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Foreword

Navigating customs key for SMEs

Effective supply chain management strategies are essential for the growth of small and medium-sized enterprises (SMEs) in sub-Saharan Africa. This includes finding the fastest and most efficient ways for enterprises to clear their goods with customs, and cutting down customs-related risks in the region.

This can, however, be unwieldy for those not in the know, and customer success stories have shown that companies engaging in trade in sub-Saharan Africa that partner with well-networked logistics companies tend to see swifter customs clearance.

The World Bank's 2016 Logistics Performance Index rates South Africa's efficiency at customs clearance among the top 20 countries in the world. However, many other jurisdictions in sub-Saharan Africa, including Kenya (42), Botswana (57), Tanzania (61), Nigeria (90) and Ethiopia (126), are ranking much lower.

Customs is an issue in sub-Saharan Africa. Not only is this due to a lack of effective infrastructure in many places, but customs rules in some countries have been known to change quite frequently. As a result, a company's supply chain can be significantly impacted.

In addition, businesses are also often forced to deal with tariff protection and high import duty costs in certain African countries, such as Chad (14.3%), Cameroon (14.6%) and Zimbabwe (14.6%) The challenges for businesses do not stop there. Corruption, bribery, service disruptions and poor controls in general all add to the problems that businesses run into when operating across borders.

With these in mind, business should not be discouraged from taking part in cross-border trade. Whether it is intra-African trade, or importing and exporting on the global market, sub-Saharan based businesses still have tremendous potential for growth. The key is to take necessary precautions, be prepared and devise resilient supply chain management strategies.

Companies should conduct annual risk assessments within the country's operations, including risks related to bribery and corruption. Due diligence screening of business partners, which includes the signature of the company's supplier code of conduct, is essential.

Businesses also need to put in place systems for incident management and reporting hotlines to detect and investigate suspected violations. Strict standard operating practices are pertinent for businesses that want to process shipments quickly and efficiently and in accordance with applicable international laws and regulations.

Often overlooked in terms of improving shipment efficiency is packaging. Appropriate packaging is one of the most critical aspects in protecting the contents of the shipment. Packaging suited to the contents will drastically lower probability of pilferage or accidental damages. At the end of the day, the main aim of packaging is to protect the integrity of the shipment and its contents.

Neutralizing packaging by removing all markings, such as company logo, serial numbers, or model details, have been shown to reduce the risk of theft too. Lastly, introduce a security tape, seal or strapping to deter pilferage and detect discrepancies.

John Lucas, Country Manager of DHL Express sub-Saharan Africa

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Ed's letter

Only the strong survive

Welcome to the final edition of Road Ahead for 2017. It has certainly been another volatile year for the greater logistics industry, with OEMs feeling the pinch of economic slowdown and sluggish sales volumes, while long haul companies struggle with rising operational costs and thin margins.

The news of an impending fuel price hike will not be welcomed be the carriers either, nor by citizens enjoying their well deserved summer holidays down at the coast.

The political fallout from our many controversies is also holding the economy and industry back, with foreign direct investment (FDI) taking a 'wait and see' approach until the dust has settled.

Having said that, if you drive down any of our national highways you will still see a plethora of long haul trucks delivering goods to the four corners of South Africa. Business is clearly still ticking along.

It is not all doom and gloom, with hopes of economic recovery after the elections and if we can have some fresh ideas in key leadership positions, the sky is the limit.

Speaking of limits, we have seen artificial intelligence (AI) taken to new levels in 2017, with talk of a fourth industrial revolution stealing the headlines, spreading fear in some sectors of the logistics industry, who fear losing their jobs to a robot.

Truck drivers will be wondering how much longer they will be needed, with autonomous driving being tested in Europe and the USA. But I don't think the driver will ever be replaced, by law. If you take planes, they have been largely flying themselves for years, but you still require a pilot.

Autonomous cars are still very naive in my opinion. When driving a top end luxury car the other day, I had it in active cruise control while following another car to a stop street. But the person in front decided to jump the red light, so my car followed. Some development is still needed.

But can a computer ever really think and reason for itself on the fly? I would say no. Humans are quite arrogant to believe that they can create something better than the creator.

All in all, the logistics sector is in need of a more stable 2018 and more economic growth to kickstart trucks sales and put more new rubber on the road.

Until next time, happy motoring

Gregory Simpson

Mercedes-Benz enters battle for budget commuter market

Mercedes-Benz Bus & Coach Southern Africa have introduced a value for money OF-1723 bus chassis to challenge the highly competitive commuter segment. Road Ahead had a front row seat for the unveiling.

Launched in tough economic times for both original equipment manufacturers and bus operators, the bus is designed to be fuel efficient and provide maximum uptime.

The bus considers the ergonomics of the driver and comes standard with power-assisted, tiltable and telescopic steering that enables easy manoeuvring. Driver fatigue is significantly reduced as the chassis offers a shorter turning circle and comfortable driving position.

Features such as the constant throttle valve engine brake and high boost pressure turbocharger further enhance fuel efficiency. All these characteristics have a direct impact on increasing the bus operator's profitability.

In addition, the chassis is equipped with an economical driveline and a steel suspension that is perfectly suited for southern African conditions. The offering only becomes more attractive, as it is driven by the proven Mercedes-Benz OM

Jasper Hafkamp

906LA engine platform. The unit offers high engine power of 175kW (235HP) and a maximum engine torque of 850Nm. I managed to take it for a spin in the car park at the launch, and it is easy to drive, with a great turning circle, plenty of power and most importantly, impressive brakes.

To find out more we caught up with Jasper Hafkamp, executive director of Daimler Trucks & Buses Southern Africa.

Are you settling into South Africa, almost a year in the country, what are your observations thus far?
Time is flying, it's almost a year in South Africa and I can tell you I'm really enjoying it at the moment, settling in with the family. It's a beautiful country from a private perspective and also from a business perspective. It's a very challenging market, both the truck market and the bus market is fairly competitive with other brands in South Africa, and the Japanese, the Indian and all the European brands so I'm really enjoying it.

"It will take some years before we are really entering the market with autonomous driving"

And this new bus we're seeing here entering the lower end of the market, is that an area you want to take advantage of?
Yes, let's say when I looked at the position of Mercedes Benz in the bus market in South Africa, we are very strong in the City Bus segment, but the commuter segment is quite an important segment of the market. We already have the 1726

in the commuter segment, but now introducing 1723 we have a very reliable bus, a very affordable bus so we are really conquering the commuter segment with this bus, and the organisation is behind it.

Who will be your key clients for this bus: schools and universities?
Exactly, it's all the people that commute, so our customers that commute from one city to another city or from school to the rugby field and that kind of thing, this is the ideal bus to do that kind of job.

In terms of fuel, are you looking at fuel alternatives in the future, some of your buses run on gas already?
Mercedes Benz is investing in new technology on the truck side and the bus side, we have our project case at the moment, and it is what we call our Future Bus, that's really about connecting buses autonomously. We are experimenting, we have pilots running around electrical buses we introduced in Jo'burg and the dual fuel buses, that's our gas and diesel, so yes we have all kinds already available and others we are working on.

What is some of the feedback from the autonomous tests in Europe, are they going well?
Of course you need the right legislation, because officially you're not allowed to drive without a driver, and that's not the purpose of autonomous driving. It's more that the driver is still there, but has some other responsibilities, for example, that the bus drives safely through the traffic. That's the beauty and advantage of this autonomous driving project, but it's still in the project phase, on

the one hand it's not science fiction, it's already there, but it will take some years before we are really entering the market with autonomous driving.

Would you say autonomous vehicles should have their own roads, or can humans and computers really share the same space?
They will share the same space, with digitalisation our world is changing so quickly at the moment, we will see the same in automotive. If I look to the future and I look at a lot of the future investments of Daimler Trucks & Buses, I see a lot of digitalisation and that's really our guidance for the future.

How have customers needs changed over the years?
Customers are changing and we have to adapt to that, and we have to provide them not only with the best bus, but also with the best services, like fleet board. We really support our customers in optimising fuel efficiency, optimising logistics, and that's the advantage of having this digitalisation available.

As the leader of many divisions, how do you get the most out of your staff?
You have to motivate them and it's about challenges – if you have challenges and you have success and you can motivate the people to give everything and to be creative and innovative in our market space, that's important. It is of course about the best products, but I always say it's at the end about the best people; they really make a difference in our market space.

Gregory Simpson

How mobile robots will transform material handling and logistics industries

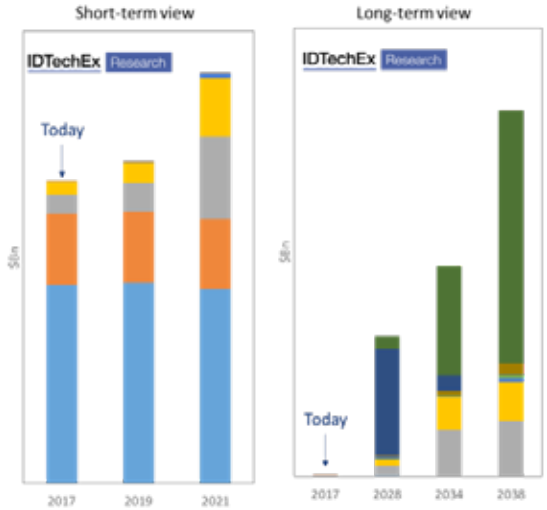
Mobile robotics in material handling and logistics will become a $75bn market by 2027. It will then more than double by 2038.

These staggering headline figures mask turbulent transformative changes underneath: some technologies will rise and transform the fortunes of industries, fuelling growth rates far outpacing recent trends, while others will be faced with decay and obsolescence. We are at the beginning of the beginning of transformative change, and the time to plan is now.

The IDTechEx Research Report Mobile Robots & Drones in Material Handling & Logistics 2017-2037 focuses on all aspects of mobile robotics in material handling and logistics. In particular, we consider the following: automated guided vehicles and carts (AGVs and AGCs); autonomous mobile vehicles and carts/units; mobile picking robots; last mile delivery ground robots (droids) and drones; and autonomous trucks and light delivery vans (level 4 and level 5 automation).

We provide technology roadmaps and 20-year market forecasts, in unit numbers and revenue, for all the technologies outlined above (11 forecast lines). We built a 20-year model because our technology roadmap suggested that these changes will take place over long timescales. We further provide investment/trend analysis and company interviews/profiles/reviews.

In the article below we will briefly highlight the major changes that our report anticipates.



The figures depicted in the graph show a short-term as well as a long-term view of the market evolution. Each colour refers to a different technology, demonstrating how the market composition will completely change in the coming years and how technology improvement (rise of autonomous mobile robots) will bring significant new revenue into the industries considered. We are at the beginning of the beginning of a transformative change, and the time to plan is now.

The figures include AGVs and AGCs; autonomous mobile vehicles and carts/units; mobile picking robots; last mile delivery ground robots (droids) and drones; and autonomous trucks and light delivery vans (level 4 and level 5). Note that the headline figure quoted in the graph is at the level of a completely autonomous vehicle. We also provide forecasts at the automation-only level where appropriate (e.g., autonomous trucks). For more information please refer to Mobile Robots & Drones in Material Handling & Logistics 2017-2037.

Incumbents face obsolescence?

AGVs are a mature technology that can safely transport payloads ranging from several kilograms to multiple tonnes, essentially acting as semi-rigid distributor conveyer belts covering large areas. Their navigation technology is evolving. Today multiple options are available ranging from low-cost wire or magnetic tape guidance to the increasingly popular laser guidance. All, however, follow rigid guide points and therefore require some degree of infrastructure modification and extended onsite installation. This industry is showing healthy, albeit small, grow rates.

This gives an illusion of security to this mature high-fragmented business where price competition is rising. The next generation of navigation technology – infrastructure-independent flexible autonomy – has the potential to shatter this illusion. This new technology, while appearing as the next natural step in navigation technology evolution, requires a complete change in the software side of the robots, opening up an opportunity for new challengers to enter and fully redraw the competitive landscape.

Our report Mobile Robots & Drones in Material Handling & Logistics 2017-2037 provides a detailed and quantitative (revenue and unit numbers) assessment, forecasting how sales of AGVs will grow then decline in the next 20 years. In addition, it will show how autonomous mobile robots (AMRs) will rise, not just largely replacing AGVs but in time diffusing beyond the structured confines of warehouses and factories.

Forklifts will never be the same?

Navigational autonomy will induce a colossal transfer of value from wage bills paid for human-provided driving services towards spend on autonomous industrial vehicles. This, in turn, will fuel the growth in this material handling vehicle industry (e.g. forklift), creating significant revenues over a business-as-usual scenario. This is despite our technology roadmap, which shows that

hardware commoditisation will slowly devalue such driving services particularly in high-wage regions.

AGVs barely made a dent in this industry. This is because their navigational rigidity put a low ceiling on their total market scope, keeping them as a small subset of the warehouse/factory automation business. Howver, AMRs are radically different because they will ultimately enable automation to largely keep the flexibility and versatility of human-operated vehicles.

Our technology roadmap in the report suggests that this change will not happen overnight, explaining why we have built 20-year forecast models where each phase of market evolution is justified. They will, however, take place much earlier than mobile autonomy in general driving because the structured and controlled environment of indoor industrial facilities lends itself better to automation.

Indeed, our model suggests that autonomous forklifts, for example, will remain a tiny share of the global addressable market until around 2023 but will soon after enter the rapid growth phase, causing a transformation of the industry and dramatically raising adoption levels to as high as 70% by 2038.

This trend may not yet be on the investor agenda of, for example, forklift suppliers but will inevitably rise up the agenda as a key feature of the industry for years to come. Read Mobile Robots & Drones in Material Handling & Logistics 2017-2037 for more details.

Mobile picking robots will learn, fast

Navigational autonomy will induce a colossal transfer of value from wage bills paid for human-provided driving services towards spend on autonomous industrial vehicles. This, in turn, will fuel the growth in this material handling vehicle industry (e.g., forklift), creating significant revenues over a business-as-usual scenario. This is despite our technology roadmap showing that hardware commoditisation will slowly devalue such driving services particularly in high-wage regions.

In our report we provide a forecast model showing how the mobile picking unit will evolve by going through different phases of performance (sub-human, approaching human, and potentially exceeding human) over a 20-year period for both regular and irregular/mixed shaped items. We provide forecasts in unit sales as well as revenue and include company overviews/interviews as well as technology analysis.

Disrupting the last mile delivery using mobile ground robots

Last mile delivery remains an expensive affair in the parcel delivery business, often representing more than half the total cost. Its importance is growing thanks to a change in the composition of total deliveries with B2C deliveries rapidly taking on a bigger share. E-commerce companies are also pushing next-day and now same-day services hoping to take away the last stronghold of bricks-and-mortar shops: instant customer fulfilment.

Autonomous mobile delivery robots are currently small slow-moving units that will need to return to base to charge. They often need close supervision and can only operate in sparsely-populated and highly-structured environments such as university campuses or special neighbourhoods. They are, therefore unproductive and easy to dismiss as gimmicks.

This is, however, only the beginning of the beginning. Our cost projections in the report suggest that these mobile robots can indeed become low-cost. The robots are now in the trial and learning phase, gathering more data and optimising the navigational algorithms. They will become increasingly more adept at path planning, even when GPS signals fail, and at object avoidance. The increased autonomous mobility capability will in turn enable a lower operator-to-fleet-size ratio, further boosting overall fleet productivity.

Our report also details a quantitative picture, in unit numbers as well as revenue, of the emergence of last mile delivery mobile robots over the coming two decades, clearly explaining the different phases of evolution from trial/early commercial sales toward rapid market penetration and finally maturity

and then revenue decline (our model shows that hardware commoditisation outpaces volume growth).

Delivery drones: publicity stunt or a game changer in instant fulfilment?

The idea of drone delivery sharply divides commentator opinion: some dismiss it as a mere publicity stunt while others consider it a game changer that will bring near instant product fulfilment to e-commerce, stripping traditional shops of their last major differentiator.

Drone delivery faces critical challenges. Individual drones offer limited productivity compared to a traditional means of delivery. They can only carry small payloads and battery technology limits their flight duration, constraining them to around a 30 minute radius from their base while further lowering their productivity due to the downtime needed for re-charging and re-loading. Safety is a potential showstopper with many accidents waiting to happen.

Drone delivery, however, is still in its infancy. Its short-term potential, we find, has been exaggerated. However, the technology has a long-term future, particularly within the context of the bigger trend to automate as much as of the logistic chain as possible.

Indeed, we find that delivery drone sales will remain limited until 2027/28. Demand will then start to take off in remote or sparsely-populated areas (e.g. suburbs), ultimately enabling companies to establish large accumulated fleets. Despite their ultimate rise, however, drone delivery will remain only a small part of the much bigger commercial drone story.

Trucking: a large attractive business to autonomise?

Trucking is a big business. In the US, the trucking industry revenues are in excess of $726bn. This is the equivalent of combined revenues of Apple, Amazon, Google, Microsoft, IBM, Baidu and then some (a lot) more. It is also a big employer: the US Bureau of Labour Statistics suggests that 1.79m people work in this sector driving 7.2m trucks for inter-city freight transport, earning an average salary of 41.3 k$/year. No wonder this is a hot topic!

Trucking is also potentially an easier target than general passenger cars. This is because trucks spend much of their time on intercity roads, which are less congested and less sinuous than city roads. The driver may remain in the vehicle, but the commercial inventive, even with this hybrid approach, exists because it may justify a relaxation of the rulebook which limits driving hours. This can therefore boost driver productivity and asset utilisation.

Dr Khasha Ghaffarzadeh, Research Director, IDTechEx

Are SA's key logistics assets working?

It is amazing how timing sometimes works. When I was asked to do this article, I hadn't travelled the borders north of SA for probably more than a year. Then came our annual holiday and we decided to visit Botswana and Zambia.

This ended up being extremely educational as I could, for the first time in more than a year, experience the challenges our transportation network users have to experience every day trading with our northern trade partners.

Just to wind back the clock a bit, we all know by now, that the transport sector has been highlighted by the South African government as a key contributor to South Africa's competitiveness in the global, and more in particular, the African markets, and the government has unveiled plans to spend billions of rands to improve the country's roads, railways and ports.

Major shipping lanes pass along the South African coastline in the south Atlantic and Indian oceans. Approximately 95% of the country's exports are conveyed by sea through our current eight commercial ports for trade between South Africa and its African partners as well as to and from Europe, Asia and the Americas.

The commercial ports are Richards Bay and Durban in KwaZulu-Natal; East London, Port Elizabeth and the Port of Ngqura in the Eastern Cape; and Mossel Bay, Cape Town and Saldanha in the Western Cape.

Port assests

The Port of Ngqura was completed in 2006. Developed off the coast of Port Elizabeth in the Eastern Cape, Ngqura is the deepest container terminal in Africa and is a key part of Coega, one of the country's strategic industrial development zones (IDZs).

Durban is Africa's busiest port and the largest container facility in southern Africa, while Richards Bay is the world's largest bulk coal terminal. Located between these two ports is the Dube Tradeport. Launched in March 2012, the port includes King Shaka International Airport.

The old Durban International Airport will be turned into a multibillion-rand dug-out port by Transnet. Expected to be ready by 2019, development plans include the creation of an automotive component supplier park around the port.

Rail potential

Now that we've had a brief look at the current situation regarding ports, I want to focus on the road network. South Africa's total road network is about 747 000km, the longest network of roads in any African country. SANRAL is responsible for the country's network of national roads, which covers around 16 200km. There are about 185 000km of provincial roads and the municipal network totals around 66 000km.

This is where the challenge starts: the bulk of our roads are the responsibility of provincial and municipal authorities to maintain and up-keep, and we are all too well aware of the challenges our local provincial and municipal structures face as far as corruption and funding go in terms of wasteful expenditure. This, I experienced first hand when we had to use the border post at Beitbridge Border Post, and further at the Kazungula

Border post between Botswana and Zambia—at both these border posts, my heart just went out to the kilometres of trucks queuing to get through and some of them spending days and even weeks to cross—completely unproductive and extremely costly.

Here is a thought—why can we not have free trade zones, making it easy for trucks to cross? I could probably just do this article on road transport as I am baffled as to why we are still struggling with the same challenges we had 20 years ago and in some instances, it is even worse as the volumes have increased—yet the infrastructure has just lagged behind. Unfortunately, I need to move onto our next mode, which is railway.

South Africa has the 14th longest rail network in the world. The country's rail infrastructure, which connects the ports with the rest of South Africa, represents about 80% of Africa's total rail network.

Improving the country's 20 247km rail network is a top government priority, with projects aiming to increase freight rail volumes and increase market share of container traffic.

Transnet Freight Rail is the largest railroad and heavy haulier in Southern Africa, with about 21 000km of rail network, of which about 1 500km are heavy haul lines. Just over 8 200km of the lines are electrified.

Infrastructure challenge

The challenge we are facing here, just like the road infrastructure challenge, is that we have allowed our rail network to deteriorate to the extent that the amount of money we need to spend to get it back up to standard is proving to be virtually impossible, and with the continuous challenges surrounding fraud and corruption, it is making this nearly impossible. Only time will tell if we will ever be the railway force we once were.

So what does the future hold? Well, this all depends on what happens in the next few months as far as our country's political climate is concerned. Although the government has, on a number of occasions, reiterated their commitment to infrastructural upgrades, what we need is a radical plan to upgrade roads and rail—these two specifically, as they are to a large extent, interdependent on one another.

If the rail network is not upgraded, then there is an increase of pressure on road infrastructure, and this is exactly what is happening. We just have to look at the number of trucks carrying a variety of products that could just as easily have used the railway network, if only that network was reliable.

Let us hope and trust that the government actually produces on the commitments they have made, otherwise we might be facing the dark ages as far as goods transportation via road and rail (I deliberately left ocean transport out as there are a number of land locked countries in Sub-Saharan Africa that solely rely on road and rail, and these are some of our closest trade partners).

Gerhard van Zyl, Group Operations Director at Professional Group of Companies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Taking trucking to the next level

Volvo Trucks continue to push the boundaries of where technology and trucking meet with their ever-advanced autonomous driving systems and telematics, which have saved fleet managers countless rands in the process.

One of the stars of Volvo South Africa's reign in the top two extra heavy manufacturers in South Africa is Theunis Eloff, the Commercial Aftermarket Director for Volvo Trucks Southern Africa. He is an individual focused on delivering transport solutions through customer engagement using a quality-minded approach.

After completing his studies in marketing he joined the automotive environment in 1999. During his 11-year journey with a well-known manufacturer he has seen several recognitions locally and internationally, mainly focused on efficiency and industry best practices. He joined the Volvo group in 2010 seeking more exposure in the logistics and supply chain arenas and focused on imports, exports and materials handling. During this time (2010 – 2015) he achieved great success leading the RMEA (Russia, Middle East, Africa) efficiency groups and was recognised for several best practices within this area of responsibility.

Today he is responsible for Aftermarket and Volvo's retail network and his biggest ambition is to drive retail excellence through securing uptime to the Volvo customer base and ultimately an overall reduction in the cost of ownership.

This has helped the company improve its position in the Scott Byers report. In the results revealed for quarter three, it is clear that the company is customercentric and so much more than transport providers. Rather they are business enablers with Volvo Trucks taking the top spot in sales, service and parts.

What are improvements in the transport industry that assist greater safety and efficiency in fleets?

Historically, safety on the roads was the sole responsibility of law enforcement. Rules and regulations were enforced through roadblocks and the issuing of fines. We have seen a change in this approach lately. One such example is the RTMS (Road Transport Management System). RTMS is a voluntary self-regulated scheme that encourages transport operators to implement a vehicle management system that preserves road infrastructure, improves road safety and increases the productivity of the logistics value chain.

With margins in the transport industry remaining low, a lot of the focus has shifted into optimising transport operations. This leads to a higher investment rate in vehicles as well as drivers and their training. Younger and more modern vehicles, along with better trained and equipped drivers, are crucial for the improvement of safety on the roads. Well trained drivers operate a vehicle in its optimal range, leading to an increase in the fleet's efficiency.

What R&D is going into the new technology – there must be a large amount of money going into developments?

We find ourselves in exiting times. There are a lot of developments within our sector. With the impact of global warming becoming

more and more visible, along with the depleting availability of fossil fuels, a lot of emphasis is being placed on alternative ways to propel vehicles. Hybrid vehicles, using both diesel and electricity for propulsion, are currently being tested in Europe. With the rapid pace of battery technology development the logical next step will be full electric vehicles. Volvo is also in the process of introducing vehicles that run on Liquefied Natural Gas (LNG). The new trucks have the same performance, drivability and fuel consumption as the diesel-powered models. These vehicles, however, have CO2 emissions that are 20-100 % lower compared to diesel, depending on choice of gas.

There is a lot of emphasis on self-driving vehicles (autonomous). Vehicles are already operating in mines without any drivers in Europe, and Volvo Trucks will introduce a fully autonomous vehicle in 2018 that will deliver new Volvo cars from the factory in Gothenburg to the harbour. This will be the first fully autonomous truck to operate on public roads.

We are also focusing a lot on uptime development and currently relying on customers to book vehicles into our workshops. There is a project underway, which will enable us to identify faults in the vehicle remotely, diagnose the fault, and call the vehicle in before failure. We are also aiming to take this a step further with remote programming, eliminating the need for the vehicle to visit a workshop for basic programming or even new software updates.

As trucks get more advanced, what mechanical skills are needed to maintain the vehicles?

Diesel engines have been the backbone of commercial vehicles for the past 80 years, and still have a role to play in the near future of commercial vehicles. We do find that technology around diesel engines is improving at a rapid rate. Understanding the basics of diesel engines is fundamental but no longer sufficient. Technicians need to be trained to support technology as well. Modern day vehicles rely on Electronic Control Units (ECU's) to operate. These Control Units require a higher skill level to maintain and update and there is a lot of focus on a technicians' abilities to work with and update these electronics. Basic computer literacy is now core for developing a modern day diesel technician. Vehicle diagnostics has also changed from trial and error to computer-based diagnostics.

As vehicle technology evolves, so do the tools to maintain them. Ensuring that workshops have all the state-of-the-art tools and that the technicians are trained in how to use them is of upmost importance these days.

New vehicle technology also requires additional competencies. Technicians have to be trained in the new safety packages available on our vehicles, as well as the calibration and maintenance of them.

Alternative fuels as well as full electric vehicles will bring new exciting challenge to our workshops. Gone will be the days of diesel technicians (mechanics) or auto-electricians (sparkies). Technical staff will need to adapt and be up-skilled as 'commercial vehicle specialists' and be able to service, maintain and repair any commercial vehicle irrespective of what is powering it.

As technology develops, how far are we away from autonomous truck driving and what are the challenges facing Africa?

Hopefully not far away! Up to 90% of road accidents are caused at least in part by human error. This intuitive claim is a fine place to start discussions about the safety potential of vehicle automation. We do, however, face a few realities that will limit the introduction of autonomous vehicles. Poor infrastructure is one of the main reasons. Not only are the road conditions not up to standard, but other factors can play a role as well.

Autonomous vehicles will rely on lane markings as well as road signs for guidance. If these are not up to standard or even in place, it will hugely limit the type of autonomous vehicle we will be able to accommodate on our roads. We already have vehicles that are on autonomous levels 1 & 2 (self braking, lane keeping, automatic distance keeping and accelerating), but we are limited to these levels with current infrastructure. We should still, however, keep pushing the envelope. A recent study showed that road accidents globally could be reduced by as much as 80% before 2040 with the effective introduction of vehicle autonomy.

Volvo has introduced a number of revolutionary and lifesaving technologies over the years. Here are a few:

- 1959 – Seatbelt
- 1960 – Safety cab
- 1969 – Accident research team
- 1996 – Front underrun protection system
- 2005 – Alcolock
- 2008 – Driver alert support
- 2012 – Collision warning with emergency brake

There is a lot of ongoing effort to add autonomous vehicles to the above list.

What has been the feedback from clients that have bought trucks with all the added extras?

We are receiving a lot of positive and exciting feedback. We have customers that have experienced first-hand the advantages of some of these features. A lot of them are now more comfortable when meeting with their insurance brokers as the risk of vehicle accidents has decreased with these new features. We have even seen customers changing their procurement policies, where from now onwards only vehicles with the full safety package will be procured. The same rules will apply to other operators that would wish to operate as a sublet for these companies.

Gregory Simpson

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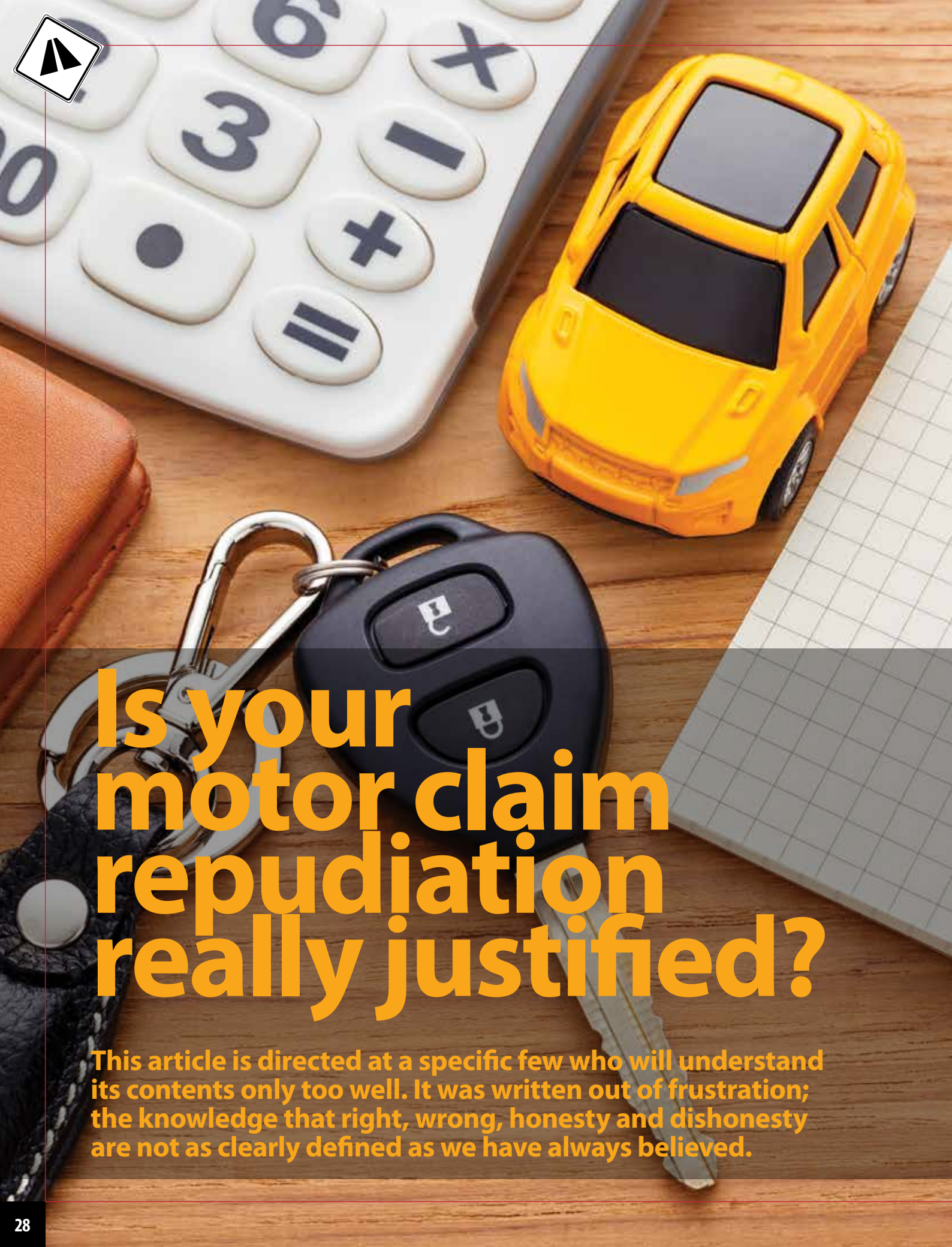
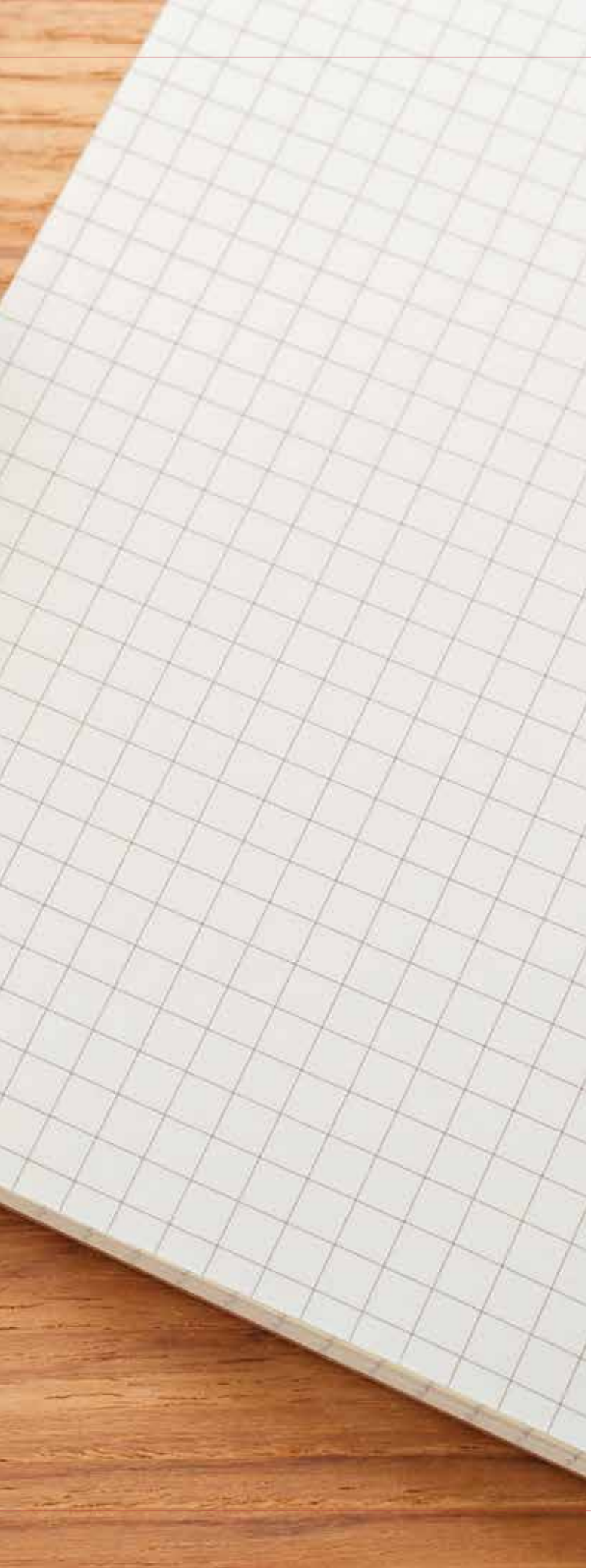


Is your motor claim repudiation really justified?

This article is directed at a specific few who will understand its contents only too well. It was written out of frustration; the knowledge that right, wrong, honesty and dishonesty are not as clearly defined as we have always believed.



It was written to educate the "victims" of unfair motor vehicle insurance claim repudiations; those the insurer repudiates because you "drive in excess of the speed limit, thus failing to take due care and reduce loss or damages".

With experience of more than 17 years, investigating, analysing, reconstructing and testifying in courts at all levels, Stan Bezuidenhout from IBF Investigations reports a trend: "I have been in the road traffic risk analysis and crash investigation and reconstruction industry for 17 years now. In this time, I have seen a tangible trend towards repudiation for ever-surprising reasons. Back in 2000 a repudiation came mostly in the form of extreme negligence or alcoholic intoxication.

"These days, people are approaching me with all manner of nothing less than horror stories about their repudiation experiences. In one case, my client had been asked to come in and talk to his insurance company about his motor accident claim after another driver drove into him. He willingly went, under the – sometimes misguided – belief that honesty and openness is the best policy. Upon arrival, he found himself subjected to an interrogation more akin to a trial than the friendly chat he was expecting. One of the questions he was asked, among many other, was whether he had had anything to drink on the night of the collision. In honestly, and believing in always telling the truth, he answered that he did have one beer much earlier in the evening. He was later mortified to learn that his claim had been repudiated because he admitted that he was under the influence of a drug – a clear policy violation. He was in material breech. His claim was never paid."

Stan felt his frustration and that of many similar clients to follow. The trend had started. It is this – the repudiation of motor insurance claims – that became the catalyst for Stan's contribution to this article. "I have suddenly – perhaps in the last year – been absolutely inundated with insurance claim repudiation matters – most based on speed, interestingly enough. People are contacting me as often as several times a week, asking me how I can help. Practically every one of them tell the same or a very similar story: They were involved in a collision, they submitted a claim, the insurer appointed someone to investigate and their report revealed that the client was driving at an excessive speed. The claim is therefore repudiated under the argument that the client failed to take due care and, in so doing, acted recklessly and/or negligently. This is considered material breach under the banner of the client's duties to prevent loss or risk."

What is one to do, when this happens? What if you know full well that you were not speeding? "In one case, the client's husband was involved in a collision with a BMW M6, during a very intense rain storm," Stan continues. The client reported to Stan that – when she called in to lodge her claim – she was told: "Oh wow. That is an expensive car. You must know that we will first investigate before the claim is paid." And so it happened.

There was an investigation done and an expert report was compiled. The claim was repudiated under those very arguments of speed and due care.

Now–when your insurance repudiates your claim, you have the right to approach the Ombudsman for Short-Term Insurance (the OSTI), as this client did. She submitted her complaint and the OSTI gave the insurer 30 days to react to the complaint.

The insurer reacted by providing the "expert report" of course. It included some investigative work in the form of some measurements and some photographs. It also included one mathematical speed calculation that "proved" that the client was driving at an excessive speed. The repudiation was based on this result. The client was informed that the claim would not be paid.

When the client received her reply from the OSTI, she was given seven days to reply. She was forced to find an expert who could investigate the case. She had to pay the expert, allow the expert to schedule the investigation, visit the scene, examine the vehicle, consider the evidence, review the expert report provided by the insurance company and compile a report with comments, within this restrictive time period. After anticipating challenges with this requirement, the client requested an extension to be able to address the report properly. She was granted two days. Nothing more.

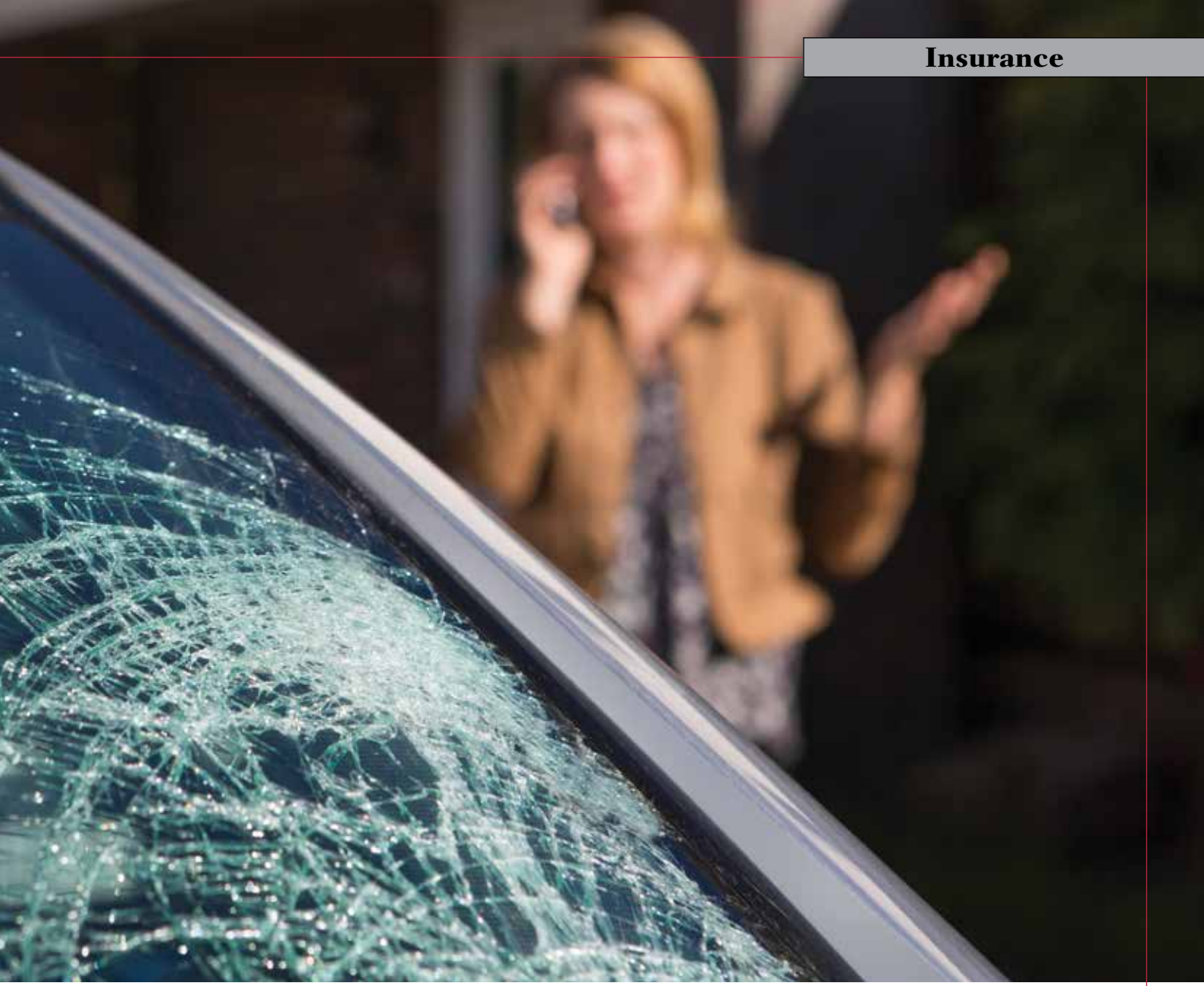
This is where Stan got involved. Stan noticed several irregularities in the insurer's expert report and immediately visited the scene and examined the vehicle, despite the time constraints. Because the insurer's expert report included no reference information, Stan compiled a list of questions that the insurer needed to get their expert to answer, before an answering report could be compiled for consideration by the OSTI.

When the list was sent to the insurer, the expert report was supplemented by a second report. This report was essentially an admission of errors in the first report, but still concluded that the driver was traveling at excessive speed. The original questions went un-answered though. A second list of questions was compiled and sent to the insurer, via the OSTI. To this, the insurer mistakenly included the client in an internal email wherein reference was made to a "connection" that could do a second report for the insurer. The "connection" was appointed and was to examine the vehicle as well, for the purpose of compiling a new report. After some weeks, this third report was received and again–there were more questions than answers and Stan immediately identified several irregularities and even what seemed to amount to fraudulent references in the "connection's" report.

When a new list of questions was sent to the OSTI and not satisfactorily answered, the OSTI declared the case "closed" and withdrew from the matter. The client's claim has still not been settled, although the reports remain unjustified, to this day. A new application is being prepared for re-submission to the OSTI, with Stan's complete and detailed report, to resolve this matter. The client is also considering legal action against the insurer and the experts that were called to investigate the collision.

In addition to this, as per OSTI rules, if the client sought legal representation at any time, and once a legal process has been started against the insurer, the OSTI would withdraw.

In another matter from 2014, another client drove her car in downtown Pretoria in a built-up area when – according to her–another vehicle encroached on her lane. She swerved to prevent a collision, left the road and collided with a wall. The insurer also appointed an expert who did a single-formula speed calculation and determined that the client was driving at an excessive speed. Same arguments, different case. In that case, the client sought legal assistance. The collision happened more than three years ago but the case has not yet been finalized in court. In the meantime, the client is left paying for the car that was written off, for another car that she is now driving, for insurance for that new car and for all the legal and expert fees while the case is regularly postponed. This has cost the client much more than the cost of the car already–all because of the insurer repudiating on the basis of a speed calculation.



But Stan has additional concerns: "What I am starting to see, from this flood of repudiation cases, is that the same experts are typically involved. They consistently determine excessive speeding and–whether the car left the road in a single vehicle collision, rolled over, went through a wall, up an embankment or through a fence, the same single formula is used in practically every case. This has gone so far that other experts in our industry started to discuss this concern with me and share my opinion: Speed is becoming the silver bullet of insurance motor claim repudiation."

Stan has personally received as many as two new repudiation cases per week and other experts claim to have as many as 50 cases on their desks–all done by the same experts, appointed by different insurers, all using the same single formula, all determining excessive speeding, all overlooking the same laws of physics, all failing to observe proper evidence collection protocols and all failing to refer to internationally accepted reference tables in favour of assumptions that are typically biased towards high speed determinations. A trend has developed, and Stan is very concerned about it.

"Look at this formula. I have gone as far as to put out a Twitter Post, telling people that–if you see this formula in an expert report–the chances are extremely high that the results are skewed against you or that the results are completely inaccurate."

$$vi = \sqrt{ve^2 - 2ad}$$

Stan has enough references available to justify this opinion. From his library of hundreds of books on crash investigation and physics, he refers to the formula and its value in the field of crash investigation.

He continues: "Look at this… This is the Accident Reconstruction Manual from Northwestern University; the

very institution that the experts I'm coming across claim to have received their training and qualifications from. Right here, on page 71, that formula appears amid what is described as Basic Motion Equations. The book continues to make it clear that use of only these 12 equations reduces the confusion that beginning students often have! This, in itself, explains why I have an issue with results coming from this one equation or others like it," says Stan. He is clearly irritated that someone who has received training that includes this manual would not actually read its contents and then simplify a set of calculations that should precede or follow the use of the formula.

"See, this formula is–like any other formula–subject to accurate input values. You cannot arbitrarily plug in any values that yield the results you seek. But, in order for you to understand what I am saying, you need to understand what the formula is designed to achieve and what assumptions should be made before the input values can be used. The formula is designed to yield an initial velocity, when the end velocity, distance and deceleration rates are known. Take note–known. Not assumed or guessed. We will consider each in turn, to ensure that you can follow carefully," says Stan.

Stan grabs a model car and starts to illustrate its motion. He explains as follows, while he moves it over a distance: "See this car? As it moves across this table, you will see that the car is moving in a straight line and the wheels are rolling freely. Although very minimal, there is resistance to forward motion. If I now lock the wheels–put some tape to lock one or even four – and push the car and let it go, it will come to a stop quickly because there is some braking action now.

"If I know the distance it travelled over, the speed at the end–which is zero if it comes to stop naturally–and the deceleration rate, considering how many wheels are prevented from rolling, or how much it resists movement through friction, I can calculate what its speed was when I let it go. That's the simple theory of what the formula is designed to do: It can give you the initial velocity, if the end velocity (which is zero, if the car comes to a stop), the distance over which it moved and the exact deceleration is known."

Now we have an idea of what Stan is saying. The initial speed of the car can be calculated, but only if we know exactly what the end speed is (for instance, if it stops, it will be zero), if we truly know how many wheels are locked and how much this will slow down the car and if we know the distance over which the car decelerated, right?

It is at this point that Stan lifts his finger and adds: "Ahhhh! But is it really that simple!?" Oh boy. Here it comes. We get flashbacks to school days when our teachers explained mathematics while we followed every word–understanding less and less, the longer they tried to teach us… We can almost smell the classroom again. But Stan does not disappoint.

It is at this stage that we can see Stan is committed to not becoming too technical and that he is a true master of his craft. This stuff excites him to the point of tangible passion. His ability to simplify and explain the dynamics that should be considered leaves us impressed. We're actually able to follow. OK, that's a first…

Stan continues: "Let's take one piece at a time, shall we? Let's look at the one thing that we could all easily agree to–that we should agree to: The distance over which the car moved (decelerated). See, the distance is measured along the path of motion of the vehicle. In order for us to agree on a distance, we should remember that we would likely not have been present when the collision happened. So, unlike me pushing a car on a desk, we will typically arrive on the scene and be left using clues to the distance over which the vehicle decelerated. The distance over which a car moved, while decelerating, cannot be determined without there being any clues. A good example would be skid marks. If we can see the skid marks left by a car–which was obviously decelerating, as it was braking–we can easily measure the distance from where the skid marks started to where they ended. You need to consider a bit more, like the wheelbase of the car and which wheels locked up, but let's keep it simple."

We agree to this. It is simple: Measure the length of skid marks. Check. But Stan is not done yet.

"Not so quickly there! A typical motor vehicle, for this example, has four wheels. If a driver applies his brakes, one of many conditions could be achieved: All four wheels might lock up, only the front or rear wheels might lock up or only one wheel might lock up. This might leave us with one, two, three or even four different tyre (skid) marks of differing length. Some might overlap on top of others as the rear wheels follow the front and others might lock and skid only for part of the total distance over which the vehicle moved (decelerated). If a vehicle is fitted with ABS or if the driver does not brake or only applies limited braking effort, there might not be any marks at all. A driver

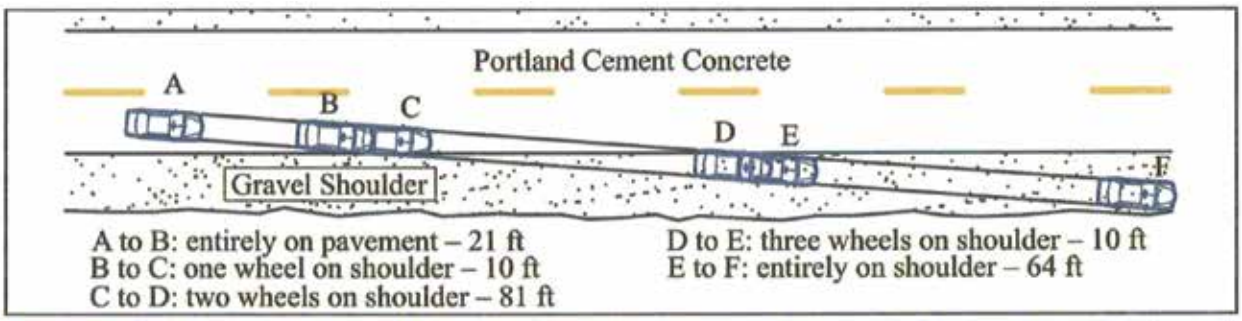


Exhibit 25. *This diagram of skid marks on two surfaces is used to illustrate a method of dividing the total distance into sections to estimate the initial speed more accurately.*

could also initially apply brakes and, while braking, see that he will not stop in time and apply more force, causing the wheels to lock up for only part of the distance over which the vehicle decelerated."

Oh crap. So the distance measured is not simply the distance over which the vehicle moved. Now we've got it, thanks. But again, Stan continues …

"But this is simple only if the vehicle skids to stop on a single surface. But what do you think happens when it skids over several surfaces? Let's say it leaves the road and goes onto gravel and then onto grass, as it is skidding? Is this still a single distance?"

Well of course. The vehicle "decelerated over a distance," so surely this is a single distance – not so? We're not so sure anymore…

"No. It is not. If we were trying to use the single formula I spoke of, perhaps then it would be a single distance, and I see expert reports where this is done all the time. But if we refer to the Northwestern Manual again, we will see that–on page 158 a specific example is used to illustrate exactly this. In that example the problem where a vehicle moves over different surfaces, as it decelerates, is discussed–considering just two surfaces. When it comes to speed determination, the distance is not measured as a single value but rather broken up into sections, depending on the movements of the vehicle. Because the one part of this formula will be deceleration, the deceleration of the vehicle will obviously be different from when all four tyres are sliding on tar, for when only one is on gravel or for when two are on grass, and so on. So–for this formula to be used properly, each relevant distance must be measured individually, using the *vehicle's centre of mass* as the point of reference. I see expert reports all the time, completely overlooking this aspect–this is why the formula is described as a *basic formula*. It is simply not that easy," continues Stan.

Ok. So when you want to calculate a vehicle's speed, the distance measurement cannot be just one value, if the car moves over different surfaces–there needs to be individual measurements for each section of movement? Stan confirms. We feel our IQ increasing as Stan continues…

"Next, we need to consider the so-called drag factor, *in order for us to calculate the deceleration*. The same manual explains that the term drag factor will not be found in typical engineering mechanics or physics books. It has been used for many years in traffic collision investigation/reconstruction. Drag factor is defined as the force required for acceleration (or deceleration) in the direction of the acceleration (or deceleration) divided by the object's (vehicle's) weight. In short–how much of the weight of the vehicle is needed to move it across a specific surface. If a car weighs 1 000 Kg and it takes 800 Kg to drag it across a surface, the drag factor can be described as 1 000/800 or 0.8. So basically 80% of that car's weight is needed to move it (drag it) across the surface. If we want to use the term deceleration–which is what is needed in the formula under consideration–we first have to determine the proper drag factor for a particular surface and, from that, calculate the *deceleration* rate."

Oh. Ok. So the drag factor is 0.8. That makes sense. Can we calculate speed now? Again–we think we have it figured out: If you know the distance and the drag factor–which will be 0.8, you're set! But Stan has more to say…

"Ahh! But again–it is not that simple. In order for us to determine the deceleration value to use in the formula, we need to accurately determine the drag factor. This is where we find most expert reports lack the most. They grab a single value of (say) 0.8 and calculate the deceleration value, based on this. But now we need to be very careful: This is where even seasoned experts get it wrong almost all the time. Let's go back to the car. If we locked all the wheels and pushed it across the surface, we would feel that it is harder to push than when the wheels were rolling. If we then lock only three, two or one wheel, we will feel that it becomes easier and easier to push. If we pushed it on glass, wood, sandpaper or rubber, we would also find that the force required to push the car varies."

Ok–that makes sense. It is totally obvious, we state with a snort. Obviously, the car is sliding with more difficulty on rubber than on glass–glass is smoother! We've got it now!

Stan continues: "Then why, do you think, would people who purport to be experts in crash reconstruction still use a single drag factor–converted to a deceleration rate–when a car moves over

several surfaces and while they have no evidence to determine whether one, two, three or all four wheels were locked or free rolling? I know the answer: Every consideration you make that reduces the total braking result, will lower the calculated speed. If you considered the evidence properly, you would admit that no evidence means no braking–so the lowest possible values. If you then used a drag factor of 0.8 for a car that moved over wet tar, onto gravel and onto wet grass without considering the number of wheels actually skidding, you would get a much higher speed result than if you considered each surface individually and admitted that you have no idea whether all four wheels were in a locked (maximum braking) state, or not."

So is Stan saying that a single distance cannot be used when a car skids over different surfaces or for when you cannot say how many wheels were locked? "Exactly," Stan replies. He seems to be very impressed that we understand now. But there's more, it seems, and Stan carries on…

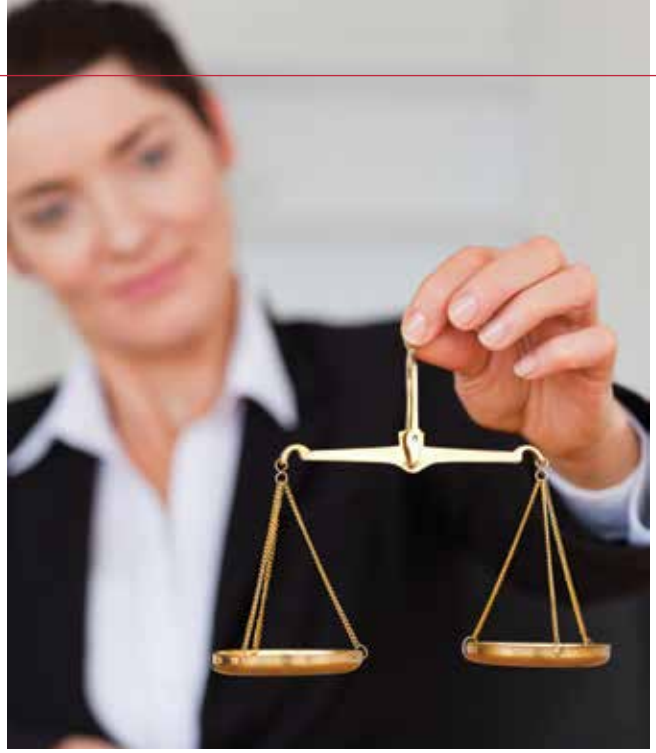
"You see–the so-called drag factor is not only different for different surfaces; it is also different for wet versus dry surfaces. In the case of asphalt, it can even vary from newly laid (sharp) to traffic polished or even tar exposed. It also varies, based on the speed of an actual vehicle. When a vehicle is traveling at 30 km/h and brakes, the drag factor is actually higher than if it is traveling at 100 Km/h and brakes. Because road surface conditions can vary over time, such as when the road is wet versus dry, when there is loose sand on the road or not, or when the direction of movement changes, a single value cannot be used at all unless you are present on the day of the collision, immediately after, and conduct a series of tests on the road, in the same direction in which the vehicle was moving.

"The Society of Automotive Engineers released a paper, referenced as SAE 830621, that covers the many conditions and variables that should be considered before the analysis of collisions where drag factors feature. The paper specifically describes each surface type that most investigators will come across, under a variety of conditions and at different speeds and even considers the types of vehicles involved–but it uses a range of values and not a single value for each. Whenever at-scene testing is not done, you will be presented with a range of possible values to use, to ensure that any error or specific deviation is included and for you to produce accurate results. Considering all this, it means that the speed determination, using this single formula under discussion–if you insist on using it–should satisfy a specific set of criteria, before any results can be trusted."

- The total distance over which the vehicle moves must be determined accurately–visible tyre mark evidence from beginning to end.
- The vehicle should skid over only one surface, from beginning to end.
- The vehicle should slide to a stop, on that one surface, without striking anything or sustaining any serious damage.
- The marks used to measure the distance must be proven–perhaps by tyre or track measurements–to be from the vehicle under consideration.
- The drag factor for the surface should be determined through testing, or a range of values should be used (normally two values), with reference to research papers and not estimated (as is typically done) to be as high as possible.

Stan adds: "In any case, where any of the following occurs, the formula cannot be used in isolation and should be supplemented by a series of additional calculations, for a variety of different surfaces, dynamics or damages."

- If the vehicle moves over multiple surfaces.



- If the vehicle collides with anything else, or does not come to a stop naturally.
- If there is not clearly visible evidence of the movement of the vehicle, along the full distance being considered.
- If the vehicle is not moving in a straight line, such as when it is in yaw (spinning out of control) or rolling over.
- If there is no way to determine exactly what a driver was doing, such as braking versus accelerating or doing nothing.
- If tyre marks cannot be conclusively linked to the vehicle involved or to even the specific wheel or wheels of the vehicle.

"I have seen the single formula method used so many times in cases–almost all cases–where the dynamics are simply too complex for such simplification. One cannot take a complex dynamics event, such as when a vehicle rolls over, skids over multiple surfaces or where there are other vehicles or fixed objects involved and simply calculate speed from this one formula. If your collision involves any of the complex dynamics mentioned but the report still only includes this one simple formula, you can be assured that the method used is incompatible with the model and results will likely be skewed and–more often than not–against you."

So, we wanted to know from Stan what you could do if your vehicle accident claim was repudiated because of a finding that you were speeding excessively and therefore not taking due care or taking steps to avoid or minimise risk. Stan had some handy advice ready:

"Consider your options carefully. If you make use of the OSTI, be sure to request a copy of the full report used to determine your speed. In this case, keep in mind that you might have to enroll the services of an opposing expert–history shows that the OSTI will not accept you as an expert in your own case. It is always ideal to have your expert assist you with the preparation of your OSTI submission. Once the submission is made, the insurer will have 30 days to respond. When you receive the response and an expert report is included, you will not be able to go much further without appointing your own expert. This route will cost you money for the expert, but the process through the OSTI is typically over within a month or two, their final word holds water and your claim is settled or a reply received reasonably quickly. After this, if you are still not happy, you can always pursue the legal route.

"If you want to go the legal route immediately, you will have to hire lawyers or even advocates, most of the time you will need to pay them in advance, you are required to prove your case–the insurer typically doesn't have to prove anything–it could take up to two years to get a court date and, if you lose, you might end up having to foot the bill for the insurer's lawyers as well," adds Stan.

He also adds the following advice: "In any case where there is any indication of tension–whether the case has been repudiated yet or not, consider appointing your own expert immediately to visit the scene to gather evidence, photographs and measurements and to examine your vehicle before any evidence is lost. If your insurer repudiates only after six months of arguments–sometimes more–you will be left with only the evidence they have, to prove your case. While it is true that it will cost you some money to hire your own expert, you should be aware that not having the best evidence puts you at an immediate disadvantage when they refer your case to either the OSTI or start a civil claim. In a perfect world, you should consider getting at least an accident training manual to ensure that you can gather the most important evidence after your accident or consider basic accident investigation training–before you need it. Considering the cost savings you could enjoy by doing this, it is a small price to pay, when compared to the cost of an insurance repudiation or a lengthy trial."

Where there is any indication of tension – whether the case has been repudiated yet or not, consider appointing your own expert

Stan Bezuidenhout regularly assists clients with insurance repudiations based on expert reports. He can assist with the preparation for OSTI submissions and can testify in court, on your behalf, if it goes that far.

Stan can be reached via www.ibfsa.com.

Partnering with transport providers to enable strategic objectives

Transportation as an element of logistics refers to the mode of the vehicle in which a product or person moves from point A to point B. From a logistics point of view, transport is the science of moving goods to the right place, at the right time, at the right cost. If transportation is merely the mode in which products move, is there any value in viewing it as a strategic driver of business? We think so.

The transportation of goods is the lifeblood of the modern economy. Transportation, and the management thereof, when viewed as a strategic driver of competitive advantage allows an organisation to drive efficiency, control cash flow, improve visibility and customer satisfaction. Fundamentally, organisation's transport strategy, and indeed greater supply chain strategy, should reflect their promise to their consumers. For example, if the customer promise includes a guarantee of delivery date, a transportation strategy that values speed over cost should be considered.

"A Smart Transporter can enable various strategic objectives through collaboration with a client; from expansion into new markets through to supporting financial goals," explains Blake Ferguson, Chief Operations Officer at Barloworld Logistics Transport Division. "By partnering with the right outsourced partner client's benefit from economies of scale, existing infrastructure and expert capabilities that can potentially unlock opportunism in previous untapped areas of a business."

Often a warehouse and the inventory therein are referred to as the greatest waste of money in a supply chain. That may be true, but the ability to provide customers with product on demand is created through the availability of stock at the right time. If warehousing is costly, the objective then becomes to optimise this part of the supply chain. A relatively straightforward solution to an overstocked, expensive warehouse is efficient transport management. For example, when transport management is strategic, manufacturers can implement JIT (just-in-time) procurement, relying on their transporter to ensure that raw material is available to production lines on demand. The more reliable the transportation of goods, and the closer the working relationship between demand planner and transporter, the less inventory needed on-hand at any given time.

Leveraging data for smart Decision-Making

A single source of transportation data provides substantial business intelligence. The ability to review key freight trends according to the destination, particular product or type of order can provide significant input into critical

pricing decisions. Such a level of data is only possible with a consolidated view of shipping patterns. Furthermore, data-driven transportation requires that the correct metrics are used to measure the success of the distribution network at any given point. A partnership between client and transporter allows for the shared understanding of strategic objectives, and the creation, and adherence to, metrics that matter in regard to the pursuit of competitive advantage.

It's the combination of people, technology, and processes that create alignment and unlocks value over time. Alignment is only possible through partnership. Typically, strategic reviews occur once every three to five years within organisations, but in today's dynamic business landscape, supply chain and transportation are required to adapt much more regularly. Close working relationships with your transporter allow for minor tweaks, or major shifts in operations to be implemented relatively quickly, enabling organisations to capitalise on new opportunities or enter new markets rapidly, thus gaining competitive advantage.

"Clients no longer just want their product to be moved, they want to be involved in the process with real-time visibility," says Ferguson. "We now receive massive amounts of data from our fleets, and we are able to interpret and analyse that data to provide critical business intelligence and insights to our customers in real time. This allows them to create smarter business strategies that ultimately unlock opportunities to enhance profits and drive growth."

Blake Ferguson, Chief Operating Officer at Barloworld Transport

Driving a sustainable future

With environmental regulations and standards becoming increasingly stringent, there is additional pressure on companies and manufacturers to monitor and improve their carbon footprints. Arguably, the transportation leg of a supply chain is the single greatest source of carbon emissions with the process. Smart transport partnerships can lead to fewer vehicles on the road, ultimately driving down the holistic carbon footprint of the entire industry.

According to Ferguson, amongst other, optimising the payload of each vehicle can effectively decrease the net carbon emissions created per trip.

"As a strategic transport partner, we have a mandate to create sustainable business processes, both internally, and for our clients," he says. "Increasingly, companies are partnering with us to find solutions that satisfy their strategic objectives when it comes to sustainable business practices in the short and long-term."

Beyond the mere movement of goods, transportation can play a unique and strategic role in extracting value from a supply chain. It is not only about moving goods from point A to point B–it's about inventory management, cost control, data-driven decisions, sustainability and brand promise. Adopting a partnership view to the selection of a provider moves the service from the tactical to the strategic thereby bolstering competitive advantage.

Yellow metal theft: A gold mine industry

With the increase in illegal mining operations, the need for mining equipment grows. Now what thief will legally go and rent some equipment and put it to work? Only the dumb ones.

Over the past couple of years the need for mining equipment for illegal mining operations has risen by nearly 60%. This leaves the yellow metals industry wide open for abuse. Plant hire companies are being ripped off daily. An example of this was a Johannesburg plant hire company that hired out four excavators to an individual. All seemed above board until the return date was reached and the plant hire company tried to contact the individual who had hired the equipment. A tracking company was contacted and ground crew dispatched.

The excavators were last seen in the Limpopo province near Polokwane heading south to Burgersfort. This didn't seem strange at all. The tracking unit was live but battling to transmit a signal back to the tracking base due to the lack of cell phone coverage in the area. The ground crew managed to track down the excavators abandoned in an open field about an hour after they were reported to have been "stolen". What came next was a huge shock to the ground crew and the owner of the excavators.

As required by law, the tracking company informed the South African Police Service of the incident and they dispatched a vehicle to the scene. While the ground crew waited they noticed that there were about seven other excavators on the scene and went to have a look at what was going on. Benefit of the doubt was given and they checked the VIN numbers on a database of stolen excavators. Lo and behold they were also sought by the police. Things started to heat up. The ground crew had literally stumbled across a gold mine. They had recovered the excavators on an illegal mining site. The police arrived and suddenly the area was over crowded with officials and law enforcers.

Far too often I see reports of vehicles, trucks and yellow metal plants being stolen and the tracking devices taken out. Ground crew recovery teams regularly find tracking units at the last

known locations. This is very concerning to the heavy transport and plant hire community. There is only one logical reason why this happens. The thieves are getting more proficient at their jobs, which means that plant and truck owners need to be more proficient at ensuring plant safety.

How do you do this? Well you can put a tracking unit into your plant, truck or motor vehicle? But this alone isn't enough anymore. Secondary measures need to be taken to ensure that you are covered.

Many tracking companies have a secondary device that can be placed in the asset to ensure that it will be recovered. I explored two of these companies tracking units and secondary devices to see what was the best and two recovery teams employed by tracking companies to see what they got up to.

This is what I came up with:

A GPS tracking device is just a dot on the map that tells you how fast you are going and where you went to. A secondary device like a radio frequency (RF) device can seldom give you a pinpoint of where it is, but can be hidden to ensure that when your tracking company is looking for your plant they are going to find it.

Two companies offer this solution and were willing to share what they do to ensure they get their clients assets back.

One company is Intellidrive Vehicle tracking, which is based in Gauteng. They have a really nifty little GPS unit that is their fleet management unit. They also offer their clients a secondary device, which is an independent unit that does not rely on the vehicles power and has a battery life of 5 years in dormant mode. Recovery rate if installed properly is almost guaranteed. I say almost because no tracking company can boast a definitive 100% recovery rate.

EWCOP is the other company, they too are based out of

Gauteng and also have a fantastic fleet management unit with a secondary RF unit. Same as above, only works if installed properly. They also offer some sort of secondary unit. Always insist that your tracking company provide you with a secondary back-up unit for your high-risk plant.

Recovery

Most tracking companies provide an in-house recovery service with in-house ground crews, control rooms, etc. Other companies cut costs by employing external contractors to assist with the recoveries. They both have their pro's and cons but they are both effective in their own right. The effectiveness of a ground crew is always dependant on their information and resources. If the tracking unit is removed or jammed there is not much they can do to recover the asset.

Identification is the next big tool we need to cover. Visually you can describe the plant by name and give a basic description. But if there are seven identical pieces of plant on the scene, how do you know what is what. There is always microdot identification, but with the numerous vendors for microdots who do you go with. I would always suggest doing your homework and looking at who has the best standing. I noticed that 90% of VW's are microdotted by a company called Recoveri microdots. Needless to say I looked into the company and I was astonished to find out that the CEO was also heavily involved in combating vehicle crime through the international association of automobile theft investigators. Recoveri provide identification tools to law enforcement to assist them in quickly being able to identify the plant or asset when recovered. This is definitely something to look at when purchasing your next heavy transport item or yellow metals plant. More about this in the next article.

Although we can take every precaution to ensure that we have the right tracking devices and safety measures in place, we always have to be ahead of the eight ball. Everything from cargo to movable assets, cars trucks and yellow metal plant are easy targets for the criminal element. That's why, as asset owners, you have to consider all options when tracking your vehicle.

GPS tracking units are good to have and are a must in the current economic climate that is South Africa, but we need to remember that getting your vehicles back should be your first priority. Getting the right tracking company to work for your assets, ensuring that you have a secondary device and that there is national coverage from your recovery company. The above combination, along with a good microdotting solution, will cover your assets nicely.

Tony Dobson, security specialist

Hyundai Tucson 1.6 TGDI Elite Sport AWD

Stunning aggressive good looks are the first thing that greet you when you see the all new Hyundai Tucson 1.6 TGDI Elite Sport AWD.

This full size SUV has special body treatment, imported from Korea, with the front, rear and side skirts setting the tone, while the 19 inch black alloy wheels, designed with the help of Tiger Wheel and Tyre, add to the look. The 4 chrome exhaust pipes are part of an exciting package. These not only improve the look, but announce with a growl that this boy means business.

The 1.6 turbocharged petrol engine delivers an awesome 150kw of power with 295 Nm of torque, which is transferred to the road through a dual clutch transmission and an AWD system. Although a large SUV, the Tucson accelerates comfortably through the gears and to cruising speed with ease even when fully loaded. Driving the Tucson is an absolute pleasure with more than enough power and a slick automatic gearbox with the option of automatic or manual allows the driver to instantly swop from one to the other, depending on road requirements

A whole host of features greet the driver including electronically adjustable leather seats, multifunction controls at the touch of a button on the steering wheel, and an 8-inch infotainment system, with satellite navigation. Bluetooth is also standard and a CD player with a USB and Aux music input ensures the passengers are always entertained. A reverse park-assist camera ensures accurate and safe parking even in the tightest of situations. The rear parking image appears on the corner of the rear view mirror as soon as reverse is selected.

The cavernous interior has plenty of space for passengers and luggage making this a first choice for family weekend travellers or mom's taxi during the week. The whole family

and friends along with sports kit can easily be accommodated. The luggage compartment is absolutely huge with more than enough space for any occasion. On the open road the Tucson really comes into its own. Power, comfort and plenty of space ensure a comfortable and save journey. The high-ride height of the Tucson contributes to a feeling of being in control and provides the driver and passengers with a clear field of vision. Other standard features include cruise control, rain sensors for the automatic windscreen wipers as well as automatic lights. A unique feature is the cornering lights that automatically switch on when turning a corner allowing safe turning.

The Tucson is also filled with a whole host of safety features including electronic stability control and ABS, which ensure the brakes do not lock when applied in an emergency. Electronic brake distribution is also standard. A full suite of airbags also ensures the driver and passengers will be protected in an accident. The Tucson was awarded the EuroNCAP 5-star rating for safety.

The recommended retail price of the Tucson 1.6 TGDI Elite Sport AWD is R599 900. This includes Hyundai's industry leading 7year/200 000km warranty and 5-year or 150 000km road assistance. The Tucson also comes with a 5-year/90 000 km service plan, with service intervals of 15 000km.

All in all a superb SUV suited to the discerning owner who wants a little more than normal for his or her family's motoring needs.

John Elford

Hydraulic hybrids

Left: The pilot MISER installation was tested on this International truck.
Above: Ducere Holdings director of technology and engineering Norman Grant and managing director André Reyneke.

The future of TRANSPORT

The owners of Ducere Holdings, a green-energy start-up, believe that they have the technology that will change the way the world looks at transport for ever.

The revolutionary MISER hydraulic hybrid transmission technology is a new approach to kinetic energy recovery and storage, resulting in engine optimisation – and the technology allows for reapplication for any form of vehicle.

"Our current project, the MISER Hybrid Kinetic Energy Recovery System (MISER-HKS), keeps us involved at the forefront of today's automotive hybrid technology and that is where we like to be," says André Reyneke, managing director. The MISER-HKS is a retrofit hydraulic hybrid transmission specific for heavy-duty vehicles.

"The system complements various other technologies aimed at dramatically improving fuel consumption, vehicle performance and total cost of ownership – while simultaneously reducing carbon emissions.

"MISER achieves this with a hydraulic solution using a combination of braking energy recovery, engine optimisation and various modes such as torque summing, regenerative braking and launch assist. This provides an efficient medium for the fast storing and release of energy, while at the same time optimising engine performance by keeping the engine on the ideal brake-specific fuel consumption line.

"The MISER transmission is a hydraulic and mechanical, infinitely variable dual-path energy-transfer system with a sophisticated microprocessor control system. It has fewer energy-flow paths, fewer valves and fewer parasitic losses, such as charge pumps, than any existing hydraulic hybrid systems."

He says MISER is an enabler of electric vehicles.

"The best electric vehicles are electric-hydraulic hybrids due to its more efficient regenerative-braking abilities along with the launch-assist, reducing peak battery loads."

MISER pilot installation showing hydraulic storage.

The MISER hybrid hydraulic transmission installed in the International truck.

The MISER transmission is a compound-type hybrid drive. In some modes it is a series system (where the engine can charge the storage system with energy for later use) and in other modes it is a parallel system (where the energy is delivered from the engine or the storage system or a combination of both). This depends on which of the 13 possible modes the control system selects.

The MISER system can be installed in one of two ways. The first option (recently made available to the marketplace) is the MISER-HKS. It involves the fitment of the energy-recovery components only. Benefits are both regenerative braking and engine optimisation.

The second installation involves the replacement of the vehicle's original gearbox as well as the fitment of the MISER-HKS. This is called the Hybrid Transmission System (HTS). Several additional advantages include savings specifically advantageous in highway-type driving cycles.

"Our pilot project at a long-haul transport client using a heavy-duty truck delivered excellent results with MISER-HKS, showing fuel savings in certain drive cycles in excess of 40%.

"The Gerotek Test Facility performed independent tests on the same truck and its results have confirmed ours.

"We have also started our new project that uses a combination of our hydraulic version and other power sources, specifically aimed at smaller passenger vehicles. We expect the first few vehicles on the road in January 2018. We believe that this will be a game changer as it incorporates a new way of thinking!"

Reyneke says they see the immediate market potential of MISER as being aftermarket sales, followed by the new transmission and energy-recovery technology universally fitted to all forms of motorised vehicles and transportation systems over the next eight to ten years.

"Unlike electrical systems that cannot scale due to technology constraints, MISER can comfortably be fitted to a range of vehicles – from a small car up to a large excavator. This gives us an advantage as we can participate in a wide range of sectors.

"Recent studies have shown that electric vehicles will benefit significantly from using hydraulic hybrids to improve current draw and improve battery charge cycles. While the world's focus is on pure electric and electric-hybrid vehicles, there is very limited attention on the hydraulic hybrid solution. And this is the field in which MISER aims to be the leader," says Reyneke.

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