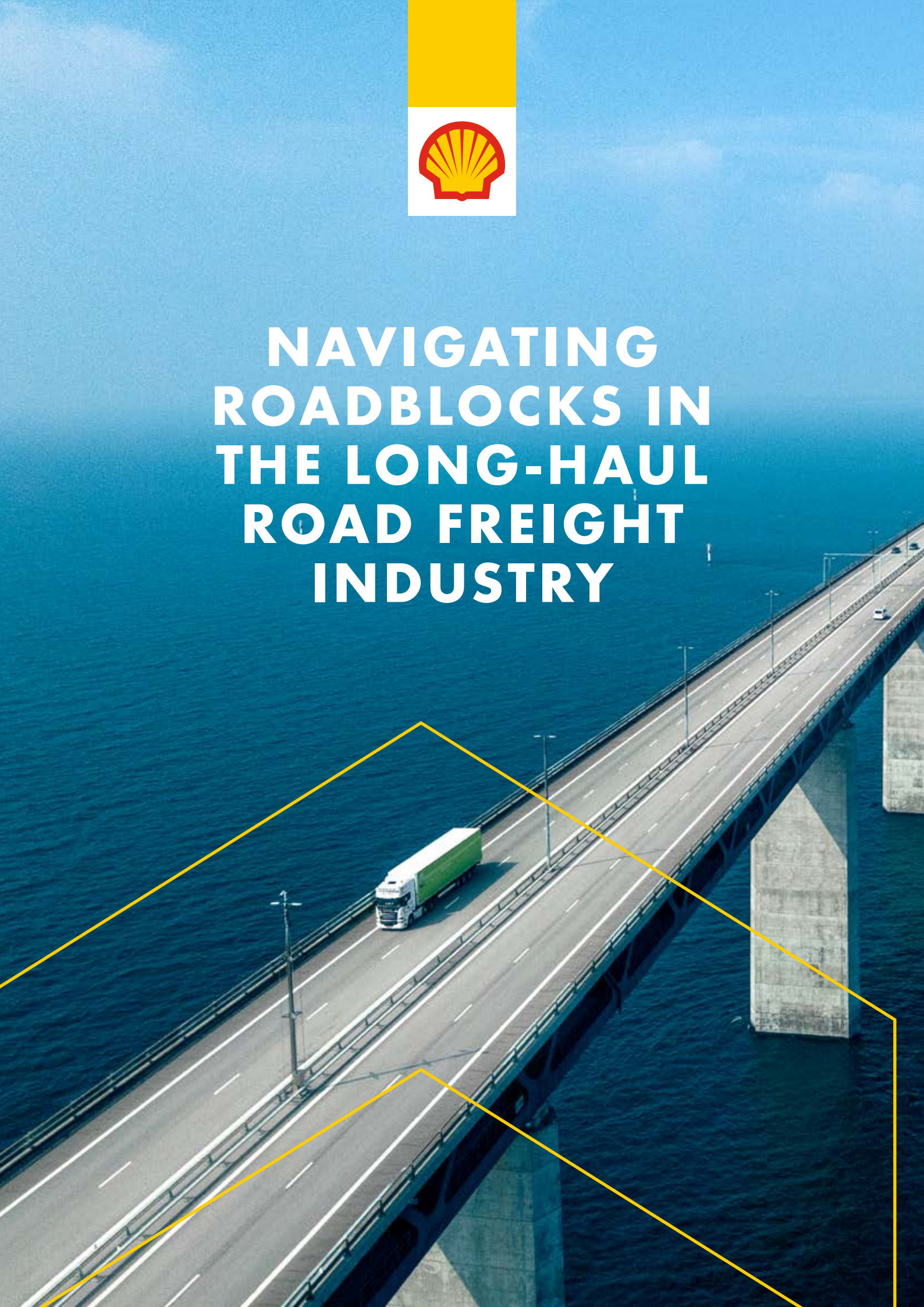


# NAVIGATING ROADBLOCKS IN THE LONG-HAUL ROAD FREIGHT INDUSTRY



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## Executive Summary

Globally, 2020 marked a turning point for the road freight industry. Already confronted with a raft of challenges—driver shortages, rising costs, the need to reduce emissions and improve driver working conditions—the industry was further impacted by the COVID-19 pandemic. The crisis added a new layer of complexity to fleet management, with many fleets seeking new and alternative solutions and revenue streams to stay operational.

As the fleet industry continues to address these challenges and move into a new era of sustainable freight transport, identifying the right partner with whom to navigate a dynamically evolving operational environment will be critical.

In response to this need, Shell developed this thought leadership whitepaper to give an overview of the global haulage market and to offer insights that may assist fleet managers to navigate the many challenges facing their business.

To achieve this, we partnered with Frost & Sullivan who conducted interviews with 23 fleet managers in 12 markets, the key findings of which are summarised on the following page.

## The Key Transformational Trends of the Freight Transport Industry

### 01 DIGITAL SOLUTIONS TO IMPROVE OPERATIONAL EFFICIENCY

Driver training based on insights gained from telematics-based fleet management solutions

**LOWERS FUEL EXPENSES**  
**5–20%**

Digital freight brokerage solutions can reduce empty runs

**IMPROVES FLEET EFFICIENCY**  
**60%**

Prognostics (predictive maintenance) solutions

**DECREASE MAINTENANCE COSTS**  
**30%**      **REDUCE BREAKDOWNS**  
**70%**

### 02 DIGITAL SECURITY SOLUTIONS TO MITIGATE FRAUD AND OTHER FORMS OF THEFT



Payment monitoring and management tools provide full oversight and recording of driver expenditure activity and patterns and aid with:

- Real-time fraud detection with alerts.
- Enforced limits on expenditure and instant card blocking.
- Location limitations—requiring drivers to visit pre-selected sites only.



Geo-fencing capabilities enable notifications when a vehicle exits the permitted route or perimeter alerting managers to criminal activity before it occurs.

### 03 SUCCESSFUL DECARBONISATION STRATEGIES REQUIRE A PRAGMATIC, STEPWISE APPROACH



A clear, high-quality fuel and lubricant strategy.

**IMPROVE ECONOMY**  
**8.9%**



A plethora of alternative fuel options—natural gas (LNG), BioLNG, compressed natural gas (CNG), synthetic fuels and gas-to-liquids (GTL) to reduce CO<sub>2</sub> footprint now.

### Introduction

A combination of diverse factors—the growing demand for delivery services, regulatory changes, tightening business margins, driver shortages, and COVID-19 related challenges—is transforming the road freight industry. To keep both local and global supply chains running smoothly, fleet managers are tasked with performing a daily balancing act. It is clear that efficient vehicle fleets and the right partners will be critical to the uninterrupted functioning of the world's road freight ecosystem and economies.

Shell Fleet Solutions is one of the largest mobility solutions providers globally, serving two million business customers a day in 57 markets. With over 60 years' experience in fleet management and as a sustainable mobility services provider, it is committed to ensuring successful business outcomes for customers, while moving toward net-zero emissions through its focus on cleaner energy solutions, and operational optimisation. This whitepaper targets fleet managers, sharing insights gained from Shell's multi-stakeholder engagements across the mobility ecosystem, including with customers, partners, regulators, and other channel players.

The global road freight industry, which Frost & Sullivan valued at approximately \$3.1 trillion in 2020, has grown consistently in the past decade owing to heightened levels of trade and economic activity. The severity of the COVID-19 pandemic marked the first time in a decade that activity in the sector decreased, with estimates suggesting a decline of between 15% and 25%, depending on the market.

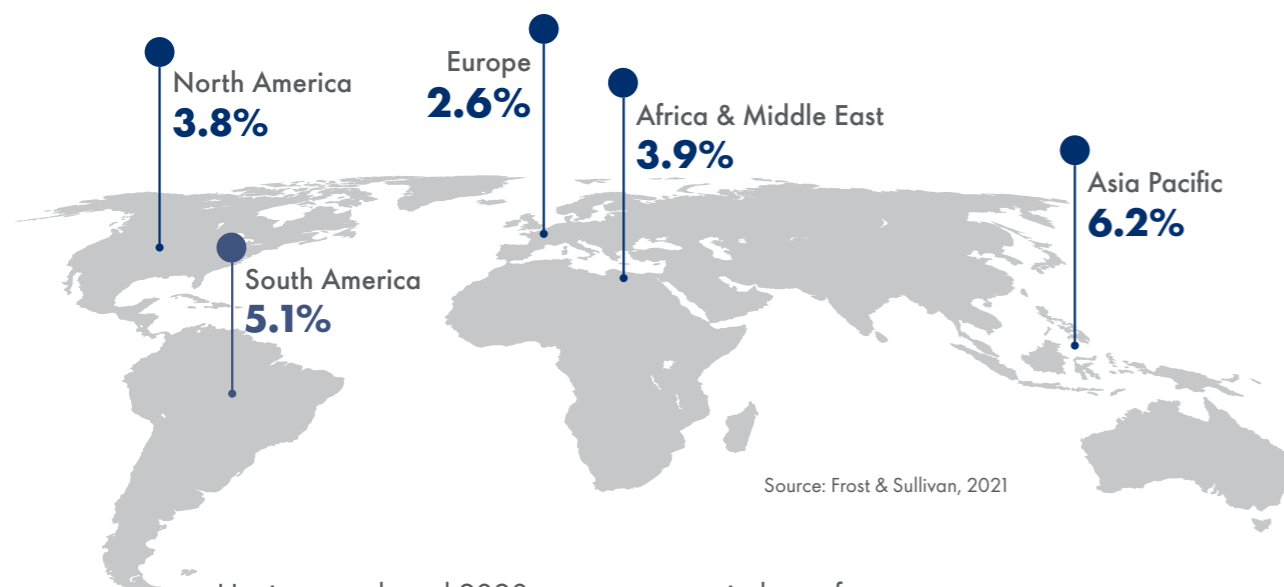
Frost & Sullivan's latest research indicates that initial business closures as a consequence of the COVID-19 lockdowns represent a defined worst case that was limited in time and followed by more resilient recovery in operations and volumes.



The outlook for our business is very healthy as global industries and markets are back to 100% strength, and there is pent up demand which needs to be met.

—US fleet with over 10,000 vehicles

## ROAD FREIGHT MARKET—REGIONAL GROWTH FORECASTS (2021-2025)



Having weathered 2020, Frost & Sullivan forecasts that global road freight revenues will grow by an average of 4.3% annually from 2020 to 2025.<sup>1</sup>

Amidst discussions on how the COVID-19 pandemic will affect the road freight industry in 2021, it is important to recognise that change has been a constant in the

industry for many years now. Several trends, whether economic, regulatory or technological, have been shaping fleet operations.

For instance, the ability to integrate and connect digital tools through cloud-based platforms has resulted in a wave of new solutions. These will accelerate the evolution of fleet managers' decision-making

capabilities, support more productive interactions with intermediaries, improve working conditions for drivers and refine approaches to driving efficiencies, thereby boosting bottom lines. Digital tools such as fleet management software, telematics, digital freight brokerages and prognostics will enable managers to better organise their assets and achieve efficiency gains.

The future will be tied into sustainable practices and solutions. The emergence of regulations requiring the reduction of carbon emissions within the transport sector is expected to impact the road freight industry dramatically this decade. Regulatory and infrastructure-related developments will force a gradual move away from diesel powertrains while utilising the Internal Combustion Engine technology as a bridging option; the fuel and energy mix will become more diversified with alternative lower emission fuels, such as CNG, LNG, BioLNG, biofuels and synthetic fuels, gaining popularity.

As powertrain technologies mature, the adoption of alternate powertrains, namely battery electric vehicles (BEVs) and hydrogen powered fuel cell electric vehicles (FCEVs), for specific use cases and applications will increase. Hydrogen-based FCEVs are regarded as the key to driving down emissions released by heavy vehicles on roads and also the most feasible option for long-haul transportation requirements. Advances in fuel cell technologies and hydrogen production infrastructure are expected to see FCEV trucks being launched into the market by 2025, with multiple truck manufacturers currently in the development and piloting phases.

The whitepaper outlines the major challenges faced and the solutions available to fleets within three key areas of transformation. These include digital solutions that improve operational efficiency, digital security solutions that mitigate fraud and other forms of theft and lastly, technologies and approaches to the successful decarbonisation of fleets.



## Digitally Safe, Secure and Profitable

The key challenge for fleet managers is finding a way to limit the myriad of operational and investment costs while simultaneously improving driver safety and efficiency. Operational costs, both diverse and variable, hinder the cost competitiveness of fleets, most notably in highly competitive markets where margins are tight. With margins ranging between 1.4% and 3% in many markets<sup>2</sup>, fleet managers seek all kinds of solutions to realise cost optimisation.

Telematics-based fleet management solutions that combine data inputs from vehicles and from the wider ecosystem enhance real-time monitoring and reporting, which further improves decision-making, oversight and resultant operational efficiencies. The use of application programming interfaces (APIs), which enable seamless integration between users and solutions providers, has advanced the adoption of such digital tools, facilitating ease of use.



Administration remains a normal challenge for us, but the main factor is the high cost of human resources to perform the work.

—Malaysian Fleet with over 500 vehicles



## Fuel Savings through Skilful Driving

Independent tests indicate that highly skilled drivers can reduce fuel expenses by between 5% and 20% on average and also subsequently lower costs associated with the wear and tear of vehicles.<sup>3</sup> However, the global phenomenon of driver shortages has an overarching influence on driver skill levels which is impacting fleet efficiency.<sup>4</sup>

This is where the use of telematics solutions that connect real-time vehicle driving data to fleet management platforms provide managers with an effective way to improve, monitor and train drivers. In addition, the depth of data generated by these telematics-based fleet management tools underpins better decision-making toward optimised routing and superior driver performance.

Many such solutions create opportunities for organisations to offer incentives to drivers based on performance scores or, in less desirable cases, receive alerts regarding poor driving habits.

Considering that fuel expenses account for between 20% and 26%<sup>5</sup> of fleet expenditure on average, combining the benefits gained from reduced engine idling, smoother driving styles with shorter routes that contain fewer gradients, and less congestion offers the prospect of significant fuel savings for fleets.

## Minimising Efficiency Losses

Limitations placed on the road freight industry from a regulatory, technological and business model perspective, mean that the industry remains highly inefficient. Frost & Sullivan research indicates that approximately 25% of the kilometres driven by trucks are totally empty.<sup>6</sup>



We monitor the driver—do they brake too early or too heavily and often, do they change gears at the right RPM? This is translated into a green-yellow-red light system to inform the driver about their right/wrong doings, and also allows us to understand where driver training is needed. The driver receives information about the economy of their driving behaviour while driving and can initiate corrections immediately.

—Austrian fleet with 820 vehicles

Furthermore, when transporting a load, they utilise only 55% of their capacity on average which suggests that they achieve an overall efficiency level of 40%. When considering that the total fleet of trucks is not utilised continuously, the overall asset efficiency drops to between 12% and 15% which has dire consequences for profitability.<sup>7</sup>

This is where digital freight brokerage has evolved as an innovative business model to help fleets tackle major inefficiencies. The aim of online freight brokerage is to reduce these inefficiencies by matching supply and demand on a real-time basis through better visibility of the supply chain. The extensive adoption of digital brokerage capabilities, combined with visibility, has the ability to raise efficiency to over 60% by reducing empty miles and improving utilisation.<sup>8</sup>

“ There are several new digital freight brokerage companies popping up on the continent with disruptive technology innovations and business models. Maybe we can leverage their expertise to build on our existing business model of connecting carriers, driver owners and customers with loads.

—USA Fleet with more than 10,000 vehicles

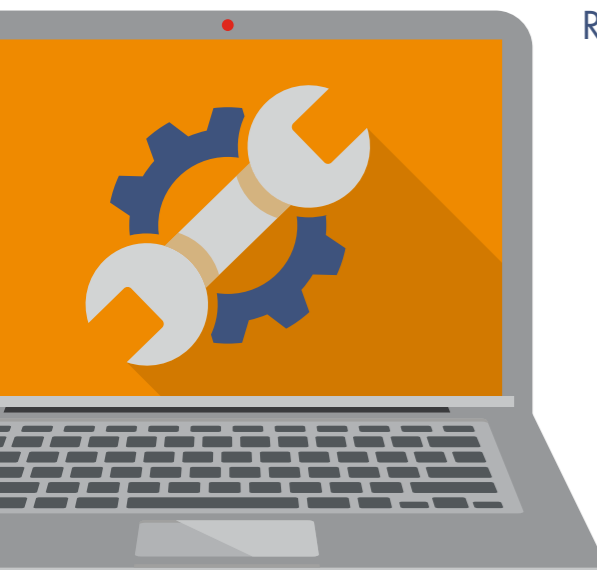
Supply chain visibility platforms that integrate transport management systems (TMS), resource systems, and order management systems are creating sophisticated data analytics that make information available to players throughout the supply chain.

These solutions have considerable potential to break down many of the barriers that subvert competitors in the logistics and road freight environment from working together to drive efficiency gains.

### Reducing Maintenance Costs

With maintenance costs representing between 6% and 11% of a fleet's operational expenditure on average, the application of artificial intelligence and machine learning has brought about a revolution in maintenance planning through prognostics, also known as predictive maintenance.<sup>9</sup>

Reverting from a purely reactive approach, prognostics measures duty-cycles and a myriad of data sets generated by the vehicle's on-board computerised maintenance management systems (CMMS) to develop more accurate maintenance scheduling and pre-empt failures to prevent roadside breakdowns.



In the short-term, we are focusing on investing in predictive diagnostics and fleet management solutions as they can add real value in keeping our tractors and trailers on the road as much as possible.

—American fleet with over 16,000 vehicles



Studies suggest that prognostics could reduce maintenance costs by up to 30% and breakdowns by up to 70% in fleets.<sup>10</sup> The benefit of using prognostics becomes all the more evident for carriers operating large fleets that require timely servicing.

### Automated Expense Management

Integrated digital payment and invoicing solutions that can automate tax reclaims, notably value-added tax (VAT) and excise duties, greatly improve back-office efficiency and accuracy. Automated payment and refund services enhance liquidity and cash flow by processing and paying out refunds within a matter of weeks.

From a payments standpoint, these services eliminate the complexity of managing payments to numerous vendors from ferry operators to tolling authorities and truck wash service providers.

From a tolling perspective, operators traveling throughout Europe are faced with the challenge of having to adopt numerous tolling payment devices. Solutions such as the Shell EETS Box enable payments to be made to all partner tolling authorities via one on-board tolling box.

Further capabilities mean that such integrated solutions will automate payments, invoicing, tax and duties reclaim, as well as documentation for:



Fuelling, truck  
and tank wash



Tolling  
charges



Parking



Booking ferry  
and train services



Breakdown  
assistance

## Mobile Device—Liability

Where professional drivers have been at fault, the company is held liable in the majority of cases. Although offering reduced levels of distraction, the use of hands-free devices does not exempt the company from incurring liability.



Long-distance driving can cause driver fatigue and bad driving behaviour, such as inattention, sleeping, smoking, and making phone calls.

—Chinese fleet with 21 vehicles

## Keeping Your Drivers Safe

The safety of drivers, vehicles, cargo and other road users is the number one priority of all fleet managers, globally. Looking beyond fatalities, the costs associated with injuries and the loss or repair of vehicles and cargo are substantial. Technology and road safety campaigns have improved safety; however, the growing number of vehicles and pedestrians on the world's roads continues to raise the risk of operating heavy vehicles.

Distractions and driver fatigue remain the primary causes of vehicle accidents, globally. Whereas up to 78% of all driver-related accidents are a consequence of distractions, fatigue is responsible for an estimated 20% of all road incidents.<sup>11</sup> Distractions and fatigue place greater demands on a driver and reduce his / her ability to control the vehicle in emergency situations.

To address this major safety concern, digital solutions and support services are evolving to reduce distraction and fatigue to keep the driver focused on the road. These may come within three forms, namely:

### PREVENTION

With mobile phones being a major source of distraction for drivers<sup>12</sup>, specialised applications actively block non-essential phone calls and notifications while on the move.

Testing has found that the use of these applications reduces accident rates and improves driver focus.

### MONITORING

In-vehicle video and driver fatigue aids reduce driver distractions and accidents. Sensors in the cab determine driver drowsiness, alertness and attention to the road; once activated, the driver receives voice and vibration alerts to regain focus.

### COACHING

Video footage offers managers full oversight of incidents and driver behaviour which can improve driver training.

Supporting these are maintaining driver health and wellness through exercise, healthy eating habits and a positive workplace culture.



By using a fleet management platform, the road accident rate has generally dropped and also reduced the cost of our insurance.

—Chinese fleet with approximately 2,000 vehicles

## TESTIMONIAL

Based in India and operating a fleet of 32 trucks, Laximinarayana of Nandi Warehousing Company was facing mounting difficulty to manage their growing fleet and expanding workforce. The company had also faced fuel pilferage and driver tracking challenges which they could not trace.

Partnering with Shell through the adoption of Shell Telematics has provided Laximinaryana's team with the ability to analyse the variations in fuel usage down to the last litre, their drivers' behaviour, most notably speeding or not following the correct route amongst many other capabilities. After only one month, the company has managed to cut losses by between 4% and 5% which have been converted into profits for the company.



I strongly recommend that all fleet owners should sign up for Shell Telematics.

—Nandi Warehousing Company



## TESTIMONIAL

Founded in the Czech Republic, CEE Logistics has grown in leaps and bounds over the past 10 years and currently operates 320 Vehicles with 450 supporting staff. CEE Logistics is part of multinational group MATTELI Group a.s. which operates a total of 1,200 vehicles of which 600 are its own.

Starting out, the company required a partner to support with payment solutions. CEE instantly began a close co-operation with Shell, whom supported with their Shell Card and tolling solution which provides full oversight of fuel expenses and vehicle use to name a few.

“For me, the main advantages of Shell’s toll services are the use of a single unit for several countries and the ease of installation.”

The EETS solution which provides broad coverage of the various tolling payment systems on the continent offers a single invoicing solution with itemised billing and instant payment in the currency of choice.



Shell’s high quality fuel means that we have no problems with our fuel systems, no clogged pistons or deposits in the injectors and can service our vehicles every 120,000km.

–CEE Logistics

## Staying Secure

Representing a growing problem, approximately 65% of fleet managers indicate that fraud is a problem for their businesses.<sup>13</sup> As criminals continue to invent new techniques to defraud transport operators and acquire cargo, digital solutions and law enforcement will continue to battle this activity.

Maintaining a tight hold on the security of vehicles and their cargo while having complete visibility into driver actions and expenditure helps managers to mitigate unforeseen costs, reduce the risk of cargo theft, and increase operational efficiencies.

With integrated payment control measures, digital fleet management tools enable full oversight of expenditure and expense patterns. For instance, implementing card payment restrictions on the type, time, value and volume of purchases prevents spiralling costs, while real-time fraud detection and the ability to block or unblock cards with the click of a button provide peace of mind to managers.

A further benefit is provided by fleet management solutions that enable fleet managers to pre-select fuelling stations that offer safe parking facilities, discounted prices on fuel and other benefits. Conversely, this creates limitations on which locations drivers may visit to improve safety and savings.

Geo-fencing used with vehicle tracking and navigation systems alerts managers when a vehicle enters a location outside of its set perimeter and helps to identify suspicious activity before a security breach occurs.

The installation of cameras in the vehicle provides further benefits. Video footage can assist in accurately deciding disputes and also has the potential to lower a fleet’s risk profile, thereby reducing insurance premiums which can constitute 10% or more of a fleet’s total expenditure.<sup>14</sup>

CARD PAYMENT SOLUTIONS HAVE EVOLVED TO OFFER THE FOLLOWING SECURITY BENEFITS:



Virtual cards  
for digital  
payment



Real-time  
fraud  
detection and  
full control



Enforced limits  
for fill-up  
frequency,  
value and  
volume



Alerts  
regarding  
account activity  
and blocking  
of cards



Support  
teams on  
standby



## The Upside of On-the-Road Services

On-the-road services play a critical role in the road haulage sector. Comfort and accessibility at an affordable price are critical to drivers and fleet managers alike. Challenges relating to the access of such facilities have been an ongoing problem in the industry with negative knock-on effects on safety, driver working conditions and fleet efficiency. The initial stages of the pandemic greatly exacerbated this problem by reducing driver access to necessary services and facilities while on the road.

A number of companies are working toward mitigating these challenges through investments and partnerships in both digital and non-digital solutions. Products that integrate online booking, payment and invoicing through online and mobile mediums offer seamless and hassle-free solutions that make life easier for managers and drivers.



Our drivers face difficulties in finding parking at designated rest stops and end up parking in unofficial and, often, dangerous locations.

—Austrian fleet with 820 vehicles

## Truck Parking

The availability of truck parking remains a problem, globally. The growing number of medium and heavy-duty vehicles on the roads increases the strain on existing parking infrastructure. Compounding this is heightened enforcement of driver hours, the effectiveness of which has improved with the use of digital tachometers. These challenges impact safety, fleet efficiency and time spent on sourcing parking. Online and mobile-based booking solutions assist drivers and managers to better plan and manage their parking to align with driver needs, routing and regulatory requirements. As an example, over 100 locations are available to Shell Card users in Europe through various partnerships.

## Truck and Tank Cleaning

Maintaining the cleanliness of trucks offers many unforeseen benefits, including the removal of chemicals used on icy roads. Removing these contaminants, along with general road related grime, reduces corrosion and improves visible inspections, thereby reducing the likelihood of failures. Furthermore, dirty trucks raise red flags for inspectors and present an unfavourable

picture of a company and its culture. A number of companies offer mobile and online truck and tank washing at roadside service stations. Many of these solutions integrate payment and invoicing for improved ease of use.

## Driver Services

Service areas with convenient rest and eating facilities that offer Wi-Fi and other driver-related services are critical for maintaining safety on the roads and helping carriers retain their drivers. Networks with reliable service stations that offer such driver services are constantly growing, with loyalty programmes providing further benefits and reducing the pressure placed on managers.

## AdBlue® Capabilities

Having reliable access to AdBlue® is important in reducing vehicle emissions. The electronic control unit (ECU) in modern diesel trucks automatically reduces vehicle output by approximately 30% when AdBlue® levels drop too low, thereby moderating CO<sub>2</sub> to within regulated levels.<sup>15</sup> AdBlue® pumps which are being introduced at truck focused service stations make for easier and quicker filling on the go.



We get attractive deals and offers from fuel providers in return for fuelling our fleet at their stations. It's a win-win for all of us.

—American fleet with over 16,000 vehicles



## The Path to Decarbonisation

The transition to a lower carbon energy system is both an individual and collective responsibility. In this regard, in interviews conducted with over 150 carriers, industry, businesses and organisations, 70% of respondents noted that road freight decarbonisation was their leading or a top three priority for their organisation.<sup>16</sup>

Globally, private and non-private sectors have established initiatives and regulatory objectives to achieve a sustainable and decarbonised future. Nevertheless, sizeable hurdles remain that must be overcome, many of which cannot be fully conceptualised and that, ultimately, create challenges for fleet managers. This section on sustainability will outline many of the changes ahead and aim to clarify the way forward.

Emissions regulations for medium and heavy-duty vehicles have lagged behind those for passenger vehicles; nonetheless, organisations around the world have begun to make strides in the adoption of up-to-date emissions requirements. According to the International Energy Agency, 30% of new heavy-duty vehicles were sold in markets not enforcing any form of emissions control on such vehicles, as of 2019.<sup>17</sup> This marks a significant improvement from the 50% level recorded three years prior in 2016.<sup>18</sup>



In the long-term we are focusing on investing in electric vehicle (EV) trucks to help us achieve our carbon neutral commitment.

—American fleet with over 16,000 vehicles

A host of innovations is facilitating the move toward carbon neutrality. Outstanding progress has been made in research and development into electric and hydrogen vehicles over the past decade, and represents an essential pillar in the drive to reduce road-going emissions. However, the lack of technology maturity and required charging and refuelling infrastructure means that their adoption will only be realised after 2023.<sup>19</sup> Energy companies are working collaboratively with vehicle manufacturers to develop the necessary charging infrastructure that will enable the EV revolution as early as this decade.

## Shell's Net-Zero Ambitions

**Shell has a target to become a net-zero emissions company by 2050 or earlier, in step with society.**

The company's new strategy supports the most ambitious goals set out under the Paris Agreement which are to limit the rise in average global warming to 1.5°Celsius.

Furthermore, it is striving to achieve a net-zero world, where society stops adding to the amount of greenhouse gases (GHGs) in the atmosphere.

To achieve this, Shell is working to offer its customers more lower-carbon products, from LNG, BioLNG and renewable electricity to hydrogen. Its aim is to reduce the carbon intensity of the energy products it sells by 30% by 2035 and by 65% by 2050 or earlier, compared with 2016, keeping in pace with society.

Shell's goal is to be net-zero on emissions generated by all its operations, as well as on emissions associated with the energy it needs to power them. The company's ambition is that any GHG emissions from making its products that cannot be avoided will be captured or offset using technology and nature.



Although progress is being made to offer longer-term solutions, to achieve a net-zero road freight sector, we need to act today. A number of solutions currently available can offer immediate carbon reductions for fleets.

Investment into advanced diesel and alternative fuels, along with their supply infrastructure, has expanded considerably within recent years. Alternative fuels offering emissions and, in some cases, cost per kilometre benefits include biofuels, LNG, BioLNG, CNG and GTL.

Developments in this space have seen a large uptick in associated infrastructure; according to the International Association for Natural Gas Vehicles, there are 33,383 natural gas fuelling stations worldwide.<sup>20</sup> Please refer to

the table below for a regional breakdown of these stations.

#### NATURAL GAS FUELLING STATIONS NETWORK\*, GLOBAL (2021)

Asia-Pacific	<b>20,275</b>
Europe	<b>5,194</b>
North America	<b>1,856</b>
Latin America	<b>5,848</b>
Africa	<b>210</b>

\*Includes: CNG, LNG & biomethane<sup>21</sup>

Considering the dominance of diesel powered vehicles on the roads today, managers should be aware of the CO<sub>2</sub> reductions and cost savings benefits achieved through the use of high-quality additivated fuels and lubricants.

## Shell's Commitment to LNG & BioLNG

In the short and medium term, Shell is expanding its LNG and BioLNG offerings to achieve immediate reductions in CO<sub>2</sub> and drive the shift toward a Net Zero economy.

Shell is also part of the BioLNG EuroNet consortium which has put 2,000 LNG trucks on the road, plans to build 39 LNG service stations across Europe and construct a BioLNG plant in the Netherlands, subsidised by the EU.

BioLNG offers further reductions in a fleet's carbon footprint by using organic waste as feedstock in the

production process. Our first plant in The Netherlands, which will be operational in June 2021 will produce enough BioLNG to enable 13 million kilometres of CO<sub>2</sub>-neutral transportation. By January 2023, Shell will offer carbon neutrality to 35 plus sites in Germany from the 100kt of BioLNG produced in the liquefaction plant that we are building in Cologne.

Growth in the use of LNG by our customers doubled in 2020; up to December 2020, 35,673 tons of CO<sub>2</sub> has been saved, equating to the emissions of driving 33.2 million kilometres in a HDV.

Poor quality diesel has been shown to halve injector life, while deposits that form as a result reduce vehicle efficiency by 2% and the load pulling power of the engine by 2.5% on average, thereby having a large impact on fuel consumption and CO<sub>2</sub> output.<sup>22</sup>

Looking beyond one's operations, a growing trend within decarbonisation efforts are nature-based CO<sub>2</sub> offsetting projects. These projects can take many forms; however, they generally purchase independently-verified carbon credits from international environmental restoration projects, thereby supporting initiatives which protect and restore natural ecosystems.

### Alternative Fuels and Their Benefits

#### BIOFUELS

- Blended with diesel
- Drop in solution for existing fleets
- Cost-effective approach to reducing emissions
- Potential to reduce CO<sub>2</sub> by up to 90%<sup>23</sup>

#### LIQUEFIED NATURAL GAS (LNG)

- Practical and economical fuel for reducing emissions in heavy-duty vehicles
- CO<sub>2</sub> reduction of up to 25% and 80% less NO<sub>x</sub><sup>24</sup>

#### COMPRESSED NATURAL GAS (CNG)

- Compressed methane gas; may be used in conjunction with diesel
- CO<sub>2</sub> reduction of up to 25%<sup>25</sup>

#### GAS-TO-LIQUIDS (GTL)

- Cleaner-burning and safer to handle alternative to diesel
- Drop in solution for existing fleets
- No sulphur and aromatics, readily biodegradable
- Reduced emissions of regulated pollutants such as NO<sub>x</sub>, PM, CO, HC's

## The Effect of Differentiated Fuel and Lubricant on Fuel Economy and Performance

In independent testing conducted by Automotive Testing Papenburg (ATP) in Germany, Shell FuelSave Diesel/Shell Diesel Extra with DYNAFLEX Technology, in combination with premium heavy duty lubricants Shell Rimula and Shell Spirax, achieved fuel economy savings of up to 8.9%, while engine load-pulling power was raised by 5.2% thanks to cleaner injectors.<sup>26</sup> The testing was conducted in real-world conditions covering 4,000km over 17 days against regular diesel and lubricants.

**USING DIFFERENTIATED FUELS CAN REALISE FUEL ECONOMY SAVINGS OF UP TO 8.9% WHILE RAISING ENGINE LOAD PULLING POWER BY 5.2%.**

## TESTIMONIAL

In recent years, like many companies in the logistics and haulage sector, HJF Transports has been facing the challenges of managing the operating cost of its truck fleet and reducing its carbon footprint.

To solve these challenges, HJF Transports decided on an investment strategy that would shift its fleet toward LNG-powered trucks, while partnering with Shell. So far, with 11 of its 30 vehicles operating on LNG, the company has benefitted from a CO<sub>2</sub> reduction of 20%. According to Antoine Fossoul, manager of HJF, LNG presents the most competitive alternative to diesel and is the optimum solution for road transport at present.



In 2018, we went to Shell Belgium, knowing that they are one of the largest and best-known natural gas suppliers in Belgium, and began a partnership using LNG for our trucks. It has been a true partnership and a WIN-WIN relationship: Shell takes into consideration the requests of its customers, our needs and the reality of our operations and business in the development process of new services.

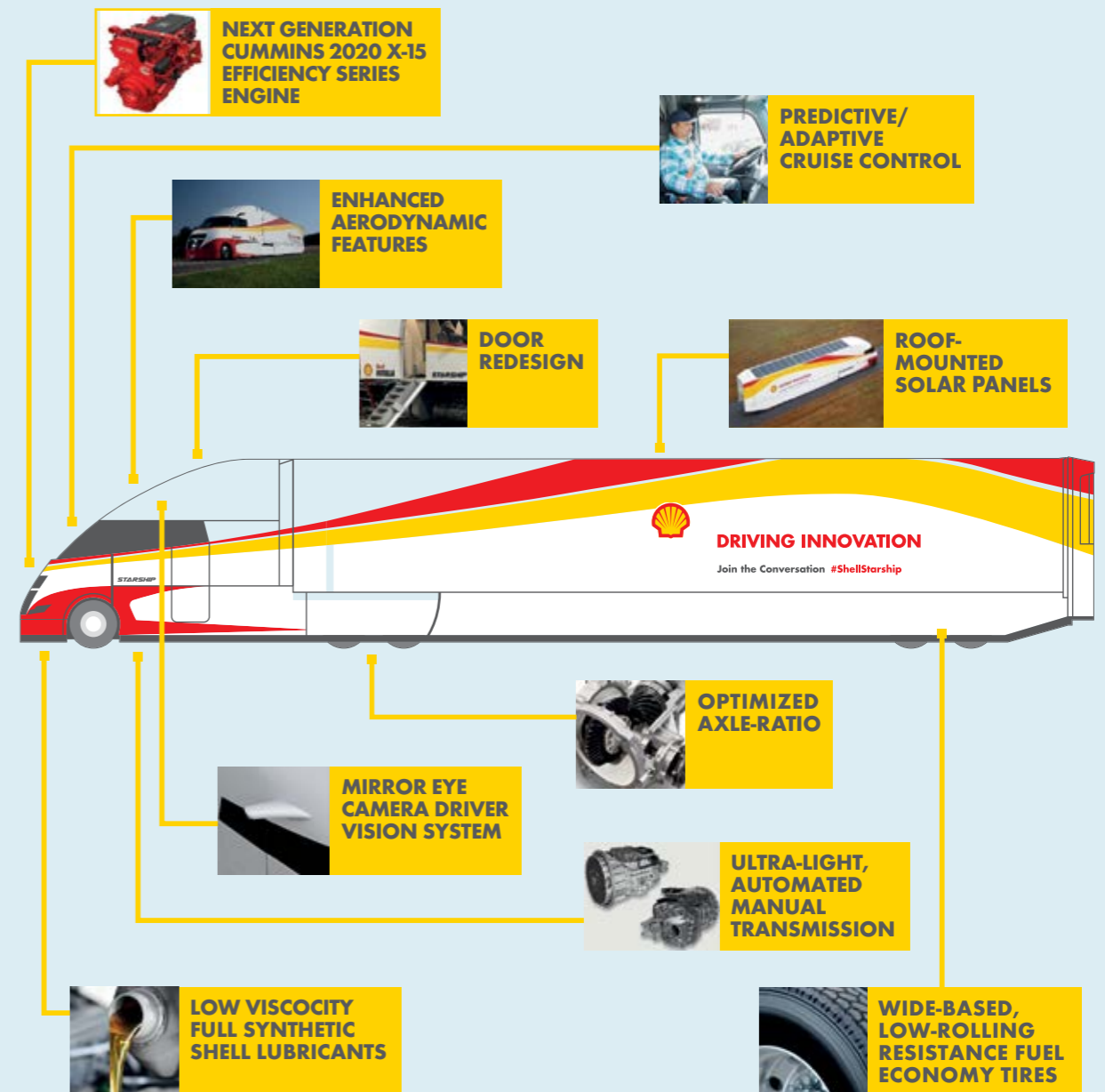
—HJF Transport

## Case Study: Reducing Emissions with Aerodynamics

In collaboration with the Airflow Truck Company, Shell set out to prove how utilising technologies available to fleets today can reduce fuel consumption and emissions in heavy-duty trucks. In testing conducted over more than 3,700 km in real-world conditions and varying terrains, the “Starship” averaged 26.3L/100km. In its “Run on Less”

project conducted by the North American Council for Freight Efficiency (NACFE), tests achieved average fuel consumption ratings of 23L/100km. These tests confirm that technologies currently available offer fuel consumption benefits of between 40% and 60% of US national road freight averages.<sup>27</sup>

### OPERATIONAL EFFICIENCIES ON SHELL STARSHIP 2.0



## Conclusion

The global road freight industry experienced a tumultuous year with fleets being forced to take a variety of measures to cut costs and seek alternative revenue streams. The impact of COVID-19 will endure; most notably, the positive aspects such as the enhanced digitalisation and flexibility that have now been embedded into companies.

Activity within the road freight sector in many markets has rebounded, with forecasts suggesting that growth will be restored in 2021. A number of global trends and disruptions, including environmental objectives and the rise of digitalisation in the road freight ecosystem, are having a dramatic impact on how fleets operate.


Above all else, the most important facet of recent developments has been the shift in mind-set. Placing sustainability and the decarbonisation of transport infrastructure at the core of current and future roadmaps is driving the adoption of digitalisation as well as alternative fuels and supporting technologies, ultimately improving efficiencies and the way business is conducted.

The supply chain digital solutions landscape is transforming at an unprecedented pace and will bring about significant value addition for customers throughout the next decade. Digital fleet management and telematics solutions have become indispensable to carriers, while payment, invoicing and refund solutions provide a broad array of capabilities that reduce costs and inefficiencies. Supply chain visibility,

machine learning and artificial intelligence will build on these capabilities, bringing about numerous benefits for fleets over the next decade.

Developments in powertrain technologies will advance progress toward a reduction in CO<sub>2</sub> emissions and arrival at an eventual net-zero carbon emissions industry. As these technologies mature, alternative electric powertrains will assist the industry in overcoming some of the major challenges discussed, namely, escalating fuel and maintenance costs. Although the focus remains on the exciting developments relating to electric powertrains, significant benefits from existing technologies are possible through the use of high-quality differentiated fuels and lubricants that bring about large TCO savings.

To achieve their aims, fleets will need to partner with organisations that understand their challenges and requirements. Shell Fleet Solutions, with the assistance of its partners and other stakeholders, is well placed to offer the necessary support to fleets to help them navigate the maze of challenges and opportunities. As a sustainable mobility services provider, they are the partner of choice for fleets seeking to advance their operational efficiencies and decarbonisation strategies now, and over the coming decades.



**IT'S CRITICAL THAT FLEETS  
WORK WITH PARTNERS TO  
IMPLEMENT SOLUTIONS  
WITHIN THE THREE KEY  
TRANSFORMATIONAL  
TRENDS TO HELP NAVIGATE  
THE ROADBLOCKS IN THE  
INDUSTRY AND SECURE  
LONG TERM SUCCESS.**

## Endnotes

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