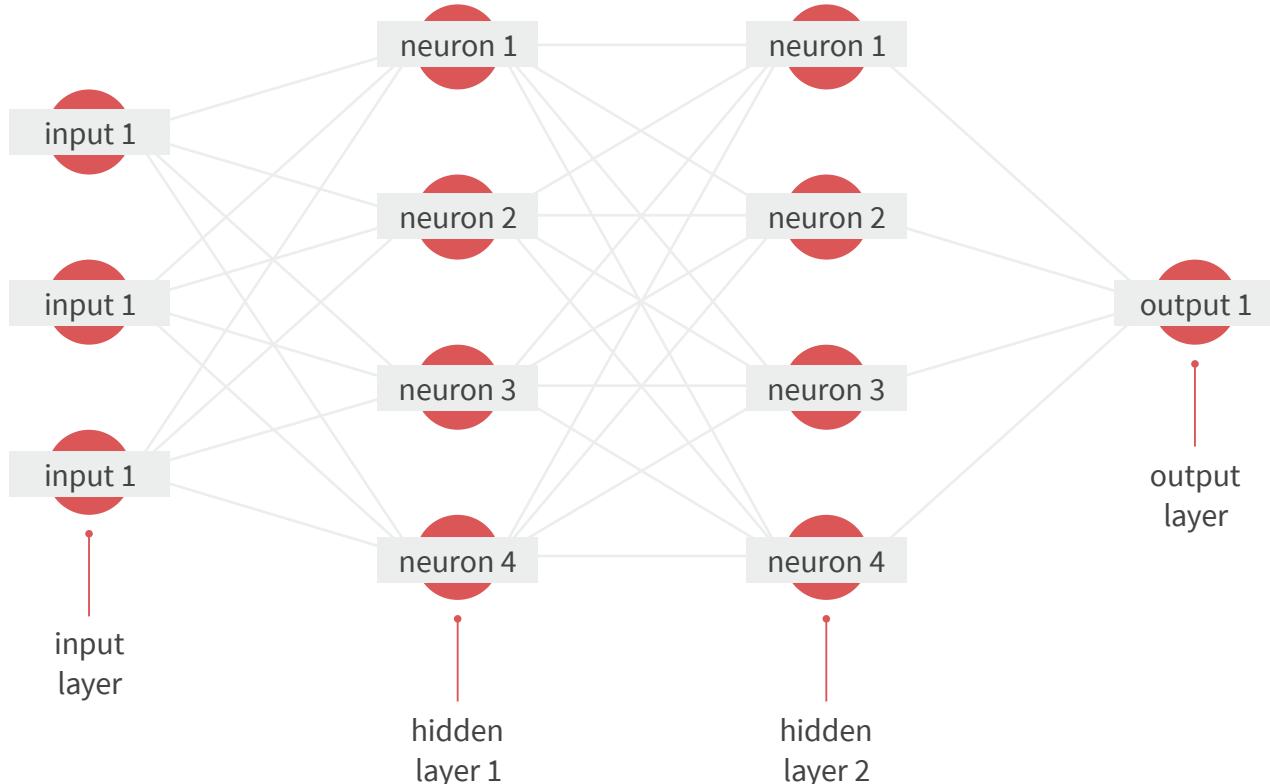


Deep Learning

System ‘Eye’ is built on machine learning and on its deep learning subfield which leverages algorithms built based on structures similar to that of a human brain’s neurons. Deep learning allows algorithms to analyze existing data, learn from the interdependencies and predict the future unknowns. Models used in deep learning are called Artificial Neural Networks (ANNs). Every ANN consists of neurons which are organized in layers. There are three types of layers: inputs, hidden layers, and outputs.

⁹ Depending on network speeds. In case of 5G, even faster speeds are expected.

Figure 13– ANN structure for identification of a single parameter.

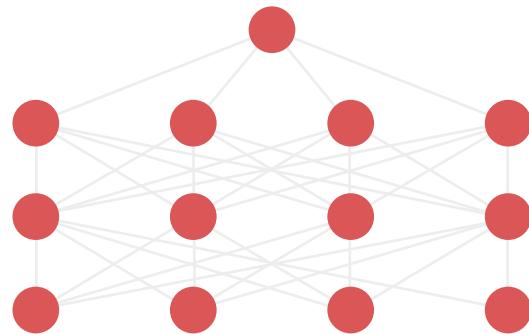


To build the most accurate ANNs, we leverage both unsupervised and supervised deep learning techniques, in which artificial models learn to make inferences both from unclassified/unlabeled and classified/labeled datasets respectively. Once we built an appropriate architecture of ANN, we spend time on its training, which means we optimize the weights of different inputs in order to minimize the loss function. Once this is done, we validate and test ANN. To build optimal models, we constantly add large datasets provided by our partnering car drivers in Spain.

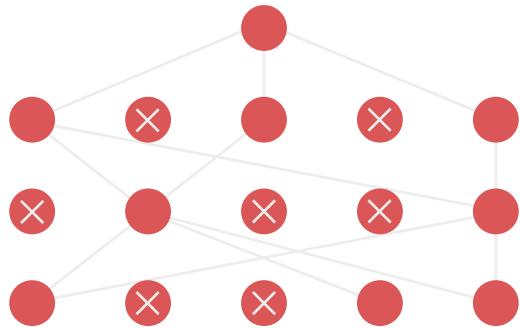
What we have seen so far is that by leveraging ANNs with a large datasets the production capacity need goes up and simultaneously the process speed drops. This is crucial for System ‘Eye’, as we aim to alarm drivers about potential risks in a very high-speed environment. Thus, in order to optimize ANNs we started using various techniques to optimize and harmonize the datasets:

- ▶ Data Augmentation (DA). Partial modification of the initial dataset allows us to test if the algorithm works properly. For the videos and photos, we use rotation, flips and zooms, etc.
- ▶ Dropouts and structural optimization. We change different subsets of the ANN (e.g. ignore certain neurons) and estimate implication on the output.

Figure 14 – Dropout Neural Network Model¹⁰.



(a) Standard Neural Net



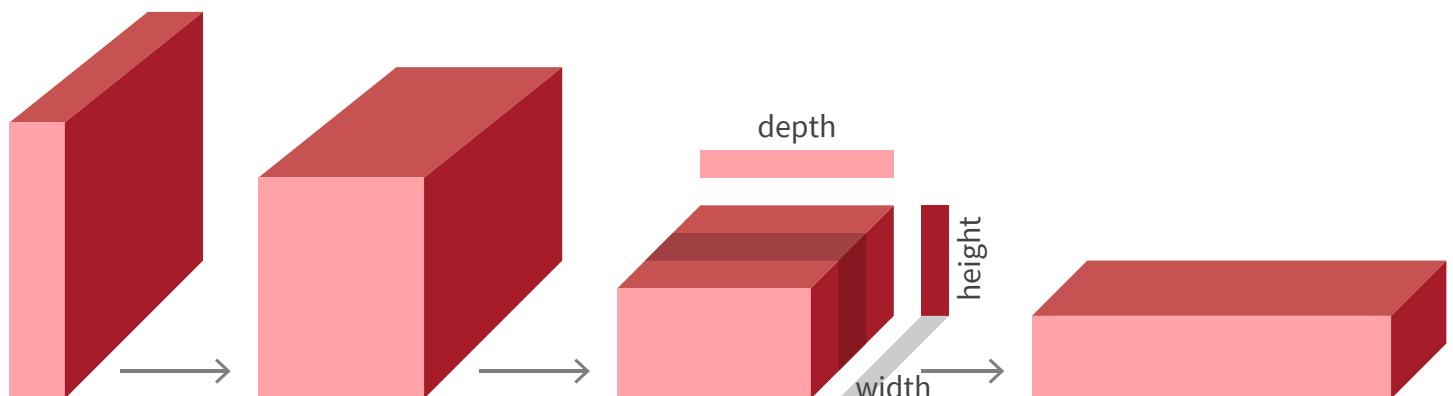
(b) After applying dropout

- ▶ Structural optimization. We change the number of layers to make ANNs work with the highest efficiency (the lowest lost function) and in the same time with the lowest calculating power (hardware resources).
- ▶ Regularization. We streamline ANN by artificially reducing complexity and variability (e.g. by limiting loss factor for large weights).

At the later stage, we started using Convolutional Neural Networks (CNN), which core difference from ANN is in the assumption that all inputs are images, that is why CNN can easily detect patterns in images.

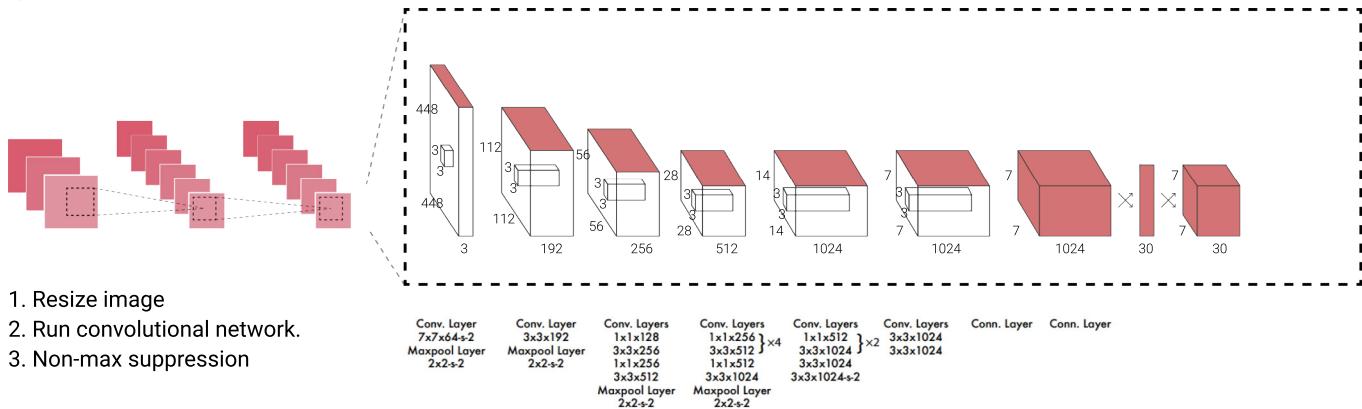
On a structural basis, CNN has together with a “regular” layers additional hidden layers called “convolutional”. Every layer of CNN transforms 3D volume input into 3D volume output. CNN arranges all the data into three groups: width, depth, height.

Figure 15 - CNN structure for identification of a single parameter.



Every convolutional layer may have various filters. CNN allows us to use different filters to identify certain patterns: shapes, textures, colors, etc.

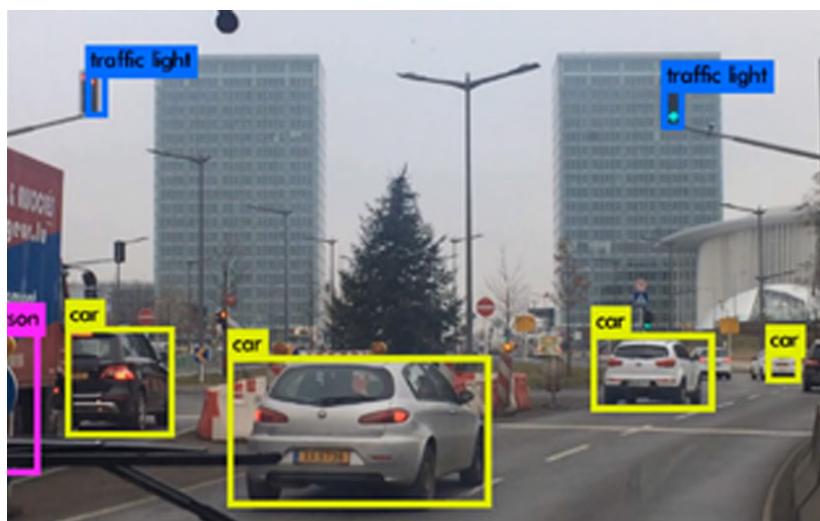
Figure 16 – Convolutional Neural Network used by Discoperi.



CNN working process:

- ▶ Input image is captured and processed within the CNN
- ▶ A patch is taken from the input image and put through the Convolution Layer
- ▶ Set of filters within the Layer is applied to the patch
- ▶ Processed patch (result) then goes to the second layer called Pooling Layer (Maxpooling Layer)
- ▶ With every new layer the CNN receives more information about the image (e.g. new details, etc.)
- ▶ Similar process (Convolution-Maxpooling layers) repeats several times
- ▶ In the end of CNN there is Fully Connected Layer (FCL), which connects every neuron in a single layer to every neuron in another layer
- ▶ As an out from FCL, top-3 cases will be chosen with the best object recognition probabilities.

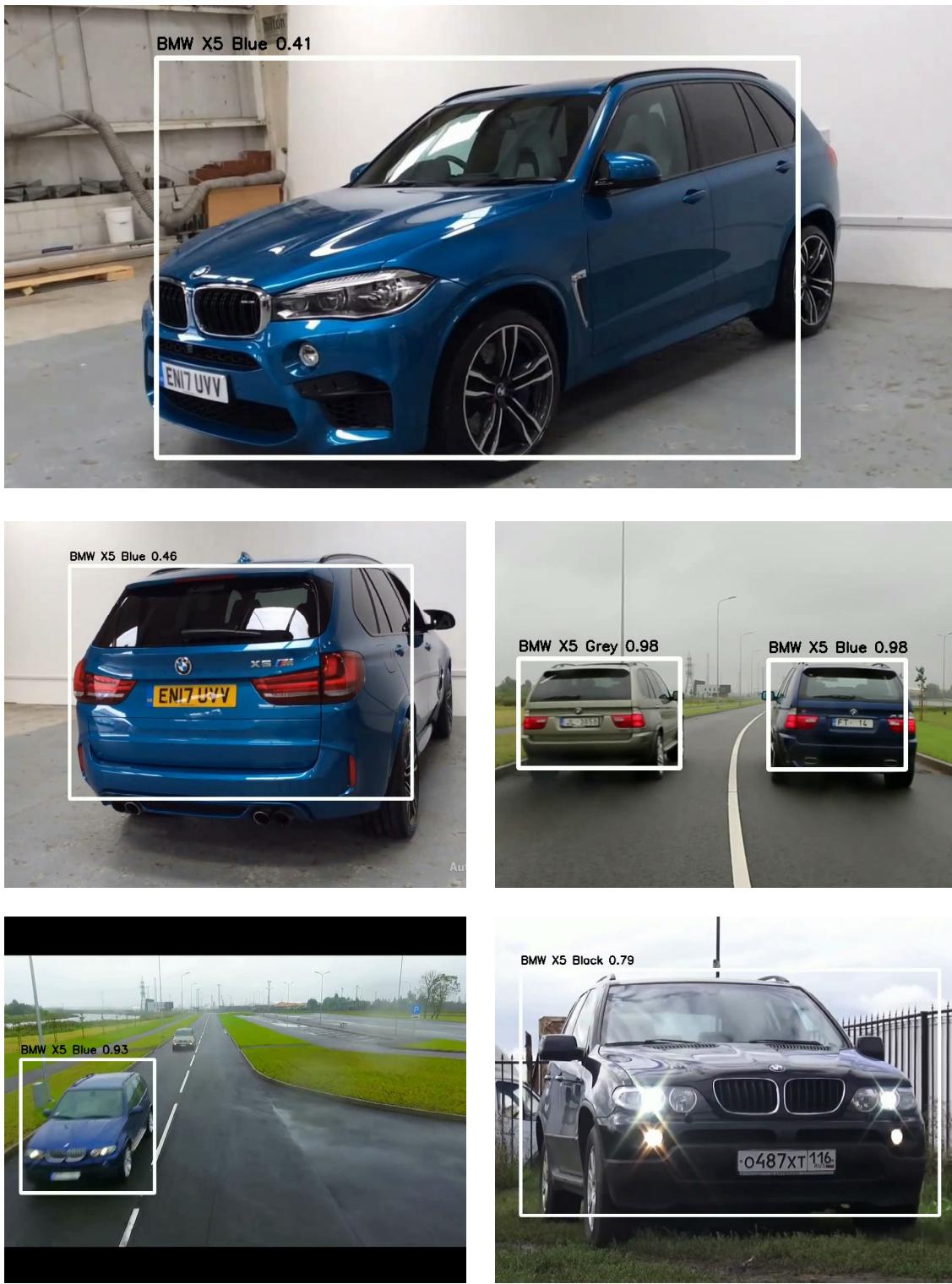
Figure 17 – Example of output from Convolutional Neural Network used by Discoperi.



Objects:

- ▶ traffic light: 49%
- ▶ traffic light: 52%
- ▶ car: 25%
- ▶ person: 27%
- ▶ car: 37%
- ▶ car: 33%
- ▶ car: 83%

Figure 18 — Example of vehicle brand, model and color identification by Discoperi CNN.



Network Protocol

To minimize data transmission latency, System 'Eye' processes some data itself on the device. It is the fastest and most cost-effective solution as opposed to analyzing all the raw data in the cloud.

To support the data transfer and exchange, Discoperi has built a protocol called Fast Short Message Protocol (FSMP). It takes data recognized by the device, encrypts it with 256 code, sends it to the cloud, and distributes it to the rest of the cars in the vicinity in less than 1 second.

Figure 19 – Example of a message captured by cars equipped with System ‘Eye’.

FSMP allows spreading important data insights among vehicles in the referent area, as well as inform support and control functions, if needed: rescue service, police, road maintenance, etc.

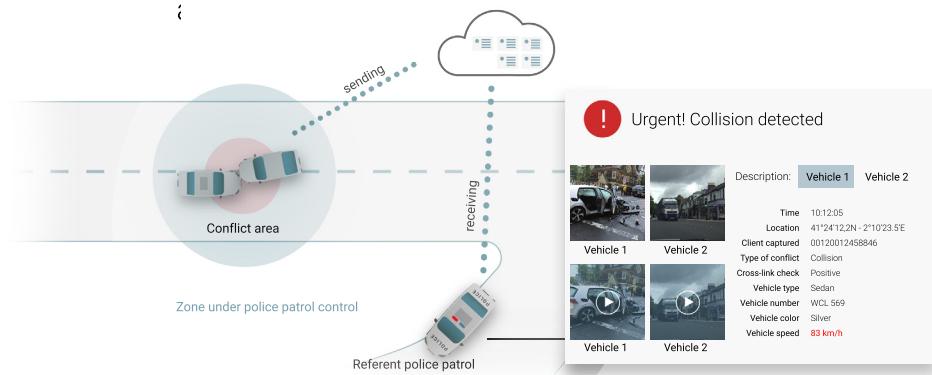


Figure 20 – FSMP notification process.

FSMP allows not only drivers within a critical zone receive alarm about potential risk factor or danger, but also drivers who are going into the referent area.

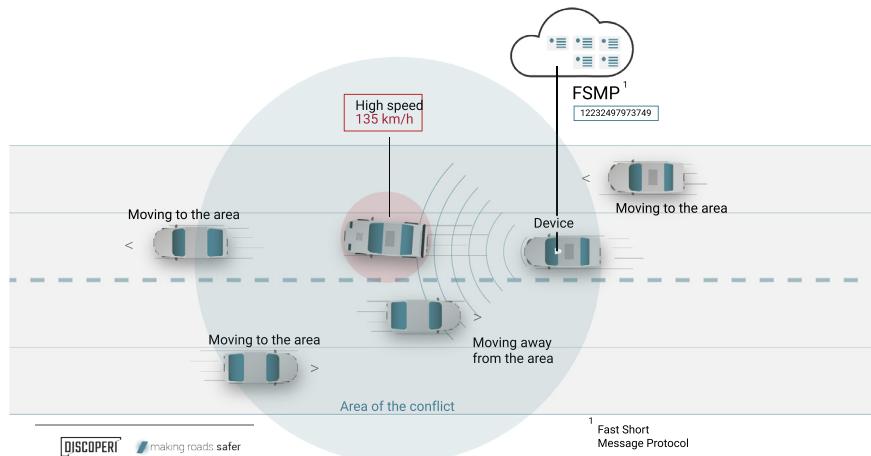


Figure 21– Example of a visual notification.

Notification can be delivered to the driver in visual and audio formats through the car multimedia system or a smartphone.



At the same time a reference is created for the data in the Discoperi Blockchain, to the original source. The hashed data is also persisted and encrypted. Due to the need to have an efficient and scalable Blockchain, it is used only for being “a library” for all the data physically stored in the Discoperi Cloud.

Data Validation

Once the data is received by the cloud, there is a strong need to validate it. For example, to check if there are recent updates on stolen cars, etc. In case the system identifies the data from a vehicle as such that it has important insights, the cloud automatically requests from the vehicle additional information: photos and videos on the captured data. This data is then encrypted and sent to the cloud where it is stored. Later, this data may be used as a proof in a court and validation of exact records.

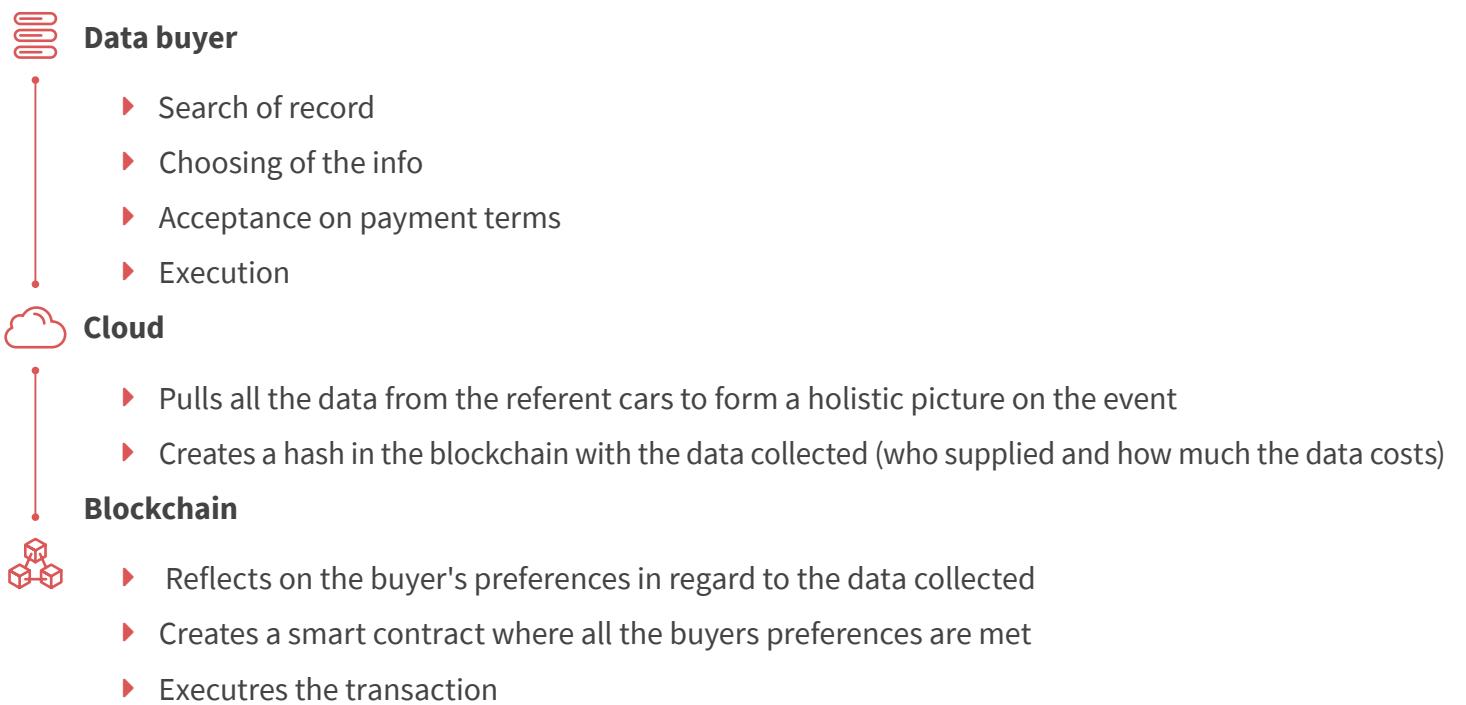
Figure 22 – Data validation process.

- Step 1.** Discoperi collects the data and analyzes this data inside the car (with a help of an embedded third-party device).
- Step 2.** Once analyzed, the encrypted code goes to the cloud where the data is validated and then spread among all the drivers (thanks to FSMP).
- Step 3.** Once the data is validated, the hash (#) is created in the Discoperi Blockchain as a reference to the original source.



Step 5. Once there is a need to validate the data, a driver, an insurance company, etc., may request to conduct a sanity check of the data stored in the blockchain.

Step 4. If, according to the AI in the cloud, a driver captured an important & valuable data — the system request back to the vehicle to collect more insights (e.g. photos, videos, etc.).



Data Collection

Once captured and analyzed, a data point still misses the full completeness, meaning that even if it is important, there are multiple “blank spots” which make the data unenforceable and undervalued. In order to avoid such cases, System ‘Eye’ employs a Data Collection Protocol (DCP), which pulls additional data points from simultaneously different devices. This makes a group of points much more valuable than the value of the sum of its parts.

Figure 23 - Data Collection Protocol



This approach allows to get more complex and sophisticated output, which is what most of potential data buyers require. Thus, we have a perfect data draw-well, which is now can be uncovered and supplied to the market.

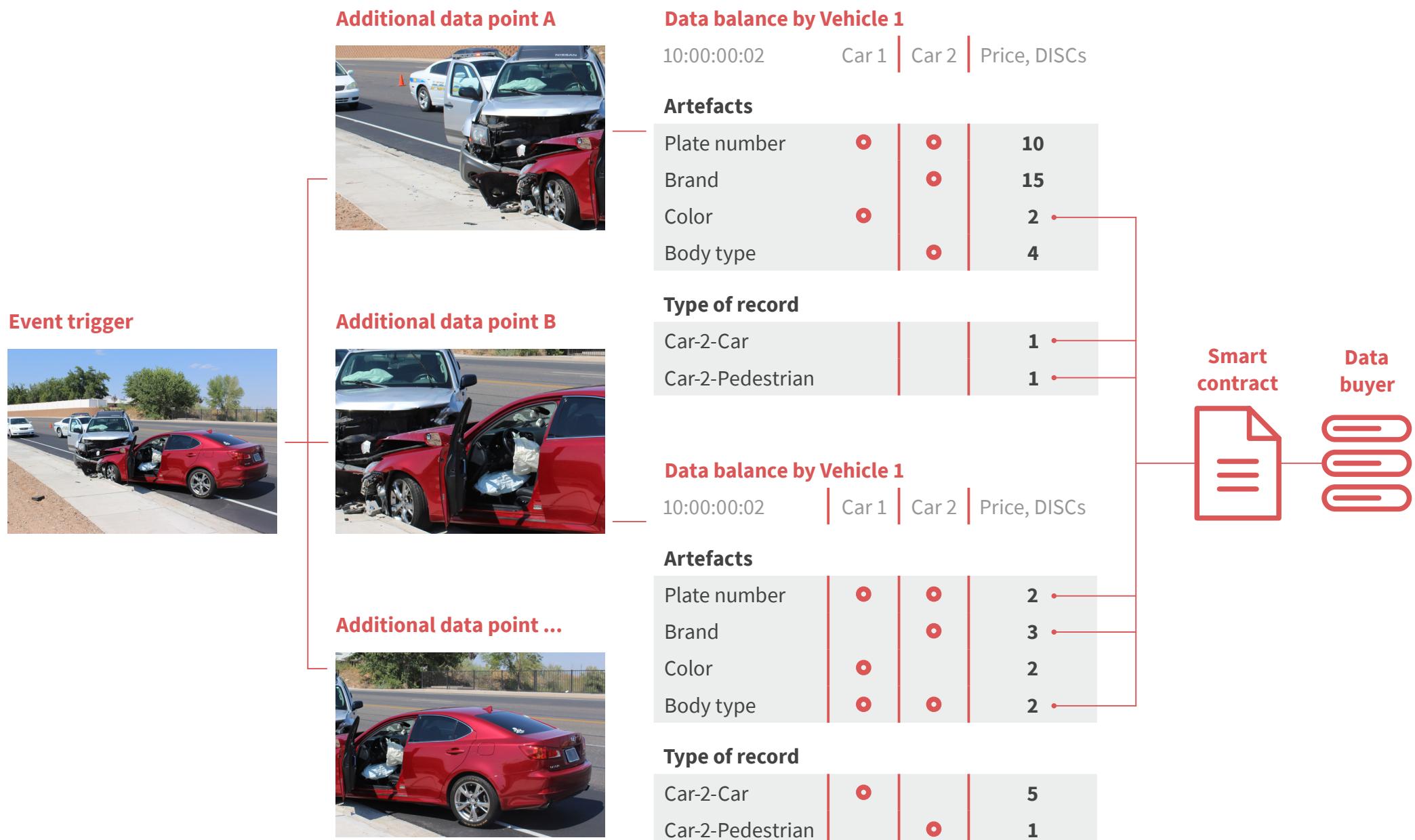
Data Monetization

Individual drivers who leverage System ‘Eye’ in their daily routine, supply valuable data points, which now may be monetized. Thanks to DCP a single data points now has higher market value and probability to be sold. However, with this approach new challenges arise. The main one is that the data shall be supplied within the shortest period of time. Another one is that every driver, who supply data, shall receive an appropriate payback.

In order to solve potential deadlocks Discoperi developed three Data monetization principles:

- ▶ An event trigger receives the most of the payment
- ▶ First record gets paid
- ▶ Less relevant data or doubling data will not get paid, unless the data buyer requests

Figure 24 - Data transaction example



Data buyers

Metcalf's law states that the value of a telecommunications network is proportional to the square of the number of connected users of the system (n^2). The more consumers and companies use the data, the higher the total value of the Discoperi DNCV network.

- ▶ Drivers
 - Road collision and risky (other) driver behavior notifications
 - Driver driving-style benchmarking
 - Safest route selection
 - Diminishing between-cars distance notifications
 - Road hazards and restrictions notifications
 - Help with stolen cars localization
- ▶ Insurance companies
 - Share the risk profile of their clients (after such clients sign consent on data-sharing)
 - Benchmark drivers based on their driving behavior
 - Provide evidence on accidents
 - Locate stolen cars
 - Optimize risk-adjustment portfolio
- ▶ Fleet management companies
 - Assess the risk profile of the drivers
 - Provide evidence on accidents
 - Find stolen cars
- ▶ Automotive OEMs
 - Provide more safety-related features to drivers
 - Leverage another revenue-generation stream by adding new value for the drivers
 - Provide in-depth data for their self-driving cars on risk profile of cars with drivers
 - Analyze new data points related to risks beyond the “viewing area” by self-driving cars

Data Protection

System ‘Eye’ will be working in full compliance with the personal data legal framework. The purpose of the system is to prevent accidents and not to control or monitor drivers and share their data. We fully support individuals' right of privacy. To protect data and drivers' privacy we employ Dynamic Encryption Algorithm (DEA) and build all the data monetization process on the blockchain (details - below).

Our main principles in data protection:

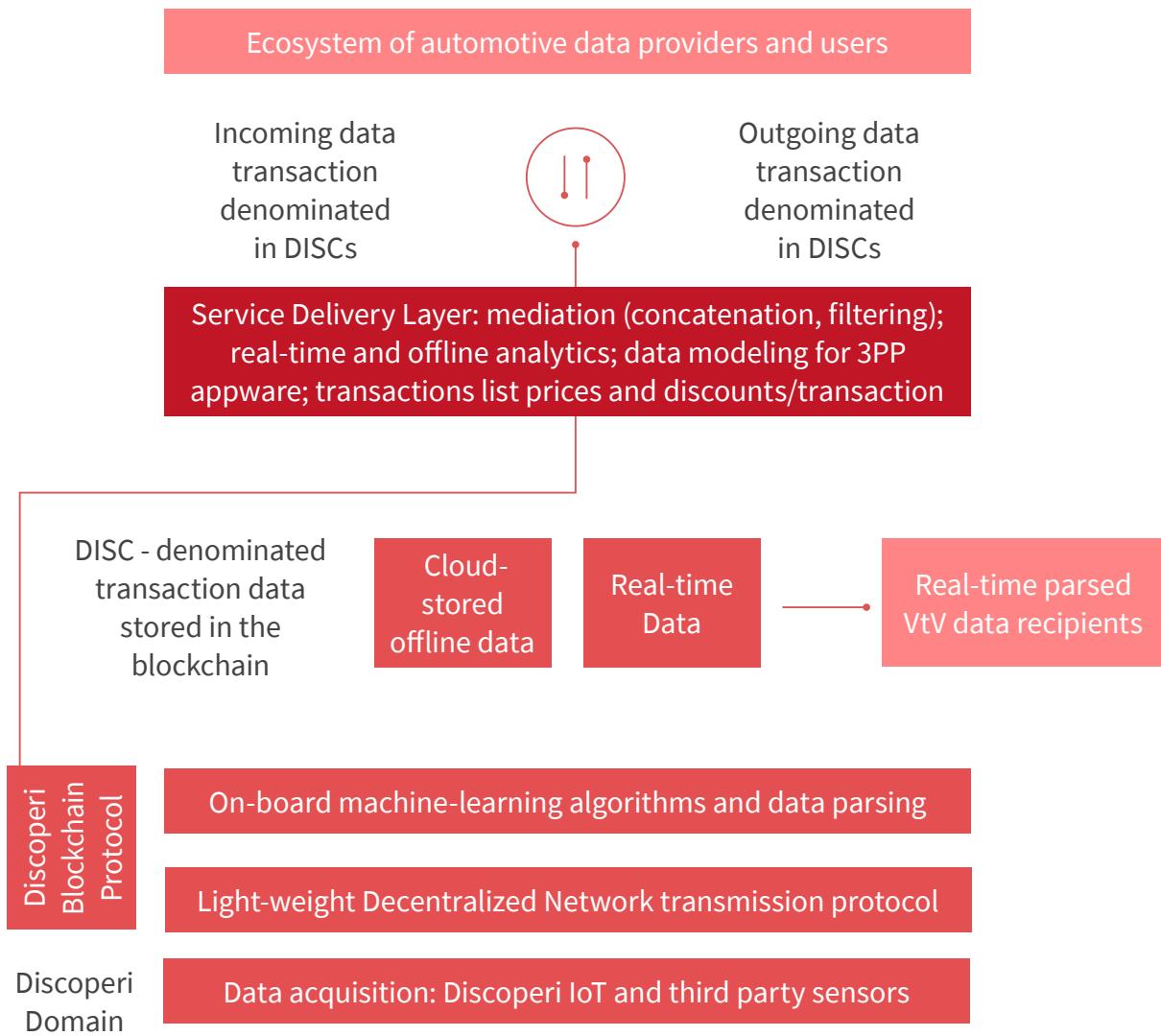
- ▶ Our data protection practices are built in full compliance with the international data protection laws (e.g. General Data Protection Regulation and Data Protection Act)
- ▶ We create conditions restricting any unauthorized access to the personal and private data within and outside of our company

Discoperi Ecosystem

Discoperi Ecosystem (DE) is a community of different companies, gathered around Discoperi, which shares its vision of making roads safer and enabling drivers to benefit from automotive revolution and data monetization. Every organization of DE exchanges its products or services for DISC tokens. Potentially any organization from automotive or neighboring areas may become a part of DE.

For an organization, a participation in the Ecosystem allows an access to a large community of drivers. DE accommodates different types of service creation and delivery, involving collaboration or use of more than one type of network. Common elements of a DE include service creation tools, service orchestration resources and execution strategy resources. DE also facilitate the management and sale of services between various companies which supply different service components.

Figure 25 – Discoperi's platform.



All of DE transactions are measured in DISCs (the Discoperi post-ICO token) and are securely and verifiably stored in the blockchain.

Blockchain integration (proof-of-blockchain)

Blockchain Approach

Data reliability is a crucial factor at every stage for System ‘Eye’. Data capturing, analyzing, sharing, alarming, storing and monetizing shall be sustainable and resilient from any internal and external vulnerabilities . A fast, secure and reliable blockchain is a must.

The blockchain keeps data valid, reliable and secure in a decentralized, flexible peer-to-peer repository. Discoperi has chosen Ethereum to be the blockchain, as it is one of the most widely used blockchains, has received the most community support and has the most active development community. However, we also realize that there are downsides, like the gas price and transaction speed, which both pose a strain as well as costs on our overall solution. Hence we are also developing our own automotive blockchain in parallel, so we can deal with the specific requirements the automotive space poses on the solution. The need for a blockchain radically increases with a number of transactions executed by System ‘Eye’.

To match our needs, Discoperi together with a prominent international research university in the computer science field developed Discoperi Blockchain Protocol (DTP). The protocol has the following purposes: data traceability, resistance from internal and external attacks, control by data providers (drivers) and structural flexibility and agility (vs regulations and business practices). Once deployed, DTP will be a new standard for transparent and compliant with GDPR and other privacy practices blockchains.

Data traceability

The data supplied into the System ‘Eye’ shall be able easily and securely traced. Once a data point is considered to be valuable, the data gathering process initiates forming a holistic view on a referent case (event). The missing data is collected from multiple cars simultaneously, which is sometimes can be hardly achieved, due to the fact that vehicles may locate in different areas (e.g. tunnels). Another problem which System ‘Eye’ deals with is a repetitive data collection from multiple sources. In fact, data buyer needs only a single record that, for example, one of the cars’ color was red. In this situation, every party shall trust that the unified principles on the data submission (e.g. whoever captures first — gets paid) are applied to all parties. Otherwise, the whole system may collapse.

We leverage traceability in the following ways:

- ▶ Understand who supplied valuable information in which order
- ▶ Calculate the cost of the data supplied
- ▶ Allocate the payment back to data providers
- ▶ Collect the data from the devices to the buyer
- ▶ Allocate additional processing power for the data storing and spreading approach
- ▶ Resistance from internal and external attacks

Discoperi stores all the data in a very complex ecosystem which consists of all System ‘Eye’ devices, Discoperi Cloud and places a hash tree in a distributed ledger (called Discoperi Blockchain Protocol). Without going into details, a shared database will be created and shared among chosen parties (Cluster Leads or Leading Nodes). Every transaction within the parties shall be checked and validated. With this archetype, there is no single employee or organization which can manipulate the verification in the database or the processes. As all transactions will be encrypted with Dynamic Encryption Algorithm (not only keys but also the configuration of the cryptosystem changes for each data transaction), the full chain will stay secure and protected from all kind of attacks.

We pay a lot of attention to understanding if a data point has been submitted according to all the rules and if it has been faked. We leverage our AI-built algorithms to find artificial similarities and interdependencies in data points submitted. On top, we study and analyze devices used to submit the valuable data points for System ‘Eye’ with a purpose to find faked devices and lower a probability of supplying intentionally wrong data. The blockchain is used here to track every device’s performance and main metrics and understand activeness of certain actors and their implication on the system resistance to attacks.

Control by Data Providers (drivers)

Many automotive companies intend to collect data from vehicles without informing owners about such their intention. As we believe, it’s absolutely crucial to give the power to control the data to the drivers, we leverage blockchain to control the data on the full supply chain. Thanks to our Discoperi Blockchain Protocol, System ‘Eye’ users will be able to choose whom to share their data, when, under which circumstances and price. We keep full statistics on all the transactions and requests to users, so they could proactively manage their contribution to the system.

Structural Flexibility and Agility

Different regulations are applicable to data processing and storing in many countries. We leverage blockchain to fully comply with such norms. We understand that these rules (e.g. storing all the data insights of a country) may appear before, during or after System ‘Eye’ deployment, thus we leverage our blockchain to stay on a safe side in questions regarding personal data privacy and GDPR.

We expect that System ‘Eye’ may be leveraged in different ways in different countries. Thus, Discoperi Blockchain Protocol allows us to achieve additional flexibility to the value we bring to them, yet still without compromising our own rules. Additional flexibility and agility can be also achieved by very low gas prices and clustering architecture, which allows Cluster Leads to run their blockchain areas much more efficiently than any other existent blockchains.

Unique blockchain architecture

DBP allows storing the data in the blockchain as well as executing smart contracts with numerous functions between data seller and data buyer.

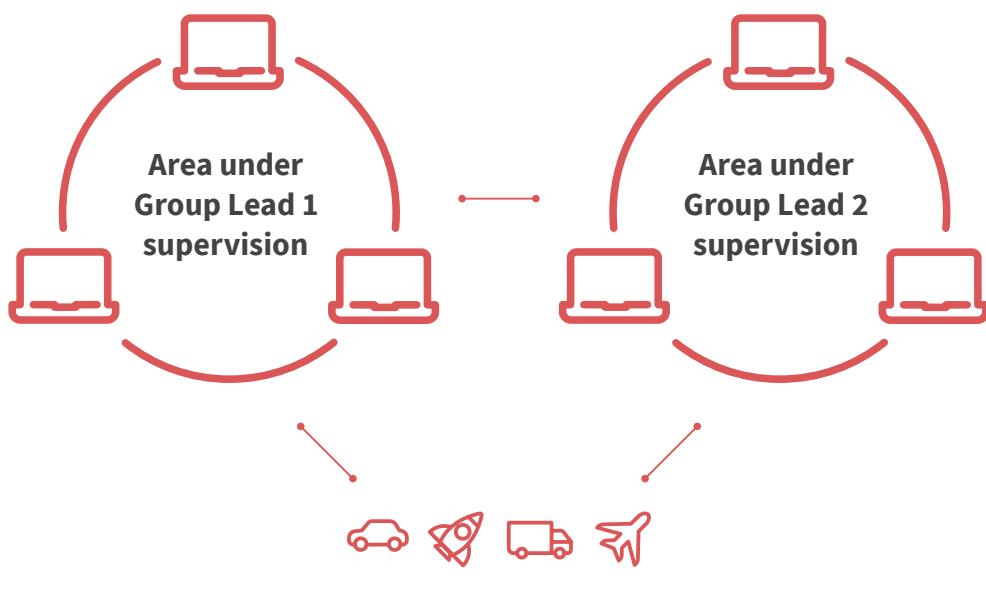
DBP has optimized blockchain type called Lightweight Scalable Blockchain (LSB). In DBP Nodes are grouped in so-called Group Leads (GL). GLs are responsible for managing blockchain under their **span of control**. Each node is able to store only a single block within a certain time. If a transaction is valid, it is stored in a pool of valid transactions which then will form a new block with a predefined block size.

Another differentiator of DBP is the way of how it flexibly manages its **throughput**. Once there is a significant transaction load by the nodes in a network, it leverages Distributed Throughput Management (DTM) to normalize the flow, which means that it may temporary split the volume among all the nodes and potentially leverage the nodes from another Group Lead.

Trust mechanism is another feature of DBP. With a history of transactions among different GLs, there is a probability that a certain level of trust between two or more GLs can be maintained. In this case, DBP allows selectively validate transactions (e.g. not a 100%, but 30-50%) and still maintain a high level of reliability and accuracy. Such differentiating factor allows uncovering additional cost efficiency potential.

A large economy of resources is achieved by **separating data from the transaction flow**. In the blockchain, there is no actual raw data to be stored (only in the Cloud), only hashes and smart contracts. This allows speed up the entire transaction process and simplify validation algorithm.

Figure 26 – DBP structure



Transactions under the area of a certain Group Lead are broadcasted to and verified by it and thus there is no need to have a central unit. However, to avoid potential manipulation, we split transactions on different stages, some of which require an approval from another Group Leads.

Transaction approval mechanism

There are two types of transaction approvals: single and multiple signatures. Every transaction requires both types of the signatures at different stages: hashing stage and smart contract execution stage.

Hashing stage is the first stage where a hash is created in the blockchain by a Cloud. The role of hash is to provide a direct link to the supplied data and capture main parameters of the data supplied (supplier ID, time, type of data, price, etc.).

Once all the conditions agreed between a data seller and a buyer, an automated smart contract is created by the Cloud and placed into the blockchain for the deployment.

Main parameters of a smart contract:

- ▶ Assets (e.g. data)
- ▶ Detailed description of the purchase
 - Supplier
 - Time of supply
 - Type of the information (e.g. video, photo, sounds, etc.)
- ▶ Price (e.g. number of tokens DISC paid, discounts, etc.)
- ▶ Form of the transaction (e.g. one-time purchase, constant purchase, etc.)
- ▶ Transaction steps:
 - Initiated by the buyer
 - Data supplied
 - Data verified
 - Smart contract self-executed
- ▶ Node
- ▶ Group Lead
- ▶ Time
- ▶ Accounts

Smart contract execution requires a validation from multiple Group Leads. First, the validation is done by a Group Lead where the contract has been initiated. Then any other (randomly chosen) Group Leads shall validate the transaction (min 75% acceptance).

Additional technical details on DBP will be soon available in a special technical “yellow paper”.

Token Holder Information

DISC Utility Token

The DISC is ERC-20 utility token released by Discoperi to launch and successfully maintain the driver community and related infrastructure. It is used as a unit of interaction within the ecosystem (drivers, data buyers, developers, etc.). All transactions are stored in the blockchain and are executed with DISCs. Subsequent the pending ICO, DISC will soon be registered with various other cryptocurrency exchanges. These listings will create adequate global liquidity for DISCs, after successful ICO launch.

The DISC token:

- ▶ Enables clear and transparent transactions between data providers (drivers) and data buyers
- ▶ Provides liquidity, as data providers recipients can reward buyers with token-denominated loyalty programs which can in turn also be further transacted
- ▶ Provide means for paying for data, API access and applications on the Discoperi DE

Token Uses

DISC token holders may use tokens for different purposes:

- ▶ Exchange for products and services provided by Discoperi and its partners within DE (insurance companies, automotive producers, spare parts producers, car sharing services, driving schools, parking operators, maintenance services, electronic devices producers, app developers, etc.). For example, token holders may exchange the token for a device compatible with System ‘Eye’, buy data or services offered by third parties. Additionally, some products and services will be exclusively sold with DISCs and many others with a significant discounts. For example, data, collected by drivers’ network will be exclusively sold by DISCs.
- ▶ Exchange for other cryptocurrencies (e.g. ETH, BTC, etc.) or fiat currencies (e.g. dollars, euros, etc.), in jurisdictions where such exchange is legal. Cryptocurrency transaction may be conducted directly peer-2-peer or through cryptocurrency exchanges.

DISC value

The value behind DISC token comes from understanding fundamental principles of ecosystem economics. A value of a product or service comes in a balance between a demand and supply. If there is a high demand, the price of a product or service is typically higher, which is caused by an ambition of sellers to sell more products at a higher price. However, once the demand weakens (or if there is not enough demand yet) the price stays low as there are plenty of sellers on the market and limited buyers.

Now, how this is related to the question? Well, the more people, companies, organizations, and municipalities use System ‘Eye’ and other solutions provided by Discoperi, using DISC tokens, the higher demand is expected to be on DISC tokens. Which is together with limited supply may be a factor for a long-term DISC token value advancement.

However, don’t forget that the value of the token and its price are two different things. Unlike value a token price, the price of the token is impossible to predict.

ICO

Discoperi aims to launch an Initial Coin Offering to accelerate our progress and activities:

- ▶ To spread our vision
- ▶ To build up a global driving community
- ▶ To attract media Attention regarding the Current Industry Situation
- ▶ To prepare a foundation for the future Discoperi roll-out
- ▶ To gather more attention from partners and initiate/spur discussions with them
- ▶ To receive the funding required for the extensive market deployment

Participants who want to support Discoperi may do so by contributing their cryptocurrency to the designated address or fiat currency on a referent Discoperi bank account. By doing so they are purchasing DISC tokens.

Singapore has been chosen as Discoperi ICO jurisdiction due to its high quality of contributors security and full compliance with local law. Discoperi is represented in Singapore by Discoperi PTE Ltd.

ICO Main Info

Token name	Discoperi token
Token symbol	DISC (Plural – DISCs)
Four ICO phases	Private Presale, Public Presale, Public Sale and a potential Reverse Auction
Price per DISC	\$0.001
Soft cap	\$5 Million
Hard cap	\$50 Million + potential amount raised during Reverse Auction
Platform	ERC20
Total tokens to be issued	DISCs
Tokens to be sold during the ICO	DISCs
Issued period	All at once
Extra issuance ability	n/a
Accepted crypto currencies	Bitcoin (BTC), Ethereum (ETH) and Litecoin (LTC) (during the Private Presale we will also accept USD and other alternative payments for selected token holders)
Price	The price of the DISC token depends on the ICO stage when a participant sends cryptocurrency to the designated address
Bounty program	n/a
Legal entity registration	Singapore

ICO		Seed funding round	Stage 1 Closed Private Pre-sale	
Softcap	\$, USD	n/a		5 Million
Referral Bonus	%			20%
Hard Cap	\$, USD	1,550,000.0		50 Million
DISC Price (incl. discount)	\$, USD			0.001
Bonus	%	Individual conditions		20%
Denomination		ETH/BTC/LTC/USD	ETH/BTC/BCH/BTG/LTC/ZEC/USD/EUR/ GBR/JPY/RUB/CN	
Participants		Strategic Partners	Large institutional funds, UHNWI, partners, family & friends	
Min contribution	ETH	n/a		n/a
Max contribution	ETH	n/a		n/a

Dates

Starting date	25-May-18	01-Aug-18
Ending date	30-Jul-18	##-##-19
Time zone	UCT (Universal Coordinated Time)	

Status

Current status	Clearing	Whitelisting/SAFT/Smart contract
Soft Cap	Clearing	
Hard Cap	Clearing	

Figure 27 –DISC Token Sale.

Total tokens	Split of tokens issued	
		200,000,000,000
ICO	25%	50,000,000,000
Angel investors & advisors	10%	20,000,000,000
Team & liquidity	15%	30,000,000,000
Market dev-t	25%	50,000,000,000
PR & advertising	10%	20,000,000,000
Company reserves	11%	22,000,000,000
Referrals	4%	8,000,000,000

ICO Stages

The ICO will transpire into 3 stages (Private Presale, Public Presale, and Public Sale). The main purpose of setting up different stages of the ICO is to provide equal opportunities for different types of participants to support Discoperi.

Private presale is an entry point for chosen investment funds and HNWI. We very selectively invite to participate at this stage only our friendly investment funds, which supported us during our entire venture. This stage lasts between 1st of September and ends 30th of September 2018.

Public presale is an entry point for all other investment funds and HNWI as well as accredited investors (refers to US definition). This stage lasts between 17th of October until 27th of October 2018.

Public sale is a stage where anyone may participate in the ICO. This stage lasts between 7th of November until 27th of November. Yet, we expect all DISC tokens to be sold faster than the final date.

We have a soft cap of \$5 million across the various phases of the ICO and a hard cap of \$50 million. During the entire ICO, there will be a referral bonus of up to 10%

Soft and Hard Caps

Some people wonder why with \$50 million in hard cap our soft cap ambition is only one tenth of it. To answer this question we need to uncover what it takes to put System ‘Eye’ on the market rails.

The budget for R&D (including full development of System ‘Eye’ product hardware and software) is close to \$5 million. However, this is only a fraction of the total costs for bringing the product to market. Additionally, we need to build up required infrastructure in a pilot country (warehouses, servers, product trials, etc.) in order to secure high speed and throughput of DE. As we work with a hardware product, we need to prepay for a large number of ‘Eye’ devices and conduct sophisticated trials. We also need to expand our team, especially R&D, operations and business development wings. All this requires much larger investments. A single country pilot in Spain requires overall budget for market deployment and infrastructure exploration equal to at least \$35-45 million.

Bonuses

DISC price is the same on every stage of the ICO. However, bonuses are available for participants on Private Presale (20%) and Public Presale (10%) stages only.

Referral bonus

Additional referral bonus is available. To get a referral bonus a participant shall buy DISC tokens and invite his peers to do the same. If a referral purchases DISC tokens, the referrer will get a certain amount of bonus DISCs. The following scheme is applicable:

Contribution	Referral bonus	Referrer bonus
Less than \$1,000	2.5%	2.5%
Between \$1,000 and \$10,000	3.0%	3.0%
Between \$10,000 and \$20,000	3.5%	3.5%
Between \$20,000 and \$30,000	4.0%	4.0%
Between \$30,000 and \$50,000	4.5%	4.5%
Above \$50,000	5.0%	5.0%

Product bonuses

There is a number of additional product bonuses for participants depending on their contribution to the ICO.

Minimal contribution	Free System ‘Eye’ device	Participation in the “People who made our roads safer” list	Special discounts on all products brought by Discoperi	A seat in Discoperi Annual Forum
\$10,000	Yes, 1 unit	Yes		
\$50,000	Yes, 2 units	Yes	Yes, 10%	
\$100,000	Yes, 3 units	Yes	Yes, 15%	
\$1,000,000	Yes, unto 10 units	Yes	Yes, 20%	Yes

Everyone who contributes to the ICO more than \$10,000 receives a free System ‘Eye’ device and becomes a part of the list “People who made our roads safer”. The contributor will receive devices once it’s released by Discoperi. The list will be published on the official company’s website. People who contributed more than \$50,000 will receive an additional device and a special 10% discount on all Discoperi products. Contributors of \$100,000 will get three System ‘Eye’ devices and a special 15% discount on all Discoperi products. Contributors of \$1 million will get as a total 10 System ‘Eye’ devices, an all-time special discount equal to 20% and a special seat in Discoperi Annual Forum, which is an annual gathering where the company’s leadership meets core supporters, community members, investors, etc.

Usage of funds raised

Funds raised during the ICO will be spent in the following way:

- ▶ Engineering & development (40%): System ‘Eye’ development; iPhone and Android development, develop and release the full solution including the DE & Cloud Platform, Blockchain, NOC and Community Build, launch a pilot in Spain and deploy required IT infrastructure. Discoperi Blockchain Protocol (DBP)
- ▶ Overheads (5%): all ongoing business not including or related to direct labour, materials, or third-party expenses
- ▶ Operations (20%): required for the initial purchasing of parts required for hardware products production, software tools, licenses, etc
- ▶ Marketing & business development (25%): successful launch in Spain and US, as well as branding campaign & development of the community and business partnerships with the market majors
- ▶ Legal (10%): all potential legal and compliance steps required for a fast and smooth System ‘Eye’ deployment and adoption
- ▶ Legal (10%): all potential legal and compliance steps, required for a fast and smooth System EYE deployment and adoption.

Know Your Customer

Discoperi firmly commits to undertake Know Your Customer (KYC) and Anti Money Laundering (AML) checks of all participants of the Discoperi ICO. There are certain requirements that shall be in place for an individual to participate in the ICO:

- ▶ At least 18 years old
- ▶ Have a full capacity to contract under applicable law
- ▶ Conduct transactions with the Discoperi ICO only with legally-obtained funds that belong to the participant
- ▶ Does not participate in furthering, performing, undertaking, engaging in aiding, or abetting any unlawful activity

KYC Identification Process

Individuals

- ▶ Name of the individual
- ▶ Mailing address and address of residence (PO boxes are not acceptable unless accompanied by valid mailing address)
- ▶ Government-issued identification numbers including where relevant, but not limited to, social security number, driver’s license number, and passport number
- ▶ Date & Place of birth
- ▶ Copies of valid photo identification for those listed as account holders

Corporations

- Name of business and corporate representatives
- Copies of current photo identifications of corporate representatives using the account
- Mailing address of the corporation's principal place of business
- Corporate representatives' identification procedures shall be conducted to determine the final beneficiary owners of trust or corporate accounts
- Additional documents may be requested (e.g. corporate representative's local address if corporate's address is different from the principal place of business activity)

Discoperi may request third parties to provide KYC/AML check support.

Token Price Manipulation

From online sources it is known that there are various cases where token prices have been manipulated. We will not go into details on these cases in this white paper.

However, due to still relatively low liquidity of cryptocurrency market (e.g. versus stock market), we anticipate the probability that certain manipulations from third parties are possible in regard to any openly traded cryptocurrency.

With the respect to the crypto community and our Discoperi token holders, we will conduct our own research to identify potential manipulations with DISC token prices and will try to prevent them to the best of our ability.

Token Exchanges

Discoperi believes in the value of unlocking the high DISC token liquidity. For this purpose, we are conducting the required efforts to bring DISC tokens on prominent crypto exchanges. However, in the same time, we limit a number of exchanges we plan to be listed in order to avoid potential market inefficiencies and arbitrage.

Our ambition is to bring DISCs to at least five crypto exchanges within the first 12 months after the ICO completion.

Next Steps

Technological Roadmap

Discoperi plans to invest heavily in enhancing the ability of its existing solution to allow drivers to manage & monetize their automotive data. The roadmap consists of the following elements:

System ‘Eye’

As already outlined in this document, System ‘Eye’ is an existing solution, but still has room to evolve. Currently System ‘Eye’ only collects video data. The first enhancement consists of sound data collection, which is potentially large corroborative value. The second enhancement is data collection from the car microprocessor, such as but not limited to the ECU (Engine Control Unit). While most data is sent to the cloud DE unprocessed, some of the data will be parsed and analyzed by System ‘Eye’ on board. The enhanced data collection will demand new and more powerful algorithms able to process multi-sensory input.

We also plan on releasing at least 2 SW clients (iPhone and Android), which allows our solution to go much more mainstream as opposed to a dedicated device.

Data Transaction & Cloud Platform

As already outlined in this document, Discoperi plans the development of a cloud-hosted Discoperi Ecosystem. The DE is the focal point of the Driver community, which uses it to host, configure, and transact data and applications. The main functions of the DE are data parsing, algorithm processing, presence and availability of an API, application hosting and smart contract ability. The DE stores DISC-denominated ecosystem transactions in the blockchain.

Blockchain

The Ethereum blockchain is currently underpinning our solution. However, recent performance challenges with the blockchain have resulted in us taking action and starting development of our own blockchain, specifically tailored for the automotive industry. This will allow us to improve scale, speed, and performance, as well as reduce transaction costs.

Automotive NOC

Similar to the NOC (Network Operations Center) which Telecommunication Service Providers use to manage their networks, Discoperi plans to build (multiple) NOCs to be able to manage the automotive ecosystem.

Community Build

A strong and vibrant Driver Community is quintessential to the success of Discoperi’s vision and business model. Various steps will be implemented to create a strong, vibrant and active community, fully in touch with Discoperi.

Within the ecosystem, Discoperi plans to form certain strategic partnerships of string synergistic quotient. Examples of such partnerships are car manufactures, auto OEMs, high tech giants, insurance companies, and so forth. These entities act as both data providers and users and own technology and business models which are highly complementary to Discoperi’s.

Figure 28 – Discoperi's Roadmap.

					
2018	System 'Eye'	DTP & Cloud Platform	BlockChain	Automotive NOC	Community Build
	<ul style="list-style-type: none"> ▶ First Release iPhone & Android App ▶ Second release of System 'Eye' device ▶ AI Algorithm Optimization ▶ FSMP Improvements 	<ul style="list-style-type: none"> ▶ DTP Framework ▶ Optimized Distributed Cloud Storage ▶ Optimized Blockchain Storage 	<ul style="list-style-type: none"> ▶ Key Requirements definition 	<ul style="list-style-type: none"> ▶ Requirements & Design 	<ul style="list-style-type: none"> ▶ Engage with community to get its feedback on the project and potential challenges ▶ Build awareness about the problem
2019	<ul style="list-style-type: none"> ▶ Second release iPhone and Android App ▶ System 'Eye' Sound integration ▶ Initial ECU and other on-car sensor data collection ▶ Other HW enhancements 	<ul style="list-style-type: none"> ▶ Data Mediation (Duplicate elimination, concatenation and parsing) ▶ Discoperi Application Hosting ▶ Algorithm Predictability Training ▶ 3PP API Hosting 	<ul style="list-style-type: none"> ▶ First implementation and Trials 	<ul style="list-style-type: none"> ▶ Implementation of first Beta ▶ Monitoring of Automotive Ecosystem 	<ul style="list-style-type: none"> ▶ Actively share the data with the community ▶ Bring new members to community
2020	<ul style="list-style-type: none"> ▶ Full Data Collection 	<ul style="list-style-type: none"> ▶ Service Level Agreement (SLA) implementation 	<ul style="list-style-type: none"> ▶ Token Migration ▶ New BlockChain use 	<ul style="list-style-type: none"> ▶ Fully Operational NOC 	<ul style="list-style-type: none"> ▶ Launch community meet-ups

Summary

The automotive industry is poised to grow at an accelerated pace until at least 2030. It will generate automotive data which some analysts estimate to reach \$1.5 trillion in value by that time. Leading the automotive revolution and to return to the driver their ownership and value of this data is Discoperi's focus. There are several ways to reach this objective, each with its own merits and challenges. Discoperi's approach relies on its existing System 'Eye' solution, which includes an intelligent IoT data capture car device with its own embedded and proprietary AI algorithm, a light-weight network protocol and additional cloud-based open APIs and service logic (data validations storage and dissemination).

The company plans to develop a full-fledged Discoperi Ecosystem (DE) & Cloud Platform to enable the drivers to exchange their rich automotive data with third parties, like automotive OEMs, insurance companies, etc. Discoperi is issuing its own token, called DISC, as a single transaction-unit for data and applications exchanged on the DE between data users and data providers. All transactions are blockchain stored and user privacy is aligned to the most modern standards and legislation. Discoperi has a robust and well-thought revenue model which includes a credible recurrent revenue model. The Discoperi team has been working on the solution for several years. The numerous awards and strong recognition Discoperi solutions have already received are a testimony of the strength and determination of the team. Discoperi is a solid company with a proven track record, an award-winning solution, pioneering a very prominent and novel automotive data field.

Disclaimer

This white paper contains certain forward-looking statements. A forward-looking statement is a statement that does not relate to historical facts and events. The forward-looking statements are based on analyses or forecasts of future results and estimates of amounts not yet determinable or foreseeable. These statements appear in several places in this white paper and include statements regarding Discoperi's intent, belief or current expectations with respect to Discoperi's financial position, business strategies, plans and prospects, and future prospects of the industry. These forward-looking statements are applicable only as of the date of this white paper. Discoperi disclaims any obligation to update or to announce publicly any revision to, any of the forward-looking statements contained in this white paper to reflect future actual events or developments. Discoperi reserves the right to update this white paper at any time. Please visit Discoperi's website (www.discoperi.com) for the most up-to-date version of this white paper.

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