

EQUAL TO THE TASK



**COMPACT EXCAVATORS:** Digging more returns

**MOBILE CRANES:** New mobile cranes galore

**CONDITION MONITORING:** From corrective to prescriptive

**TRANSPORT**  
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# UNDERLYING MINING CONVERSATIONS

**S**outh Africa remains a major player in the global mining industry. Not only is the sector a driving force behind the country's economy, but it is an industry that has shaped, and continues to shape, South Africa's socio-political landscape. However, it is important to unpack some underlying arguments around the mining sector.

Over many years, South Africa built its fortune on mineral wealth and there are figures to do justice to that fact. The Minerals Council South Africa (formerly Chamber of Mines) reports that total mineral reserves are about USD2,5-trillion, with the sector contributing close to 10% of GDP and over 50% in foreign exchange earnings.

Mining chips in about R17-billion in corporate tax and R6-billion in royalties. It brings an annual income exceeding R330-billion and accounts for 20% of all investment in the country. Of its R441-billion expenses, R407-billion is spent locally. This is an industry that is also at the centre of infrastructure development and provides a catalytic platform for the development of other key economic sectors, one of them being the supply chain.

But, are current conversations on the possible demise of this sector adequate? It is worrying to note that much of the impassioned discussions about mining are about labour and wages. That the sector is on a downward trend from its peak decades ago – from 21% contribution to GDP in 1970 to just 8% in 2017 – is equally concerning, if not principal. Beneath the labour and wage dialogue sits a component equally dire to the economic landscape – the precipitous decline of output and possible mining closures.

Dwindling commodity prices aside, the fact of the matter is that the mining boom

is long gone in South Africa, and instead of deteriorating slowly, the sector is facing a serious stagnation. Any meaningful contemporary narrative and discourse around the broader mining industry should delve into the decline of output and the possible consequences.

Given the current trail, the possibility of many mine closures looms large. To give some context, Sibanye Gold plans to cut 5 270 jobs at its troubled Marikana platinum mines amid labour issues. Sibanye is restructuring operations acquired when it purchased Lonmin earlier this year to become the world's biggest platinum miner. The company plans to shut three unprofitable shafts as it seeks to resume paying dividends next year.

For some reason, the mining sector dialogue has always created an ugly finger pointing game between stakeholders. While government and labour organisations lament the dangers of possible high unemployment due to any mine closures, the industry's dilemma is that the cost of extraction now exceeds the return of selling its product and it has to make some serious changes to stay relevant.

One of the key challenges of this sector is to convince other stakeholders that the size of its 'pie' is no longer as large as it was always thought to be. Balancing the social and economic connotations of its existence places it between a rock and hard place. But is there enough dialogue between the concerned stakeholders? I think not.

I am of the view that now is the time for a judicious selection of future sound strategies and policies that encompass government and the involved business sectors. All stakeholders, business, labour and government can no longer be complacent with their comfort zone practices. It is time to face the reality and act based on that.



Munesu Shoko – Editor



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# SCANIA

# EQUAL TO THE TASK

**A fleet of three SANY SYL956H wheel loaders supplied to Kusile Mining by Goscor Earthmoving is proving to be equal to a taxing 24/7 coal handling task where each wheel loader's 4,6 m<sup>3</sup> coal bucket is instrumental in achieving quick truck loading times, fast cycle times and reduced cost of operation, writes *Munesu Shoko*.**

**H**aving previously used rented front-end loaders and run a few of its own units for coal handling applications at its two processing plants – Puleng and Woestalleen – Kusile Mining, an affiliated company of African Coal Trading (ACT), a 51% black-owned junior mining company, recently decided to purchase three SANY SYL956H wheel loaders.

Executives from Kusile Mining visited Goscor Earthmoving (GEM) to enquire about SANY excavators. While they were on the premises, they spotted the SYL956H wheel loaders, and were impressed with what they saw. The company eventually decided to place an order of three units, which were delivered on 16 August this year.

Kusile Mining operates two opencast coal mines, Uitspan Colliery, in eMalahleni, and Noodhulp Colliery, located close to Eskom's Hendrina Power Station. The coal produced at each mine site is transported to the company's processing sites, Puleng and Woestalleen. The two processing plants have a combined throughput of about 220 000 tonnes per month, with Puleng accounting for 80 000 t, and Woestalleen plant the remaining 140 000 t.

The company produces a variety of coal products for the markets it supplies, including Peas, processed coal in the 10-29 mm size range, and export grade coal for varying coal quality specifications. Hendrik Pieterse, group engineer at ACT, explains that of the 150 000 t of coal produced at the wash plants, about 20 000 t is destined for inland consumption, while the rest is currently being supplied to the export market.

Of the three SANY SYL956H loaders, two have been deployed at Puleng, and the third unit is working at Woestalleen plant. In an environment where every mine's survival hinges on downscaling its operational costs, while maximising productivity, the SANY SYL956H wheel loaders are ticking all the right boxes for Kusile Mining on several fronts.

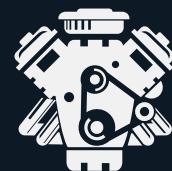
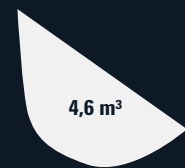
From the onset, Pieterse says the value offering made sense for Kusile Mining. Firstly the price point was very reasonable. Secondly, knowing GEM's service capabilities meant peace of mind for the customer. Apart from the price point and GEM's service record, Kusile Mining was also impressed by the Goscor Finance offering. In fact, the coal mining company secured a R5-million financing facility from Goscor Financing for its R6,5-million deal.

## Living up to expectations

During the first two months of operation, the SANY SYL956H loaders have lived up to expectations. Working 24/7, the machines have already clocked 1 000 hours in a space of two months. When we visited the Puleng processing plant, the loaders were deployed to undertake a range of applications, including feeding plants, coal blending, stockpiling and truck loading, among other coal handling jobs on site.

A major talking point is the 4,6 m<sup>3</sup> coal bucket. Kusile Mining opted for the 4,6 m<sup>3</sup> coal bucket, instead of the standard 3,2 m<sup>3</sup> one. Mine manager Dries van der Vlies explains that the bigger bucket allows the loaders to load the trucks quicker in less time. To give a sense of the time-saving, the 4,6 m<sup>3</sup> bucket loads a typical 15 m<sup>3</sup> tipper with three scoops, compared with six or more when using a normal standard bucket.

Pieterse says the relative density (RD) of coal is very light compared with other materials like chrome and sand. "We took into account the lifting capacity of the wheel loader, the weight and dimensions of the bucket and the specific weight of the material being handled – these are necessary steps in assuring the attachment is right for the loader and for the application," says Pieterse.



QUICK TAKE

A SANY SYL956H wheel loader is deployed for stockpiling at Kusile Mining.



Kusile Mining has taken delivery of three SANY SYL956H front-end loaders from Goscor Earthmoving

A major talking point is the 4,6 m<sup>3</sup> coal bucket, which allows for quick and precise loading scenarios, resulting in faster cycle times

Powered by a Cummins QSL8.9 engine, the machine's high-pressure load-sensitive hydraulic system and leading hydraulic components distribute the flow on demand, reducing the unnecessary energy loss and saving energy by up to 10%

The high-pressure fixed variable confluence hydraulic system ramps up operating efficiency by over 12%, while total fuel consumption is slashed by more than 15%

The 4,6 m<sup>3</sup> bucket loads a typical 15 m<sup>3</sup> tipper with three scoops, compared with six or more when using a standard bucket.



"In this case, the RD of coal is about 1,2 compared with 2,7 for sand. Therefore, the light nature of coal allows us to equip our SANY SYL956H loaders – coming at a rated load of 5 t and operating weight of 17 100 kg – with a larger 4,6 m<sup>3</sup> bucket, rather than the standard 3,2 m<sup>3</sup> one," says Pieterse.

Van der Vlies says the larger bucket is paying dividends. "The coal bucket allows for quick and precise loading scenarios, resulting in faster cycle times. Instead of six scoops to load a truck, we do three. This increases productivity, while reducing fuel consumption significantly," explains Van der Vlies.

"In an environment where fuel prices continue to soar, while coal prices continue to decline, every rand you save goes a long way. We need to be clever with every aspect of our operations for us to stay in business," says Pieterse.

**Lower cost of ownership**

Brad Freeman, sales consultant at GEM, who was at the centre of this deal, says the SANY SYL956H also appealed to Kusile Mining for its overall lower cost of ownership. Powered by a Cummins QSL8.9 engine, the machine's high-pressure load-sensitive hydraulic system and

hydraulic components distribute the flow on demand, reducing the unnecessary energy loss and saving energy by up to 10%.

"The efficient drive system features a rotary automatic gearbox that boosts travel speed by 10% and increases towing force by over 6%. The high-pressure fixed variable confluence hydraulic system ramps up operating efficiency by over 12%, while total fuel consumption is slashed by more than 15%," explains Freeman.

The panoramic cab has a noise level of only 75 dBa for enhanced operator comfort, together with features such as an adjustable suspended seat, and a multi-directional spatial air-conditioner for both heating and cooling.

The fingertip-operation pilot system has been configured with a variety of functional buttons in the cab. Key components such as the DANA gearbox and heavy-duty structural members result in an extended service life of up to 10 000 hours. Safety features include a fully-hydraulic service brake, electrically-controlled parking brake and a cab with FOPS and ROPS functions.

**Growing relationship**

GEM has been dealing with Kusile Mining for a couple of years now. Several years ago, the coal mining company purchased a Bobcat S450 skid-steer from Goscor. Having experienced the capabilities of the S450 over the years, Kusile Mining has since bought two more units, which were delivered together with the three front-end loaders. The skid-steers are used for general cleaning around the coal washing plants.

Freeman says the Bobcat S450 combines all the advantages of a truly compact loader but incorporates many features found on larger machines. It offers optimal hydraulic performance, boosted by an increase in system pressure and changes to the hydraulic components, as well as hose and tube line routings compared with its predecessor, the S130. These have been designed to allow the use of straight fittings instead of adjustable fittings. The number of hydraulic connections has also been reduced to improve overall efficiency and also eliminate routing variation. This also reduces potential rubbing and leak points.

In future, Kusile Mining will look at bolstering its fleet with several other SANY machines from GEM as the company is adjusting its operating model, migrating from rental to machine ownership in line with its business needs. "Rental has served our business needs well in the past, but we have reached a point where we feel we need to buy what we require," says Pieterse. 🌐



"Coal's relative density is about 1,2 compared with 2,7 for sand. Therefore, the light nature of coal allows us to equip our SANY SYL956H wheel loaders – coming at a rated load of 5 t and operating weight of 17 100 kg – with a larger 4,6 m<sup>3</sup> bucket, rather than the standard 3,2 m<sup>3</sup>."

Hendrik Pieterse, group engineer at ACT



"The large coal bucket allows for quick and precise loading scenarios, resulting in faster cycle times. Instead of six scoops to load a truck, we do three. This increases productivity, while reducing fuel consumption significantly."

Dries van der Vlies, mine manager at Kusile Mining



"The efficient drive system features a rotary automatic gearbox that boosts travel speed by 10% and increases towing force by over 6%. The high-pressure fixed variable confluence hydraulic system ramps up operating efficiency by over 12%, while total fuel consumption is slashed by more than 15%."

Brad Freeman, sales representative at Goscor Earthmoving

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Minimum operating weights (approximate) for the new models range from 1 575 to 2 045 kg, with weights increasing to 1 760-2 200 kg, depending on specific machine configuration.

## DIGGING MORE RETURNS

**To develop its Next Generation mini excavators, Caterpillar relied on customer feedback. The insights from customers have resulted in an array of ground-breaking features, some of them industry-firsts, translating into up to 20% increase in performance and up to 15% lower total cost of ownership. By *Munesu Shoko*.**

**W**hen developing its Next Generation of mini excavators – officially unveiled at bauma 2019 – Caterpillar focused on the one most important component, the end user. This is considering that the end user is the one who digs the ditches, lays utilities, dredges ponds and shapes the land.

The five new models in the Next Generation Cat mini hydraulic excavator line-up are designed to provide users

with increased performance, versatility, safety, operator convenience – and affordability – in the smallest possible packages for 1-2 t class machines.

The customer-centred approach to engineering has resulted in the new models incorporating industry-first standard features, such as joystick steering (stick steer) and a tilt-up canopy or cab, as well as new options, including air conditioning and expandable undercarriages across the range.



In an industry-first for 1-2 t mini excavators, models with a sealed and pressurised cab are available with air conditioning.

### QUICK TAKE

Owners of the Next Generation Cat mini excavator range will benefit from a 20% increase in performance



20% INCREASE IN PERFORMANCE



Operators will experience up to 65% more lifting over the front of the machine and up to 40% more over the side



65% MORE LIFTING OVER THE FRONT



40% MORE OVER THE SIDE

25% more swing torque improves swing performance, allowing operators to work confidently on a side slope and when moving material uphill



25% MORE SWING TORQUE

The new Next Generation mini excavators use an efficient, fuel saving, load-sensing hydraulic system with an electronically controlled variable displacement piston pump capable of oil flows to 66 l/min



The new model range allows customers expanded choices for matching machine capabilities and machine features to the applications: 301.5 (1,5-t class, standard tail swing, with canopy); 301.6 (1,5-t class, standard tail swing, with cab); 301.7 CR (1,7-t class, compact radius, with canopy); 301.8 (1,8-t class, standard tail swing, with either canopy or cab); 302 CR (2-t class, compact radius, with either canopy or cab).

From this particular range, Barloworld Equipment, the exclusive Caterpillar dealer for southern Africa, will be stocking the 302 CR. However, all the other models in the range are available for special orders.

Minimum operating weights (approximate) for the new models range from 1 575 to 2 045 kg, with weights increasing to 1 760-2 200 kg, depending

on specific machine configuration. Dig depths are 2 340 or 2 370 mm, depending on the model, and an available long stick increases depth to 2 540 or 2 570 mm. Rubber track undercarriages are standard, with steel tracks available for all models.

All the new models use the Cat C1.1 engine, a three-cylinder diesel rated at 14,3 net kW (19,2 net hp), available in configurations that meet EU Stage V emission standards as well as the requirements of less regulated countries. The C1.1 features a power-dense design and delivers consistent performance through a wide speed range. Fuel efficiency



“An exclusive feature for the new Next Generation models is the standard stick steer system, which allows the operator to switch (with the touch of a button) from conventional lever/foot-pedal steering controls to left-hand joystick control. Stick steer provides the benefit of less effort with improved operator control.”

Sam Mottram, Caterpillar's global commercial manager for mini excavators



Flow rates, coupled with high main-relief pressures, provide the new models with the hydraulic capacity to generate high digging and lifting forces.



For added versatility, the standard auxiliary hydraulic system (complete with quick disconnect lines) provides one way, two-way and continuous flow.

is enhanced with engine idle control and automatic shutdown systems.

**Industry first features**

The new range comes with an array of industry-first standard features including stick steer, travel control, cruise control, full colour LCD monitor with Bluetooth and being the first 1-2 t excavator range with sealed and pressurised cab to offer air conditioning option.

The stick steer travel is said to be a game changer. With the simple push of a button, operators can switch from traditional pedal and lever travel to stick steer travel, which increases operator comfort, control and convenience. No more hunching over when you need to track long distances, it's all in the wrist.

“An exclusive feature for the new Next Generation models is the standard stick steer system, which allows the operator to switch (with the touch of a button) from conventional lever/foot-pedal steering controls to left-hand joystick control. Stick steer provides the benefit of less effort with improved operator control. Additionally, automatic two-speed travel is standard,” explains Sam Mottram,



Caterpillar's global commercial manager for mini excavators.

Cruise control allows operators to continuously travel without holding the levers or joystick down, with the ability to safely stop the machine in several ways. Great for tracking or grading long distances, you just need to steer.

Another industry-first for 1-2 t mini excavators, models with a sealed and pressurised cab are available with air conditioning so operators can stay comfortable in any condition. The range also features consistent layouts between all models, allowing operators to seamlessly transition between machines. Customisable settings enable control of hydraulic performance and responsiveness for different operators and applications.

Intuitively designed full colour monitors are available on all machines. Cab machines can be equipped with Bluetooth compatibility, allowing operators to safely answer calls and stream audio. They are also complete with a standard security system and a jog dial for easy, ergonomic interaction.

### Premium features

The new Next Generation mini excavators use an efficient, fuel saving, load-sensing hydraulic system with an electronically controlled variable displacement piston

pump capable of oil flows to 66 ℓ/min. Flow rates, coupled with high main-relief pressures, provide the new models with the hydraulic capacity to generate high digging and lifting forces, as well as handling powered attachments.

For added versatility, the standard auxiliary hydraulic system (complete with quick disconnect lines) provides one way, two-way and continuous flow. Manual couplers, a thumb-ready package and a certified lifting eye are available for all new models. Front shovel operation, a capability that lends an extra measure of precision when digging around utilities, can be accomplished with both pin-on and coupler-mounted buckets.

A fixed width undercarriage is available on the 301.5, 301.6, and 301.8. All models are available with an expandable undercarriage, which narrows to allow the new machines to enter work sites through restricted access points, then extends to provide a stable work platform. Undercarriages for all models, except the 302 CR, retract from 1300 to 990 mm; the 302 CR retracts from 1 400 to 1 090 mm.

A dozer blade further expands the capability of the new models, allowing the machine to handle backfilling and grading tasks. The blade features ample travel, above and below ground, has a float function, and allows "dig-to-blade" operation for more efficient handling of loose materials. Major structures for the Next Generation mini machines – upper and lower frames, track frames, boom and stick – are modelled after their larger Cat excavator counterparts and designed for long-term durability.

### Increased performance

Owners of the new range will benefit from a 20% increase in performance. The Next Generation mini excavators feature greater lift performance for those heavy lifting applications. Operators will experience up to 65% more lifting over the front of the machine and up to 40% more over the side.

"25% more swing torque improves swing performance, allowing operators to work confidently on a side slope and when moving material uphill," says Mottram. The Next Generation machines have improved ability to smoothly perform multiple functions at once, providing even greater control and productivity.

Operators will notice increased travel performance when turning and travelling uphill. Getting to the job quicker helps get the work done faster. Ideal for land management and mulching applications, the 309 CR High Flow machine is

equipped with a dedicated auxiliary pump to provide unmatched attachment performance.

### Operator environment

The design of the new Next Generation models emphasises the comfort, convenience and safety of the operator. The cab, standard on the 301.6 and optional on the 301.8 and 302 CR, is pressurised and sealed to reduce dust intrusion and is fitted with a climate control system (with or without air conditioning). The front window slides upward and stores overhead, and large glass areas on the sides and rear of the cab, plus a skylight, provide all around visibility. The operating consoles feature adjustable wrist rests, and a suspension seat is available. A retractable, wide seatbelt is comfortable to wear.

"Controls are designed to be intuitive, with a pattern changer that allows operators to select their preferred system. A machine security system is standard, available as key with pass code or push-to-start with fob. The Next Generation LCD monitor provides easy-to-read machine information and features a jog dial for easy, ergonomic interaction with the monitor. The machines can also be Bluetooth enabled through the radio.

### Serviceability

Routine maintenance check points are accessible at ground level through the side doors, and the battery is maintenance-free. The exclusive tilt-up cab allows access to major hydraulic components with a simple process that can be completed in under five minutes.

"An industry exclusive, the entire cab/canopy on our 1-2 t models can be tilted up. This helps technicians with quick, easy access to previously hard-to-reach components for servicing and troubleshooting," says Mottram. Machine owners and operators can access regular maintenance areas at ground level for quick, easy maintenance on all models.

Longer service intervals will save machine owners money. This will also allow them to spend less money on parts and labour costs and spend more time getting work done. Next Generation mini excavators have been designed with more parts commonality across the range, improving time and cost to repair.

Accidents happen. The Next Generation mini excavators have been designed with recessed panels to protect against damage and to simplify repairs. A combination of these features result in up to 15% lower total cost of ownership. 🌟



## NEW MOBILE CRANES GALORE

**New mobile crane premieres at bauma 2019, showcasing original equipment manufacturers' design focus on high performance, economy and outstanding return on investment. *Munesu Shoko* attended the show and filed this report.**

**T**wo of the new cranes had already been presented at the 2018 customer days at Liebherr's manufacturing plant in Ehingen – the five-axle 230 t LTM 1230-5.1 mobile crane and the LR 1800-1.0 crawler crane with a maximum lifting capacity of 800 t. The Mobile Cranes Division unveiled two brand new products at the show – an 8-axle mobile crane designed for maximum performance and a 5-axle crane whose designers gave economical and flexible crane jobs around the world the highest priority.

Manitowoc launched an impressive new unit in the five-

axle category and two new three-axle models. Andreas Cremer, global product director for all-terrain cranes at Manitowoc, says the launch of the new models underlines the company's increased speed of product development under The Manitowoc Way and its ongoing commitment to building cranes that offer outstanding return on investment.

"We believe in developing cranes our customers can use in a wider variety of projects for better return on investment," says Cremer. "The GMK5250XL-1 is a great example of how we do that. It's an update to our

Crane operators can use the LTM 1230-5.1 particularly safely and efficiently with Liebherr innovations VarioBase, VarioBallast, ECOmode and ECOdrive.



existing GMK5250L but we have added 8,5 m of boom for more reach, so it can take on more jobs. At the same time we have maintained the class-leading lift performance, manoeuvrability and fast set-up of the GMK5250L, which makes it such a popular choice with our customers.”

### Manitowoc's triple launch

With its 78,5 m boom, the GMK5250XL-1 is said to have the longest main boom of any five-axle all-terrain crane and combines that with great lifting capabilities. As with all Grove all-terrain cranes, it features Megatrak suspension and the Twin-Lock boom pinning system. It is also available with the MAXbase variable outrigger function for added versatility on the jobsite.

Options for the GMK5250XL-1 include

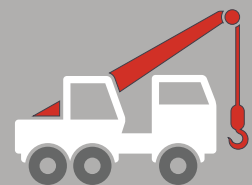
With its 78,5 m boom, the GMK5250XL-1 is said to have the longest main boom of any five-axle all-terrain crane.



### QUICK TAKE

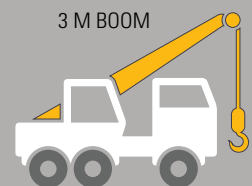
78,5 M BOOM

With its 78,5 m boom, the GMK5250XL-1 is said to have the longest main boom of any five-axle all-terrain crane and combines that with great lifting capabilities



Liebherr's new 230-t LTM 1230-5.1 crane not only delivers an extra 3 m in length but also an average of 20% greater lifting capacity

20% GREATER LIFTING CAPACITY



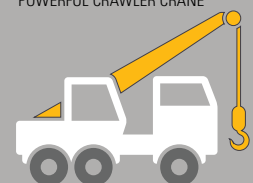
3 M BOOM

For consistency and control, Manitowoc's 60 t GMK3060L crane features Manitowoc's Crane Control System with boom configurator for fast and efficient set-up



The new LR 1800-1.0 is said to be the most powerful crawler crane currently on the market even though the basic machine is just 3 m wide

LR 1800-1.0 IS THE MOST POWERFUL CRAWLER CRANE



the VIAB turbo retarder clutch, which first featured on the original GMK5250L. The VIAB unit enables wear-free starting and braking, enhancing manoeuvrability and operator comfort. In addition to its high-performance features, the crane delivers a compact footprint, making it ideal for use in crowded or urban areas.

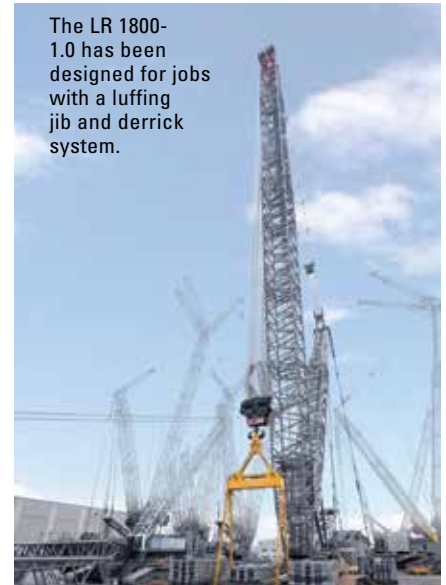
In the three-axle category, the GMK3060L sets new standards of excellence and includes a powerful, seven-section MEGAFORM boom with 48 m of main boom and a maximum tip height of 65 m when working with its full jib.

For consistency and control, the 60 t crane features Manitowoc's Crane Control System with boom configurator for fast and efficient set-up. With its compact carrier, the GMK3060L can squeeze into tight locations, again making it a great option for downtown job sites or congested projects.

Next to the GMK3060L is the new GMK3050-2, an update of Grove's long-running three-axle offering, the GMK3050-1. It offers a 40 m main boom, fast operating speeds



Manitowoc's new models underline the company's ongoing commitment to building cranes that offer better return on investment.



The LR 1800-1.0 has been designed for jobs with a luffing jib and derrick system.

and a single counterweight configuration for ease of use. Its engine and design have also been updated to meet the latest requirements of Euromot 5 (which also covers both Tier 4 Final and Tier 3 regulations in the United States and the rest of the world).

Both the GMK5250XL-1 and GMK3060L are said to offer the most compact footprint in their class, and both have best-in-class load charts when configured in taxi-mode, at 12 t per axle.

**More Manitowoc innovations**

Besides the three new all-terrain crane models, Manitowoc also showcased the GMK4090 and the GMK6300L-1, both of which launched within the past 18 months. The GMK4090 launched at the end of 2017, while the GMK6300L-1 was introduced in the first quarter of last year.

The GMK4090 highlights Grove's leadership in the design of 'taxi cranes' – lightweight and flexible cranes which can be optimised for both travel and lifting depending on user needs. It has a maximum capacity of 90 t, a main boom of 51 m and a maximum tip height of 75 m. The GMK4090 can travel with up to 18,3 t of counterweight, or can transport up to 9,1 t as a single vehicle while configured to less than 12 t per axle.

The GMK6300L-1 is the successor to the hugely-popular GMK6300L. It has a 300 t maximum capacity and a maximum tip height of 120 m when working with its 80 m boom and 37 m of jib. When working with the main boom, it can lift up to 14 t at full height and can handle this from 14 m out to a 28 m radius, making it perfect for tower crane assembly. Power comes from a 430 kW Mercedes Benz engine which features improved fuel economy over its predecessor.

"Grove all-terrain cranes deliver powerful lifting performance, superior off-road mobility and fast highway speeds," says Cremer. "They are manufactured using the industry's most stringent lean manufacturing techniques and this delivers a class-leading line-up from 60 t to 450 t."

**Liebherr LTM 1230-5.1**

Long, powerful and versatile was Liebherr's description of its new LTM 1230-5.1 mobile crane at its customer days in 2018. The highlights include the length and lifting capacity of the telescopic boom. Its predecessor, the LTM 1200-5.1, also had one of the longest telescopic booms in this crane class at 72 m.

The new 230-t crane not only delivers an extra 3 m in length but also an average of 20% greater lifting capacity. In addition to a multi-functional folding jib, a 43 m fixed jib is also available. Crane operators can use the LTM 1230-5.1 safely and efficiently with Liebherr innovations – VarioBase, VarioBallast, ECOMode and ECOdrive.

The engineers at Liebherr-Werk Ebingen GmbH placed the multi-award-winning VarioBase support technology at the focus of the structural steel construction when creating the concept for the new crane. This means that the new LTM crane is the first to have an asymmetrical support base – with the width being 7,4 m at the front and 8,1 m at the rear.

VarioBase means that it is now possible to generate high lifting capacities, particularly at the rear working area over the 8,1 m wide supports – calculated in real-time by the

LICCON controller. The new digitalisation facility has a major influence on the structural steel technology and enhances the customer benefit in the form of lifting capacity increases. Liebherr calls the combination of the trapezoidal and the variable support base, "VarioBase Plus".

**Designed for maximum performance**

Greater lifting capacities and low cost transport around the world are the main features of Liebherr's new 800 t crawler crane. The LR 1800-1.0 has been designed as an industrial crane for jobs with a luffing jib and derrick system, for example, for power plant construction and the petrochemicals industry. For the first time the boom system features lattice sections with three-system dimensions which can be telescoped into each other for transport.

The new LR 1800-1.0 is said to be currently the most powerful crawler crane on the market even though the basic machine is just 3 m wide. It is particularly rigid as a result of its increased design height. A quick connection to raise the superstructure for transport is standard.

The new LR 1800-1.0 also features the derrick ballast with VarioTray – after raising the lattice boom with the large derrick ballast, part of the ballast can be unbolted quickly and easily. Only a small proportion of the ballast is generally required for hoisting work with the boom fully or almost fully raised. This avoids the tiresome stacking and unstacking of ballast slabs. A new type of ballasting system is used for the suspended ballast – a hydraulically adjustable folding frame allows the ballast radius to be adjusted to up to 23 m. This means that a fixed guiding frame system is no longer required for large radii. 🌐

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The upgrades will be available for locally-produced Volvo Trucks' FH, FM and FMX model ranges from January 2020.

# HELPING TRUCK OWNERS REDUCE COSTS

**Through a combination of hardware and software upgrades on its Euro 3, Euro 4 and Euro 5 versions of its D13 engine – to be introduced early next year across the FH, FM and FMX ranges – Volvo Trucks Southern Africa will enhance its customers' profitability with up to 3% fuel savings, writes *Munesu Shoko*.**

**R**oad transport is one of the backbones of any economy and it is a major component of the supply chain to ensure the efficient movement of goods. To sustain their businesses in a challenging economic environment, truck operators are looking at every opportunity to cut their operating costs. Fuel – which can usually account up to 50% of total operating costs – is one major cost that every fleet owner is looking to reduce.

With that in mind, Volvo Trucks Southern Africa is introducing new software and hardware upgrades to its D13 engine. Speaking at the recently ended Futuroad 2019, Malcolm Gush, sales director at Volvo Trucks South Africa, said the hardware and software upgrades on Volvo's 13-ℓ engine, the most prominent motor in the local market, will enable fleet owners to record fuel savings of up to 3% in long haul applications. The upgrades will be available for locally-produced Volvo Trucks' FH, FM and FMX model ranges from January 2020.

Marcus Hörberg, vice president of Volvo Group Southern Africa, says the new upgrades are in direct response to customer needs. He believes that, as a premium OEM, Volvo Trucks has a role to play in assisting its customers to cut their operating costs, thus increasing revenues, become more efficient and more profitable.

"As society changes and develops, our customers require enhanced fuel efficiency for their fleets. With this new technology and engine hardware, we are assisting fleet owners to achieve better results, and thus saving money and ultimately increasing their profits," says Hörberg.

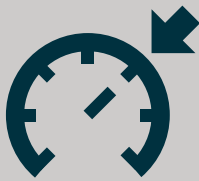
Gush says the new developments are in line with Volvo Trucks' continued journey to reduced fuel consumption



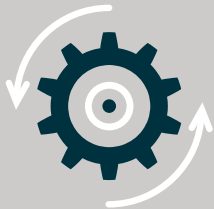
Volvo Torque Assist is designed to give more fuel-efficient driving by automatically adapting the truck's torque and acceleration to the road topography, the load and speed changes.



Fuel – which can usually account for up to 50% of total operating cost – is a major cost that every fleet owner is looking to reduce



At the core of new upgrades is the Volvo Torque Assist. It is intended to optimise fuel consumption by enabling more efficient driving when the cruise control is disabled in long haul operations



The hardware upgrades in the Euro 6 Step D versions of the D13 engine, released earlier in 2019 for European markets, are also being used to raise the standards of the Euro 3 to 5 engines



In combination, the hardware and software upgrades will result in up to 3% fuel savings – 1% from lower friction hardware parts and 2% from the new software

in its trucks. “Given that the fuel element – for a typical South African transport operator – is as high as 50% of total operating costs, at Volvo Trucks we believe we have a big role to play as an OEM to help our customers save fuel and improve their profitability,” says Gush.

Gush adds that fuel efficiency improvements at Volvo have been ongoing for many years. “If you look at our fuel journey from 1976 when we first introduced a turbo engine to where we are today, we have seen a 50% reduction in fuel consumption in our engines. At the same time, power on our trucks has almost doubled. That translates into increased productivity at less operating costs, thus improving customer profitability and overall customer success,” adds Gush.

### The upgrades

At the core of new upgrades is the Volvo Torque Assist. It is intended to optimise fuel consumption by enabling more efficient driving when the cruise control is disabled in long haul operations. Gush says I-Cruise, Volvo Trucks’ intelligent cruise remains the best way to optimise fuel consumption, but in some instances might not be applicable.

“In this way we can support the driver to



“As society changes and develops, our customers are requiring enhanced fuel efficiency for their fleets. With this new technology and engine hardware, we are assisting fleet owners to achieve better results, and thus saving money and ultimately increasing their profits.”

Marcus Hörberg, vice president of Volvo Group Southern Africa



“Given that the fuel element – for a typical South African transport operator – is as high as 50% of total operating costs, at Volvo Trucks we believe we have a big role to play as an OEM to help our customers save fuel and improve their profitability.”

Malcolm Gush, sales director at Volvo Trucks South Africa



“The rapid development of connected services gives hauliers completely new ways of increasing vehicle uptime and optimising vehicle utilisation. By adding flexibility to the payment model, we add another dimension to our offer.”

Theunis Eloff, aftermarket director at Volvo Trucks Southern Africa

TALKING POINTS

cut fuel costs when driving conditions demand it,” says Gush.

Volvo Torque Assist is designed to give more fuel-efficient driving by automatically adapting the truck’s torque and acceleration to the road topography, the load and speed changes. Another supporting function keeps the amount of injected fuel constant after the engine’s ‘green range’ has been passed. The slightly compromised performance is compensated by improved fuel economy.

Additionally, the new pedal map has been recalibrated. A less sensitive pedal creates a smoother torque development, which, in turn, makes the truck easier to control. “The traditional accelerator is generally quite aggressive. With the new pedal mapping, the truck is a bit smoother when pulling away, thus using less power, resulting in reduced fuel consumption,” explains Gush.

“The new software also gives a more significant result with heavy loads, many slope changes or large speed variations, while drivers transporting lighter loads with constant speed on flat roads will save less fuel,” explains Gush.

The hardware upgrades in the Euro 6 Step D versions of the D13 engine, released earlier in 2019 for European markets, are also being used to raise the standards of the Euro 3 to 5 engines. Internal friction has been reduced with new cylinder liners and new V-shaped oil scraper rings. The turbo efficiency has been improved and the engine management system is upgraded to a newer version with better capacity.

“The engine management system control unit has been upgraded to a newer version with better capacity. Fuel efficiency is improved through detailed calibration and optimisation of several parameters,” explains Gush. “In combination, these features will result in up to



The new software also gives a more significant result with heavy loads, many slope changes or large speed variations.

3% fuel savings – 1% from lower friction hardware parts and 2% from the new software.”

**Flexibility matters**

To further help customers reduce their operational costs, Volvo Trucks is introducing the Volvo Flexi-Gold Contract – a new usage-based service contract where monthly fees are aligned with actual mileage. This means hauliers have greater flexibility to adapt their operations to market conditions and demand.

Connectivity has paved way for new, flexible solutions for service contracts and usage-based payment models. The Volvo Flexi-Gold Contract comes with the same coverage as the Volvo Gold Contract, but with monthly fees broken down into fixed and variable parts (km-based) tailored to the truck’s actual mileage.

“Many transport companies have short-term agreements with their clients or operate in unpredictable and fluctuating markets. They express a need for greater flexibility when it comes to service contracts. We now have the technology to make dynamic and connected solutions like this possible,” says Thomas Niemeijer, business development manager, Service Contracts at Volvo Trucks.

The Volvo Flexi-Gold Contract has been made possible by advances in telematics, which enable vehicles to communicate real-time mileage with Volvo Trucks. The contract provides customers with a 40% flexibility span, where annual mileage can exceed or go under the agreed mileage by 20%.

Each monthly invoice is based on the actual driving for that month, with no additional invoicing or paperwork for exceeding mileage at the end of the year (within the flexibility span). This makes



Volvo Trucks is introducing the Volvo Flexi-Gold Contract – a new usage-based service contract where monthly fees are aligned with actual mileage.

it suitable for customers working with seasonal changes and fluctuating demand.

“Quite simply, if you drive less, you pay less and vice versa. The Volvo Flexi-Gold Contract offers the same coverage and uptime as a Volvo Gold Contract, at the same predictable cost, but with much greater flexibility to adapt to changing business needs,” says Niemeijer.

The Volvo Gold Contract is Volvo Trucks’

most comprehensive service contract and encompasses preventive maintenance and connected service planning as well as all truck repairs.

“The rapid development of connected services gives hauliers completely new ways of increasing vehicle uptime and optimising vehicle utilisation. By adding flexibility to the payment model, we add another dimension to our offer,” says


Theunis Eloff, Aftermarket Director at Volvo Trucks Southern Africa. “A pilot project for this new usage-based service contract has already been successfully implemented locally and will now be available for South African customers.”

The Volvo Flexi-Gold Service Contract is available in selected European markets, as well as South Africa, and will be gradually rolled out into new markets soon. 🌐

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With us you are Number One





4PL.COM Cape has taken delivery of five NTG G460 units from Scania South Africa.

# SCANIA TICKS ALL THE RIGHT BOXES FOR 4PL.COM CAPE

**Having found Scania South Africa to be ticking all the right boxes for its transport business needs, 4PL.COM Cape has expanded its fleet with five Scania New Truck Generation (NTG) G460 units.**

**The new units bring to 15 the total number of Scania trucks in 4PL.COM Cape's fleet within a space of three years, writes *Munesu Shoko*.**

**A**s part of its consistent fleet replacement programme, leading Cape Town-based logistics provider, 4PL.COM Cape has taken delivery of five NTG G460 units from Scania South Africa. The new consignment brings to six the number of NTG units currently in 4PL.COM Cape's fleet of 15 Scania trucks.

4PL.COM Cape is part of the 4PL Group, which also comprises two other transport businesses, 4PL Fleet and Teralco. 4PL.COM Cape specialises in general cargo, particularly running interlink tautliners and tri-axle flat decks across South Africa and into Zimbabwe and Zambia.

The tautliners are specifically used for general cargo. The company's business cycles are split into two distinct seasons: winter and summer. During the winter season, it focuses a lot on moving agricultural products, specifically citrus out of the north. During summer months, focus turns to other agricultural products such as potatoes, as well as FMCG stuff. Some key customers in the FMCG space include Premier Foods, Twizza and Kingsley. 4PL.COM Cape also provides logistics services to online shopping giant Takealot.com, through Vital Distribution.

The flatdeck application mainly focuses on containers from the Durban port to different destinations, including

Hwange in Zimbabwe. For its cross border application, the company tends to use rented trucks from Scania Rental.

Having started out as a non-asset based transport company, specialising in brokering and rental, the company eventually decided to purchase its first own trucks some three years ago. Paul Cunliffe, MD of 4PL.COM Cape explains that the decision was informed by the fact that while the company lacked the knowledge of running trucks at the time, it still spent money on fuel, tolls and tracking allocated to transporters. "We had the spend and saw it wise to invest in our own fleet," says Cunliffe.

Marking its transition from the outsourcing model, 4PL.COM Cape started to run trucks on rental, before purchasing its own fleet. Within three years, the company has already bought a total of 15 trucks, all Scania units. The fleet is replaced after every three years or at 600 000 km, whichever comes first. The new five units form part of the first fleet replacement programme.

## Why Scania?

Explaining the reasons behind the loyalty to Scania, Cunliffe says that the OEM has ticked all the right boxes for 4PL.COM Cape and the 4PL Group at large through several appealing factors – all the way from its one-



Johnny-Ray Basset of Scania (left) and Paul Cunliffe, MD of 4PL.COM Cape, during the handover of five new trucks.

**+ FIVE NTG  
G460 UNITS**



As part of its consistent fleet replacement programme, 4PL.COM Cape has taken delivery of five NTG G460 units from Scania South Africa

**+ 15 SCANIA  
TRUCKS**



The new consignment brings to six the number of NTG units currently in 4PL.COM Cape's fleet of 15 Scania trucks



**2,7 KM PER LITRE**

4PL.COM Cape's old generation fleet, in long haul applications, has been averaging 2,1 km per litre of fuel. With the NTG G460 units, the fuel consumption has significantly improved to about 2,7 km per litre



**SAVING  
R23 000 ON  
FUEL PER  
MONTH PER  
TRUCK**

With these consumption figures, 4PL.COM Cape is saving R23 000 on fuel per month per truck

TAKE

QUICK

says Cunliffe.

Cunliffe says with six NTG units, following the arrival of the five new trucks, the company will be saving about R150 000 per month, which translates into an annual saving of R1,8-million, just on fuel.

"For us at Scania, our customers' cost of ownership is very important. Providing them with a vehicle at the lowest cost of ownership means that they can also quote their clients at a better rate, making them competitive in such a cutthroat trading environment. The cost per kilometre is a key parameter in our customers' profitability. The more they become profitable, the more they do business with us," says Johnny-Ray Basset, key account manager at Scania South Africa.

"Lower cost per kilometre means we are competitive in the market. For example, between Cape Town and Johannesburg, on fuel alone we save about R3 500. It means that we are R3 500 more competitive in the marketplace on that particular route. That's why Scania is our truck supplier of choice," adds Cunliffe.

### One-stop shop

Another reason why 4PL.COM Cape sticks to Scania is the truck maker's one-stop shop approach. The company uses Scania Finance, Scania Rental, has a full repair and maintenance (R&M) contract and uses Scania's full Fleet Management System (FMS).

stop shop approach to lower total cost of ownership on its product.

To give an idea, 4PL.COM Cape's old generation Scania units, in long haul applications, have been averaging about 2,1 km per litre of fuel. The company recently started running two NTG G460 units, one of its own and another on rental from Scania Rental, and the fuel consumption has significantly improved to about 2,7 km per litre of fuel.

"With one of our trucks specifically deployed on the Cape Town-Johannesburg route, we have been recording fuel consumption figures of 3,3 km per litre with light loads (5-6 t). We are saving R23 000 on fuel per month per individual truck over 14 000 km,"



Paul Cunliffe (left) signs on the dotted line for his five new Scania NTG trucks.

nothing about trucks. We are purely a transporter," he says.

Apart from fleet health and uptime benefits, Cunliffe says having trucks serviced by Scania also bodes well for trade ins. For example, the company recently scored a favourable buy-back value on its vehicles traded in for the five NTG trucks. The trade in value was also buoyed by the low mileage on the trucks, which came in at between 400 000 and 450 000 km, instead of the agreed buy-back mileage of 600 000 km.

**Fleet under watch**

As a progressive transport solutions business, 4PL.COM Cape also utilises Scania's full FMS package, the C300. Scania's Fleet Management System helps 4PL Fleet take control of its fleet and get the most out of its business.

Scania's C300 puts fleet owners in the "driving seat" of the vehicle, allowing them, at any given time, to retrieve information and put corrective measures in place. It is an advanced set of services that help fleet owners utilise vehicle and driver follow-ups and operational information to support their transport processes.

As well as providing access to fleet management, the system offers an array of advantages such as Remote Diagnostics, Remote Download and Driver Coaching, among others. These functions help 4PL.COM Cape reduce its fuel costs and shorten the time required for service and maintenance, among other benefits.

"We get a weekly report on all the parameters we have set, including driver behaviour, speed, harsh braking and unnecessary idling, among others. We pick up any delinquent driving and any possible fuel theft. To give an idea, I previously uncovered a syndicate of eight drivers who were stealing diesel from us through Scania's telematics platform," says Cunliffe.

"The full FMS package allows 4PL.COM Cape to be in full control of their vehicles, anywhere, anytime. They can identify any drastic fuel level drop and the geographic point it occurred to get to the bottom of possible fuel theft," says Basset.

Another major factor that affects fuel consumption is driver behaviour. By utilising Driver Evaluation reports, 4PL.COM Cape can identify areas where its drivers can improve to optimise fuel consumption. "This is an ongoing process, and the bigger the fleet, the bigger the savings. Being consistent on monitoring driving styles and continuous coaching can result in a significant fuel saving," concludes Basset. 🌱



"Lower cost per kilometre means we are competitive in the market. For example, between Cape Town and Johannesburg, on fuel alone we save about R3 500 per individual truck. It means that we are R3 500 more competitive in the marketplace on that particular route. That's why Scania is our truck supplier of choice."

Paul Cunliffe, MD of 4PL.COM Cape



"For us at Scania, our customers' cost of ownership is very important. Providing them with a vehicle at the lowest cost of ownership means that they can also quote their clients at a better rate, making them competitive in such a cutthroat trading environment."

Johnny-Ray Basset, key account manager at Scania South Africa

"Scania's one-stop shop service offering bodes well for our business. All the services we need for us to run a successful transport business are offered from under one roof. The ease of doing business with Scania South Africa also makes us a loyal customer," says Cunliffe.

He adds that 4PL has a group key account with Scania South Africa, which means it has one point of contact, Johnny-Ray Basset. "For any queries, I just get in touch with Johnny-Ray and don't have to call 10 different people, which again talks to the ease of doing business," says Cunliffe.

With every truck purchase, 4PL.COM Cape takes a full R&M contact with Scania South Africa. "We have a 42-month R&M contract on each truck purchase. It's a very effective way of ensuring fleet health because we have Scania experts looking after the vehicles. This ensures maximum uptime, which, is very important for the type of business we are in," says Cunliffe.

He adds that 4PL.COM Cape's core business is transport, and the company doesn't want to own workshops and have mechanics in its ranks. "That is not our core business. We know

TALKING POINTS

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Condition monitoring is fundamental in assisting asset owners to determine the condition of their assets and improve reliability and availability.



# FROM CORRECTIVE TO PRESCRIPTIVE

**Condition monitoring has gained prominence over the years as equipment owners continue to prioritise asset utilisation and productivity. For condition-based maintenance to be possible, it is essential to have knowledge of the machine condition and its rate of change with time. Thus the main function of condition monitoring is to provide this knowledge, *Munesu Shoko*.**

**T**he crudest way of operating machines is to run them until they fail, and then try to repair them in order to make them fit for further service. This method of operation can be very costly in terms of lost output and machine destruction, and in addition can involve hazards to personnel. It is now well recognised that, particularly in the case of large and expensive plant, it is more economical and operationally satisfactory to carry out regular maintenance.

Just how important is condition monitoring in optimising asset utilisation and productivity? The main savings which can be made by the application of condition monitoring to industrial machinery arise from



The Multilog IMx-8 from SKF delivers reliable, fit-for-purpose machine health monitoring to a diverse range of industrial applications.



“Constant economic pressure forces asset-intensive organisations to work smarter to avoid costly breakdowns that hamper production and service delivery and ultimately reduce the useful life of their assets. By predicting failure modes and applying corrective actions, asset owners reduce the risk of failures and high repair costs while extending reliable asset life.”

Arveen Gobind, asset reliability executive at Martec



“IIoT will continue to drive condition monitoring applications and technologies and, as more companies look to digitise and implement IIoT as part of their Smart Asset optimisation drive, more equipment and assets will have condition monitoring sensors or systems installed.”

James Cowling, CM product advisor at Martec



“Asset utilisation and productivity can be significantly increased by knowing the condition of the asset. Preventative measures can be taken to prevent failures. Similarly, assets can be utilised for much longer by knowing the exact condition and at what point it is expected to fail.”

Lourens Zeelie, online condition monitoring specialist at SKF Group

TALKING POINT

the avoidance of losses of output due to the breakdown of machinery, and by reducing the costs of maintenance.

Lourens Zeelie, online condition monitoring specialist at SKF Group, says the importance of condition monitoring has gone from an optional, nice to have, to a requirement on new plants. “Asset utilisation and productivity can be significantly increased by knowing the condition of the asset. Preventative measures can be taken to prevent failures. Similarly, assets can be utilised for much longer by knowing the exact condition and at what point it is expected to fail,” says Zeelie.

Arveen Gobind, asset reliability executive at Martec, says condition monitoring is fundamental in assisting asset owners to determine the condition of their assets and improve reliability and availability. “Condition monitoring provides information specific to an asset, which is used as input to predict potential



The importance of condition monitoring has gone from an optional, nice to have, to a requirement on new plants



Condition monitoring provides information specific to an asset, which is used as input to predict potential failures and as proactive approach to maintenance



AI and Machine Learning are going to play a significant role in the asset management realm in the future



QUICK TAKE

Over time, the implementation of AI models and algorithms may progressively replace some of the more basic analytical work currently being performed by condition monitoring practitioners



Machine condition monitoring has made its evolutionary turn towards smart asset management.

failures and a proactive approach to maintenance,” says Gobind.

James Cowling, CM product advisor at Martec, says assets that remain in good condition will ensure that the designed process that they are serving is in an optimised state. “Knowing the condition and the risk status of your assets enables better production decisions. For example, defects on a pump that are identified by using ultrasound and vibration can help the production team to make an informed decision to avoid further damage on the main pump instead,” says Cowling.

Gobind adds that condition monitoring systems further give advice on improvement areas, which allows maintenance/repair time to be allocated accordingly and with a more defined scope.

**Growing trend**

Available industry figures show that the global use of predictive maintenance has risen from 47% to 51% in the past five years, while running equipment to the point of failure has dropped from 61% to 57% during the same period. What is the state of affairs locally? Zeelie says there is definitely an increased interest in predictive maintenance systems. He reasons that on some new plants it has become a requirement in the design phase that assets be equipped with the necessary monitoring equipment.

“Existing plants also show an increased interest due to tight budgets and high production requirements which do not allow for unexpected downtime or maintenance. Despite the rise in interest, some existing plants are not yet willing to commit to the capital costs involved in installing a monitoring system,” says Zeelie.

Cowling says over the last couple of years, the traditional view that condition monitoring is primarily applicable to rotating devices (bearings, gearboxes pumps and fans, among others) has changed. “With the continued improvement in technology, sensors and condition monitoring applications, we see significant growth in electrical condition monitoring on MV switchgear, cables and transformers,” says Cowling. “These are critical assets to many of our clients and just as strategic as the large mechanical equipment assets. Plant owners are thus now in a position to improve overall equipment reliability, resulting in sustainable plant integrity.”

Gobind adds that the rapid expansion of condition monitoring technologies and the integration with IIoT applications is further evidence that companies see the benefit of condition monitoring as a primary technology to optimise asset utilisation and productivity. “Constant economic pressure forces asset-intensive organisations to work smarter to avoid costly breakdowns that hamper production and service delivery and ultimately reduce the useful life of their assets. By predicting failure modes and applying corrective actions, asset owners reduce the risk of failures and high repair costs while extending reliable asset life,” says Gobind.

**Towards smart management**

Machine condition monitoring has made its evolutionary turn towards smart asset management. Cowling says historically the primary condition monitoring tools were vibration, tribology (oil sampling) and in some cases thermography (infrared technology).

“This was traditionally performed as a service or periodically by using handheld equipment or in some instances installing permanent sensors on critical or strategic assets. However, the condition monitoring data was not always accurately captured or immediately made available for the plant engineer to utilise,” says Cowling.

According to Gobind, with the onset of IIoT, the significant technological changes are being able to connect condition monitoring sensors (vibration, temperature, DGA, moisture, debris, energy, impact, among others) to web-based agnostic edge processing devices that allow the client to see the condition of their asset in real time and online.

“At Martec, we launched a new service called the Reliability Nerve Centre (RNC). The RNC is an online monitoring solution where key parameters are selected and monitored, and which provides insight into the assets condition and risk, related to defect development and potential asset failure,” says Gobind. The data obtained from the monitored parameters is turned into useful information, utilising engineered algorithms. The algorithms even provide automated digital notifications with recommended actions based on failure modes to improve reliability and availability.

“We also perform advanced diagnostic analysis on critical alarm levels – being significant deviations or breached thresholds. This is a huge benefit as more than one parameter is usually monitored on a critical asset, which requires an expert’s understanding of when the combined result of these parameters require the asset to be pulled for maintenance. Such informed interventions are vital in the prevention of unplanned outages that could result in significant production and financial losses for the organisation,” says Gobind.

Zeelie says SKF is involved in some large projects aimed at smart asset management. Inputs from multiple systems are combined at a central point for analysing. With the available information a very good understanding of the asset condition can be achieved.

“With this information available, preventative maintenance strategies can be put in place. In the long term it can be possible to determine whether it is maybe more feasible to replace the asset rather than doing maintenance. The aim of this is to have the most efficient plant running at the lowest, most feasible, cost,” says Zeelie.



Currently, the bulk of analytical data processing, diagnostics and reporting in many cases are still assessed by subject matter experts.

### The rise of AI

Artificial intelligence (AI) in machine condition monitoring is said to be gaining ground. Zeelie says AI is much spoken about and definitely being explored. He is of the view that it is not yet at a stage where it can be implemented without human intervention. "Currently available systems rely on algorithms and mathematics to simplify the diagnostic process for humans. Condition monitoring, especially Vibration Analysis, is a complex field that still requires human interpretation. Existing systems can however alert humans to possible defects," says Zeelie.

Cowling says AI and Machine Learning are going to play a significant role in the asset management realm in the future. Currently, the bulk of analytical data processing, diagnostics and reporting in many cases are still assessed by subject matter experts. However, there are already some of the basic fundamental condition monitoring signatures or thresholds, which with engineered algorithms have been developed to provide automated failure mode identification, resulting in the appropriate corrective action being recommended.

The analytical models and algorithms behind AI, in some cases, can require a significant amount of condition monitoring data to be developed and fine-tuned. With the deployment of more online solutions and IIoT based CM applications, the speed at which this data is being generated and analysed to speed up the research and development processes will significantly

reduce the timeframe to implement AI in machine condition monitoring applications.

Over time the implementation of AI models and algorithms may progressively replace some of the more basic analytical work currently being performed by condition monitoring practitioners. "However, during this initial development, we predict that the subject matter experts will stay in demand to address consultative issues," says Cowling.

"At Martec, our RNC currently has automated algorithms running to provide warnings and alarms to clients via SMS or email and as we continue to gather more data as part of our research and development programme within the larger Pragma group, we will look to introduce our own AI platforms and provide these to our clients as part of a larger reliability centred asset management solution," adds Gobind.

### Different types

The condition monitoring equipment market is segmented by product type, for example, vibration monitoring equipment and lubricating oil analysis equipment, among others. According to Zeelie, the most prominent type of condition monitoring is vibration analysis. another important method is lubrication analysis.

"When monitoring an asset, defects will first be picked up by lubrication analysis. many plants do lubrication analysis based on a schedule and manual sampling. however, online lubrication analysis systems are also available. skf

offers online lubrication and vibration monitoring systems, but commonly only receive enquiries for online vibration monitoring systems. It must be noted that online lubrication analysis can only be done with oil, which is only used in special applications where grease cannot be used," explains Zeelie.

SKF has a full range of online condition monitoring systems, including a protection system for critical assets such as turbines. There are also different sensors for the different applications ranging from Accelerometers to high accuracy Eddy Current probes.

Gobind says historically in local markets, the bulk of condition monitoring technology in the industrial and mining sectors has always been dominated by mechanical applications, focusing on mechanical systems due to their higher failure rates, hence vibration, tribology and thermography are still very popular.

"In the last few years, the introduction of ultrasound as a new complementary technology to existing condition monitoring programmes has been growing and used for different applications and not just purely mechanical or rotating equipment and applications ( bearing lubrication control, compresses air leaks, MV electrical substation, hydraulics, pneumatics and valve applications)," says Gobind.

Cowling adds that condition monitoring of medium and high voltage electrical assets in the power generation, transmission, utilities and mining sectors has been growing at a steady pace. Asset owners are looking to monitor their electrical networks and assets due to the adverse effects of failure resulting in significant financial loss and personnel safety. "Condition monitoring applications related to electrical assets such as transformers, switchgear, cables, generators and motors, among others, has continued to expand and grow," says Cowling.

"IIoT will continue to drive condition monitoring applications and technologies, and as more companies look to digitise and implement IIoT as part of their Smart Asset optimisation drive, more equipment and assets will have condition monitoring sensors or systems installed," reasons Cowling.

"At Martec, our primary focus is to assist our clients to improve the reliability and availability of their assets. We provide CM sensors, monitors, products, services and in-time online monitoring solutions for nearly all asset and plant types," concludes Gobind. 🌐

# EAZI ACCESS WINS TWO LOGISTICS ACHIEVER AWARDS

**Market leader in work-at-height and material handling solutions, Eazi Access, was recently awarded two accolades at the Logistics Achiever Awards gala evening held in Johannesburg on 17 October.**



Eazi Access received its awards for revolutionising its truck fleet distribution network.

**T**he awards ceremony recognises professionalism and excellence in the logistics field by rewarding companies in southern Africa for the innovation they drive in their own logistics and supply chain management practices.

Eazi Access walked away with the Silver Award for Supply Chain Innovation that delivered a customer-centric solution, and the Enviro Award for the redesign of fleet requirements and the implementation of optimised routing and scheduling.

Eazi Access received its awards for revolutionising its truck fleet distribution network. After thorough research and analysis, the organisation identified pockets of inefficiency and decided to implement a cutting-edge transportation management system to help streamline a customer-centric supply chain and logistics process – specifically its fleet of trucks that drive to its numerous customer worksites across the country.

## **Award-winning partnership**

Redesigning an entire legacy logistics system is no small task, and Eazi Access partnered with supply chain specialist

Resolve Solution Partners to bring the project's request for proposal (RFP) to fruition.

An important part of the RFP was interrogating how the people, processes and technology in Eazi Access could work better to enhance the way its truck fleet management operated. The assessment needed to deliver tangible goals that the organisation could not only implement but also continuously improve upon so it can future-proof its logistics processes through innovation, cost savings and smarter ways of working – all essential, considering the challenging economic conditions the industry continues to operate in, resulting in the appointment of Value Logistics as Eazi Access' transport supplier.

According to Jonathan Mphake, fleet manager at Eazi Access and project owner, the decision to partner with Resolve was a natural one. "Resolve is renowned for providing tailor-made solutions that are innovative and practical," he explains. "The way they streamline and optimise the entire operation brought people, operations, processes, data and technology together so seamlessly – making sure we could achieve the balance we needed."

### Supply chain innovation

The project design delivered several efficiency-focused features like a driver mobility system with real-time load status updates, integrated inventory and logistics; workstreams that increase productivity; and a continuous focus on information updates which are only some of the features the new system will bring to the network.

This greatly enhanced the way information and data were used to monitor the entire fleet and quickly act when a problem is detected to ensure maximum availability, maintenance and management of their trucks.

### Going green for the Enviro Award

The LAA Enviro Award was specifically designed to motivate organisations to make a genuine effort in minimising the environmental impact of their supply chain processes. Governments and industry organisations around the world are clamping down on processes that negatively impact the environment while customers are increasingly questioning the impact the businesses, they choose to transact with, have on the environment.

The redesign of Eazi Access's fleet requirements delivered significant environmentally friendly results by reducing the number of kilometres travelled; improving fuel efficiency; thus reducing carbon emissions of the fleet.

This made sure the redesign benefitted the organisation, its customers, its communities and the environment it operates in.

### Turning a business buzzword into reality

One of the main aspects of the project was changing the way data was being used to better manage the logistics of its fleet and having complete visibility of its end-to-end requirements: from monitoring truck usage and condition, to making sure suitable vehicles are available without delay.



Eazi Access partnered with supply chain specialist Resolve Solution Partners to bring the project's request for proposal to fruition.



An important part of the RFP was interrogating how the people, processes and technology in Eazi Access can work better to enhance the way its truck fleet management operated.

The key to this type of innovation, Mphake says, is making the intangible tangible so that they can solve problems that matter. "Big-data is a buzzword we see everywhere, but what is more important is the interpretation of the data and the formulation of actions to address any shortcomings that might have been identified," he explains. This, he adds, is

exactly what the Resolve and Eazi Access partnership achieved.

"We took a concept more familiar in the fast-moving consumer goods industry and transposed it to a machine rental distribution model. That's not something you see every day and the synergy between Eazi Access and Resolve helped us bring this concept to life," he concludes. 🌱



Catrin Nilsson, manager – Connected Solutions Platform at Volvo CE.

# CONSTRUCTION CONNECTIVITY: THE BEST IS YET TO COME

**Volvo Construction Equipment (Volvo CE) may have helped Volvo Group reach a major milestone of 1-million connected assets, but it is already asking 'what's next?' Catrin Nilsson, manager – Connected Solutions Platform at Volvo CE, explains why this is a pivotal time in the company's connectivity journey.**

## ABOUT CATRIN NILSSON

Catrin Nilsson, manager of Connected Solutions Platform in Technology, Volvo CE, has been working at Volvo since 1997 – mainly within EnE systems and hardware. She has now been working within the connected solutions platform for the past two years.

**Q: With so many connected construction machines – Volvo CE has 150 000 at the last count – does this mean connected solutions are now just as important as the machine?**

**Catrin Nilsson [CN]:** Connectivity is a true enabler. It has become such an essential feature that if you are not connected, you simply cannot perform to the high levels required of a modern job site. Machine data can now provide customers with all the help they need to boost fuel efficiency, uptime and productivity.

Advanced prognostics even allows us to analyse trends to the point where we know not only why a component might break down but also predict when it might happen. The number of machines equipped with machine control system applications such as Load Assist, Haul Assist, DigAssist, among others, is growing every day. On top of that we provide the customer with fleet services related to uptime, such as CareTrack and Active Care.

**Q: So, where do we go from here?**

**CN:** Prognostics is still one of the biggest areas of focus at the moment. Finding patterns in the behaviour of machines so that failure can be prevented is so important in the construction business.

Every second of downtime costs money. For example, in an asphalt laying project in the US, you are given a specific timeframe to carry out the work. So if a paver breaks down it is not only slowing down the entire project, at a huge cost, but it also gives you additional penalties if the timeframe is exceeded.

**Q: Uptime is clearly one of the biggest drivers for connectivity. What other factors are there?**

**CN:** At Volvo CE we thrive on innovation, but there are outside factors too. Environmental regulations such as the China IV

emissions standard, for example, requires machine manufacturers to provide data based on the Chinese Beidou satellite navigation system, which broadens the connectivity offer.

Reducing manufacturers' environmental impact is also important. If travel times of technicians heading to long-distance locations to conduct repairs can be reduced – either by diagnosing the problem remotely before coming out to site, thereby avoiding an extra journey, or by spotting machine failures before they occur – then ultimately we will reduce the number of site visits and in turn cut our carbon footprint.

**Q: Construction sites can be dangerous. Is safety also a motivation?**

**CN:** Absolutely. When you consider the progress we're making in automation, connectivity has a big role in creating the site ecosystem to make that happen efficiently and safely. If the ambition is to remove humans from dangerous job sites entirely, then without an operator behind the wheel it's the responsibility

of the software to react quickly in an emergency. The system needs to respond quick enough so that it can, for example, hit the emergency brake if there was an obstacle in the way.

**Q: A lot of progress is being made, but what are the challenges facing connectivity?**

**CN:** The biggest challenge is that different markets and regions diverge on the quality and regulations surrounding their mobile network. Even when 5G connectivity is enabled on our machines, the service won't be available everywhere. In many ways, it's easier for us in construction, than say Volvo Trucks, as we tend to have a pre-defined area of operation rather than having to travel long distances. In sectors such as mining, the primary challenge is securing connectivity in remote locations or deep underground.

**Q: How will connectivity change the way we do business?**

**CN:** In five to 10 years' time, who knows? Maybe we don't just sell ma-

chines. Instead we sell a service paid by the hour. By asking our customers at the point of sale: 'What do you want to achieve for your site?', we can then offer a combined package that helps them achieve their goals. In many ways, construction is the perfect place to explore these new business models. Because with clearly defined parameters and job site targets, it's easier to work out the best solution to help you achieve those targets.

**Q: Is Volvo CE working on new connected solutions?**

**CN:** We have the machines, we have the services, now it is a case of maturing the technology and enhancing the functionality. We will do that by testing our connected solutions in different stages – by targeting different customers and different applications. Only when we are confident we have found the best possible solution will we then bring these advances to the market. Connectivity is a game-changer for Volvo CE and we want it to be a game-changer for our customers too. 🌐

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# HOW DIGITAL SOLUTIONS ARE DRIVING COST SAVINGS FOR THE MINING INDUSTRY

Mining operations everywhere are experiencing constant profitability pressures from two directions: continued commodity pricing volatility and global demand variability. Africa-based miners are no exception. *By Kevin Shikoluk, global strategic product & marketing leader, Digital Mine at Wabtec Corporation.*

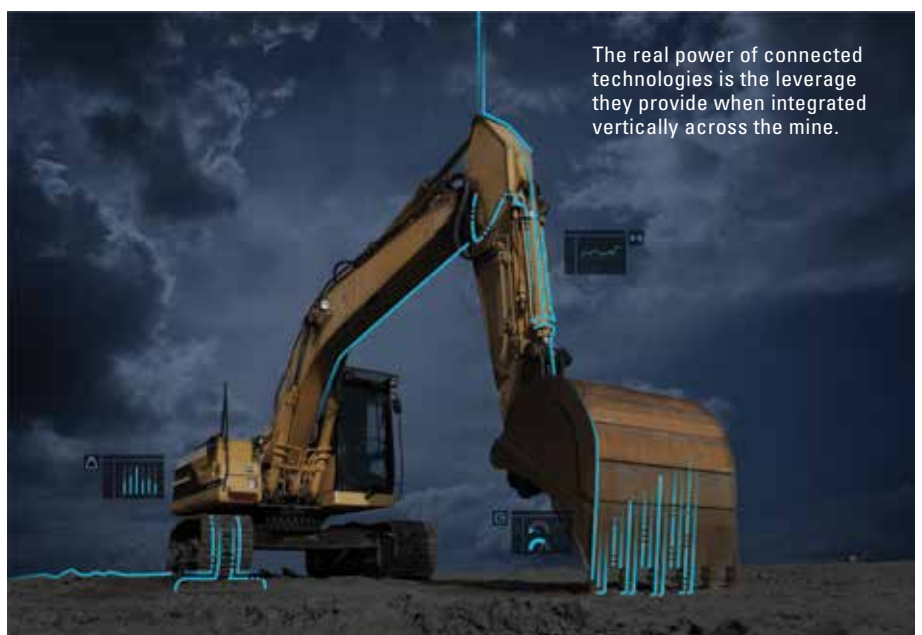


The data from smart connected devices allows for much more precise and focused service that not only increases asset availability, but also reduces overall maintenance costs.

**T**hese dynamics have caused mining companies to re-evaluate business models and seek smarter, more efficient modes of operation that focus on sustainable cost management practices and improved productivity.

The mining sector isn't unique in this regard. Many of the world's leading industries – manufacturing, oil and gas, healthcare, and others – have also recognised this need for change. While the exact improvements vary from industry to industry, the path to transformation is similar: an emphasis on improvements at both the asset and process levels through the application of leading-edge digital technologies across the Industrial Internet value chain.

By harnessing the combined power of machine sensors, edge-to-cloud connectivity, advanced data capture and



The real power of connected technologies is the leverage they provide when integrated vertically across the mine.

powerful analytics, the Industrial Internet can deliver deeper insight into mining operations than ever before.

These insights can then be used to drive intelligent recommendations for improvement – from asset lifecycle management to condition-based, prescriptive maintenance programmes and strategies to optimise performance within the plant. This approach has already yielded breakthroughs in improved efficiency, increased asset availability and optimised processes in many other industries and there is a growing track record of success in mining.

Condition-based maintenance can help reduce total maintenance costs by guiding the timing of maintenance, avoiding over-maintenance when not needed and triggering maintenance sooner than might have been scheduled, ultimately avoiding expensive repairs from a more serious failure.

Even switching to usage-based predictive maintenance can help lower maintenance costs by avoiding performing unneeded maintenance on idle or lightly-used assets.

The incremental cost to instrument a critical asset is dropping rapidly thanks to the introduction of digital solutions within the mining space. Asset Performance Management, for example, can make a significant impact by giving real time visibility and actionable insights around the data that is captured within the mining operation. The data from smart connected devices allows for much more precise and focused service that not only increases asset availability, but also reduces overall maintenance costs.

### The power of vertical integration

The real power of these connected technologies, however, is the leverage they provide when integrated vertically across the mine.

For example, Wabtec worked with a South African operator to deploy a collision awareness system on a contractor's fleet at their above ground mining operation. This in itself is not unique as many companies across South Africa are doing the same in order to comply with safety legislation.

What's unique in this case is that the customer is using other solutions within Wabtec's Digital Mine portfolio to help solve another problem: ensuring consistent feed grade of ore into the concentrator.

In this particular case, downstream processing was impacted due to the varying ore grade quality. Leveraging solutions from our Collision Awareness portfolio as well as Operations Performance Management technologies help operators blend the ore to get a consistent feed grade into the concentrator downstream.

For miners, controlling these sources of variability is ultimately the key to improving throughput and metal recovery.

Vertically integrated digital solutions are only scratching the surface of what's possible. As this example also shows, mining companies in South Africa are actively embracing these solutions, and in doing so, are at the forefront of transforming themselves into fully fledged digital mines.

### Embracing transformation

To take full advantage of the promise of the Industrial Internet, mining companies must develop an overall

strategy that includes a full assessment of the continuously evolving ecosystem of solutions that will help them reach their goals.

It can seem like a daunting prospect, but by working with knowledgeable and experienced partners, the digital transformation process can be manageable and affordable to deliver exponential cost saving and productivity benefits.

At Wabtec we have learned that in order to make the transition to a digital mine, operators require support in multiple capacities. One of the ways we have been successful in assisting mining operators is by leveraging robust monitoring capabilities around the globe to better understand their operations.

Working from high-tech hubs around the world, we can monitor customer operators' assets and operations with sophisticated software. When the software flags anomalies that require action, we work with our mining customers to drive the required action.

We also monitor ongoing processes on behalf of customer operators. This means, for example, that Wabtec's Digital Mine can make sure control loops are finely tuned to optimising ore grade recovery as a collective mine site. As a result, operators are able to advance from being completely reactive to being on the front foot of taking a proactive stance and defining how they want to work based on data-based decisions.

The change management aspects of this process should not be underestimated. But in our experience, it's eminently achievable and ultimately rewarding.

Those in the mining industry who embrace this need for industrial transformation sooner will have a distinct advantage over competitors who choose to delay their journey to modernisation and digitisation. 🌟



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# HOW INVESTING IN SMALL BUSINESSES CAN BENEFIT BIG BUSINESS

Businesses are dependent on the social, environmental and economic sustainability of the communities in which they operate.

Investing in initiatives which empower more people to become self-sufficient can have far-reaching benefits. By *Len Brand*, CEO at TATA Africa Holdings and head of Distribution Vertical at TATA International.

The proverb ‘give a man a fish, and you feed him for a day; teach a man to fish, and you feed him for a lifetime’ is still one of the most powerful ways businesses can pay it forward.

Before I came on board in August 2016, the TATA Africa business was not in good shape. But execution of strategic initiatives which involve leading major organisational and cultural change to propel and sustain revenue growth is what I live for. It was a challenge that I relished.

Fast-forward two-and-a-half years later and I am pleased to say that, through a clearly defined “uptime” turnaround strategy, we managed to achieve a 20% jump in turnover, and the business was returned to solvency.

## It’s all about uptime

In essence, uptime is the opposite of downtime. For commercial vehicles like trucks and buses, uptime is the period when that vehicle is up and running, and downtime is when it’s off the road for maintenance or repairs. Obviously when human capital or other assets go down, the business suffers financially. So, the quicker we can get that vehicle back on the road, helping its driver or owner to earn an income, the better.

Before the implementation of our uptime strategy, TATA Africa’s network consisted of independent 3S and 2S dealers in South Africa and Kenya, with TATA acting as importer and dealer elsewhere on the continent. All these facilities were in the main cities of each country.

A 3S facility is a dealership which offers sales, service and spare parts. A 2S facility, usually owned by a private individual, offers only services and spare parts. Up till that stage, a 1S facility was just a guy selling grey import spare parts out of a container.

In order to truly grow our footprint, to create the economies of scale we needed across the continent, we had to transform TATA’s network in Africa through an innovative development programme.

So, in line with the ethos of the Tata family conglomerate and its unwavering commitment to job creation, education and

skills development, especially in the areas of youth employment and community and social upliftment, we set out to empower existing small business owners to become entrepreneurs.

## Empowering entrepreneurs

It’s important to understand that not all small business owners are entrepreneurs. While they are both self-employed, there are some distinct differences.

Small business owners are often sentimental, seeing their business as part of the community and part of the family. They are generally happy with the way things are, and content to simply carry on making a living, with limited growth and profitability.

Entrepreneurs, on the other hand, are not in business to simply achieve a level of income to support their current lifestyle. They are driven by passion or opportunity, and focus on innovative offerings, targeting rapid growth and high returns.

Our development programme was focused on identifying those small business owners with entrepreneurial flair, and equipping them with the skills they needed to implement business processes and operating efficiencies to take their businesses to the next level.

We chose existing 1S facilities, strategically picking the ones already operating in prime locations, and offered to sell them genuine spare parts at a discounted rate, with a one-year buy-back guarantee.

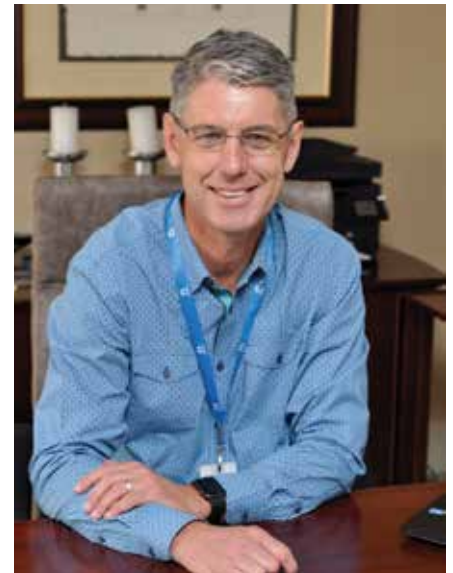
We also offered free training for roadside mechanics, bringing them into one of our 3S or 2S facilities for three or four days, and training them on how to fix our vehicles.

## Investment bears fruit

Our 1S pilot in Tanzania was a huge success. We have already seen the entrepreneurial results of the time and money we have invested in this programme.

When one of our customers’ trucks or buses break down, these TATA-trained roadside mechanics now go to their nearest 1S facility, buy the genuine parts, and fix the vehicle as quickly as possible.

There has also been a shift in their buying



Len Brand, CEO at TATA Africa Holdings.

behaviour, as they have started buying spare parts from 1S facilities closest to them. Not only are they supporting small businesses in their communities, but in doing so, they are also able to get their customers’ trucks and buses up and running as quickly as possible.

All of this supports and bolsters our uptime strategy – positioning ourselves as the brand of choice in Africa for vehicles with the least amount of downtime. It’s a virtuous cycle.

## The whole is greater than the sum of its parts

In South Africa, we still have more than 30 3S dealers, and have increased our 2S touchpoints to 91. We can reach a broken truck or bus in less than two hours. We are doing the same across the rest of the continent, where we have expanded our own 3S facilities beyond just the main cities, and added numerous independent 2S and 1S touchpoints. As you travel through Africa, you know there will be a TATA touchpoint somewhere along the way.

Our aim is to continue growing our brand awareness, to be top of mind for commercial vehicles on the continent, and ultimately for the TATA brand to be as big and respected in Africa as it is in India. 🌍

# FIVE COMMON OPERATING ERRORS AND HOW TO AVOID THEM

Operator behaviour not only affects machine health but also the productivity and profitability of the entire site operations. Here are five of the most common operating errors to watch out for.



Volvo CE recommends operators always leave the machine to idle for two to three minutes before completely switching off the engine.

## 1. Not leaving a machine to idle for a few minutes before shutting it down

If an operator consistently shuts down the machine without letting the engine idle for a few minutes first, eventually it will lead to damage or even failure of the turbo charger, which can be very expensive to repair. Volvo CE recommends operators always leave the machine to idle for two to three minutes before completely switching off the engine.

## 2. Going from forwards to reverse (or vice versa) at high speed

Over a long period of time, regularly shifting the travel direction of a wheel loader at high speed can lead to driveline failure. Considering transmission replacements can cost huge sums, this is one operating error every machine owner should avoid. Volvo CE recommends operators always bring the machine to a complete standstill before going from forwards to reverse or vice versa.

## 3. Using the wrong excavator work mode

Some excavator operators may think that using the highest work mode – Heavy (H) – will help them achieve the highest productivity. However, they could achieve the same level of productivity in a lower work mode, burning half the fuel.

## 4. Applying the brakes too often and not using the retarder

Some articulated hauler operators may have a habit of 'riding the brakes'. Resting a foot on the brake pedal,

however lightly, means the hauler has to work harder to maintain speed and the brakes wear faster. Using the brakes to maintain a steady speed while travelling downhill, instead of the retarder, has a similar effect. Unnecessary wear to the brakes leads to unnecessary brake replacement costs.

## 5. Overusing the 6x6-wheel drive combination on an articulated hauler

Volvo articulated haulers feature differential locks that allow the operator to choose between 4x6 and 6x6-wheel drive combinations, depending on how much traction they need. The 6x6 combination delivers excellent control and stability on difficult terrain but if operators use it when they don't need to, they can waste a lot of fuel and cause unnecessary wear to the tyres. 🚫

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## Pilot Modular – solution for an ever-changing industry

It goes without saying that, in all industries, across all sectors, wasteful expenditure is a sure-fire way to hasten a company's demise. What comes to mind is the concept of 'Just in Time' manufacturing, made popular in the 70s by the Toyota corporation, which stated that a company should be geared towards making just what is needed, when it is needed, and only in the amount needed.

The mining and quarry sector are no different. By overcapitalising on Capex, one runs the risk of tying up much needed capital that could be better utilised in other areas. This is where Pilot Crushtec's modular solutions for the mining, quarrying, construction and recycling industries come to the fore as the logical choice for companies across the spectrum.

To define the concept of the modular plant, Mark Reeves, sales engineer at Pilot Crushtec, says that the idea is modular by design and implementation.

"From a design perspective, you can select the components you need, for your specific application. These units are then interlinked with conveyors and a solution is tailored to your specific needs and site specifications. Once the design is defined, all the modules and individual components are sent to site, lifted into place and bolted together – not unlike a Mechano set. Additionally, should your requirements change at any point within the design process, you are able to tweak the requirements, so you have exactly the right layout, equipment, and capacity to get the job done. You get to



Pilot Crushtec International can design and implement solutions that can process anything from 10 to 500 t an hour.

choose what you need, when you need it, and can add modules as and when required."

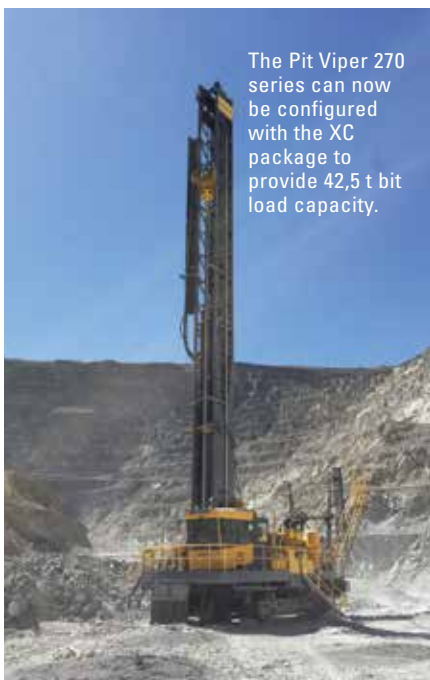
The concept would, at first, seem to be aimed at solutions for the larger companies within the market, but as we have seen over the last few years, smaller entrepreneurs and medium-sized companies are on the rise. The modular solution in this case would make perfect sense for those enterprises starting off small, with an eye to growing their business and creating sustainability within a challenging global economy.

"These modular plants are extremely scalable and, as such, can cater to a wide variety of companies, irrespective of size or application. We can design and implement a solution that will process anything from 10 tons an hour to 500 tonnes an hour – and should your requirements change over time, additional units can be slotted in to increase production."

The concept of the modular plant, the brainchild of engineers at Pilot Crushtec, is a seamless integration of the company's industry know-how, innovation and manufacturing capabilities with global machine manufacturer, Metso.

As with all the Metso products, the components come with the industry leading five-year/10 000-hour extended Equipment Protection Services (EPS) warranty. "We realised there was a gap in the market for a modular solution and took it upon ourselves to study the general assembly drawings from Metso and devised a way to make the concept work," says Reeves. 🌐

## New Pit Viper 270 XC series blasthole drilling rig from Epiroc



The Pit Viper 270 series can now be configured with the XC package to provide 42,5 t bit load capacity.

Epiroc has introduced its Pit Viper 270 XC series said to deliver application flexibility, fuel-efficient performance and enhanced safety with enhanced operator comfort and ease of maintenance.

The Pit Viper 270 series can now be configured with the XC (eXtrS Capacity) package to provide 42,5 t bit load capacity. Along with Epiroc's proven list of options, the PV-270 XC can be configured for specific applications.

Epiroc's PV-270 XC series delivers a hole diameter range up to 311 mm. This is available in both the multi pass and single pass offering which provides a clean hole of 16,8 m and 18 m. The PV-270 XC builds on the high industry standard of performance and innovation of the Pit Viper 270 series. Epiroc has worked towards understanding the customer needs to deliver "more venom" for your operation.

With the Epiroc Rig Control System, the PV-270 XC can be run with an operator on-board using options such as AutoDrill and AutoLevel – or it can be run with the operator off the drill with the optional BenchREMOTE package, enabling one operator to run one or multiple units. It provides a foundation to add new functionality and options later without a major rebuild of the machine. Autonomous drilling can be implemented with almost no human interaction with the drill.

"Since the first introduction of the Pit Viper 270 rig, Epiroc have successfully deployed over 500 Pit Viper 270 rigs in the mining environment," says Heino Hammann, product line manager – Blasthole at Epiroc Drilling Solutions. "We will continue to inspire while leading in innovation – the Pit Viper 270, a true proven partner for your mining needs." 🌐

## Babcock plays central role in Lomeza's growth

Babcock's open-door policy, values of transparency and candid dialogue, combined with a range of leading construction machinery and equipment, is a recipe for successful collaborations with its customers. As a partner who is trusted to deliver, this philosophy has struck a chord with Lomeza Mining Services who required reliable construction equipment to fulfil its obligations as part of a long-term contract to load and haul overburden in Delmas.

Simon Mkhonza, MD of Lomeza Mining Services, says he initially approached Babcock three years ago seeking reliable construction equipment for Exxaro's Leeuwpan Coal Mine. Today Lomeza's fleet includes 18 Babcock-supplied Volvo Construction Equipment machines that have helped the growing business meet and increase their production capacity.

Most recently Lomeza has taken delivery of three Volvo A60H articulated dump trucks (ADTs) and one EC950E excavator, adding to its existing fleet that includes six A35G ADTs, three A45G ADTs and three EC750D crawler excavators.

Mkhonza says that as a young organisation Lomeza did not have extensive access to machinery that larger contract mining

companies have, and recalls his first meetings with Babcock as the owner of a small business with a large equipment supply problem. After initial negotiations, Mkhonza took delivery of two Volvo EC750D excavators and six A35G ADTs in November 2017. "My business was still in the start-up stages and I wasn't yet known to the leading equipment suppliers. However, Babcock chose to support me and this was the beginning of a solid and long-lasting relationship," says Mkhonza.

He adds that the mine soon recognised the quality and performance of the Volvo Construction Equipment and increased Lomeza's production capacity which in turn required more machinery. "I went back to Babcock and again they offered me fantastic support. Together with Babcock and Volvo, we have grown and advanced Lomeza's fleet to 18 Volvo machines, meeting our production targets of 2-million t of overburden a month."

Mkhonza highlights the distinction between simply supplying equipment and maintaining it in good working order, saying that Babcock has provided unwavering support in regard to the latter. "Babcock's service goes far beyond the sales lot and the



Lomeza has grown its fleet to 18 Volvo machines.

team is fully committed to after-sale support and maintenance. Servicing is done on site and their skilled technicians offer excellent assistance and fast turnaround times if there is a breakdown," he says.

Babcock's Rob Baker, Volvo & SDLG Equipment Sales, echoes Mkhonza's sentiment and says that over the course of three years a relationship based on mutual respect and trust has developed between the two businesses. "Simon is a fantastic customer and our relationship with him has grown from strength to strength." A recent letter of gratitude to Lomeza Mining Services from the mine thanking the business for meeting their targets bears testament to this successful collaboration. 🌟

## Emerald project benefits from versatile diamond sorting technology

A De Beers Group Technology X-ray fluorescence (XRF) sorting machine is providing a secure and efficient sorting solution for emeralds.

According to De Beers Group Technology head Gordon Taylor, the company's sorting technologies have been applied to a range of minerals apart from diamonds, and these include gemstones like rubies to lower value commodities like manganese and coal.

"We are always on the look-out for new applications for our sorting equipment, which also employ X-ray luminescence, X-ray transmission, laser, magnetics and ultra-violet technologies," says Taylor. "So we were excited by the opportunity to collaborate with Magnum Mining and Exploration on their Gravelotte emerald project in Limpopo province."

In its trial mining and processing phase, Gravelotte has been gathering data to confirm the historic grades previously recovered at the Gravelotte project. In operation for much of the 20th century, total recorded production from this area was estimated at nearly 113 million carats. It was reportedly the world's largest emerald mine of its type in the 1960s, employing over 400 sorters. GM of operations at Gravelotte, Wessel Marais, highlights that the traditional manual method of sorting carried an associated security risk and also led to recoveries that were not optimum.

"Various mechanical sorting options are available on the market today," says Marais, "and Magnum approached De Beers Group Technology to determine whether their diamond sorting technology could be adapted to emerald sorting." 🌟

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## CareTrack now standard on selected Volvo compact equipment

In a bid to boost customers' productivity and profitability, Volvo CE now offers its telematics system, CareTrack, fitted as standard on certain compact excavator and compact wheel loader models in Europe, the Middle East and Africa, along with a complimentary three-year subscription.

Volvo CE is pleased to announce that it will now fit CareTrack as standard on compact excavators 5-t and upwards as well as all compact wheel loaders in the EMEA region. Customers will be able to access the mapping and tracking, daily hours and service management functions free of charge for three years.

With some models customers will even have the possibility to receive more advanced operational data, such as fuel consumption and utilisation. As the population of compact machines connected to CareTrack grows, Volvo CE expects to expand its range of services specifically for compact equipment. Among its ambitions, for example, is to offer unique compact machine reports.

"We live in a connected world and there has never been a better time to make a real impact with data use," says Ivona Baldyga, manager for Productivity & Efficiency Services within Volvo CE Sales Region EMEA. "By connecting machines – compact or otherwise – we are able to help customers achieve greater efficiency, uptime and profitability in their businesses."

Earlier in the year, Volvo CE was bestowed the ERA Technical Committee Award at the 2019 European Rental Awards (ERA) in Madrid for its 'continuous commitment to the satisfaction of the needs and requirements of the European rental industry'.

This industry recognition has encouraged Volvo CE more than ever in its efforts to improve compact connectivity and achieve its ambitions to be customers' number one choice for uptime, total cost of ownership (TCO) and safety. 🌱

As the population of compact machines connected to CareTrack grows, Volvo CE expects to expand its range of services specifically for compact equipment



## Kemach JCB delivers Quicksilva Burcon Hire's 100th backhoe loader



The 3CX model has since evolved into one of the most popular backhoe loaders in South Africa.

Kemach JCB Cape Town has delivered to Quicksilva Burcon Hire, its 100th backhoe loader. The first machines bought by the then named Burcon Plant Hire were in 1990. They purchased four JCB 3CX models.

Theuns Burger the original owner of Burcon in 1990, sold the company to Peter Smith in August 1993. Thereafter the company changed hands again when Peter decided to sell the business in 2012 to Hamilton Plant Hire who kept the company for five years before selling to Joao Da Silva in 2017.

The company then became known as Quicksilva Burcon. So, a long-standing relationship has been established over the years and which has stood the test of time between Quicksilva Burcon and Kemach JCB Cape Town.

The 3CX model has since evolved into one of the most popular backhoe loaders in South Africa, due to its quality of engineering (which is regularly upgraded), cabin features and reliability. The JCB backhoe loader is the South African and global market leader.

While Joao Da Silva, owner of Quicksilva Burcon, was visiting the JCB factory in the UK on the Kemach tour in 2018, he saw a 2CX in white, with the branding of the Formula1 car in the Martini colours. Inspired to do something special on this 100th backhoe loader milestone, he commissioned a replica of the JCB/Williams Martini Racing Edition backhoe loader in order to commemorate this special occasion. Da Silva is quoted as being exceptionally chuffed with this unique and eye catching backhoe loader.

Since Da Silva acquired Quicksilva Burcon, he has doubled the fleet size of the company and expanded the machine range from predominantly backhoe loaders to excavators, loadalls, loaders, skidsteers and compaction rollers. Their entire fleet currently comprises JCB machines with the exception of one excavator which was absorbed by Da Silva from the previous owner. 🌱

## New look SDLG motor graders boost visibility and efficiency

Leading Chinese construction equipment manufacturer SDLG has announced a raft of important updates to its popular range of motor graders, including a new cab, new engine hood and improved maintenance access.

The G9138, G9190 and G9220 motor graders from SDLG have undergone a makeover – combining improvements to the user-friendliness and reliability of the machines with a fresh new look.

The new modern-looking cab provides easier entry and exit. Once inside, the larger glazed areas with thinner pillars and thinner silicone stripes help operators to complete tasks with greater safety, accuracy and productivity by significantly increasing their visibility.

The new front display likewise improves visibility and, by following the movement of the pedestal, makes the gauges easier to read. In addition, it includes an articulation indicator to aid the operator.

The new right dashboard also improves visibility down to the rear right wheel and to the right-hand side. It gives a clear overview of the buttons and makes them quicker and easier to access.



The G9138, G9190 and G9220 motor graders from SDLG have undergone a makeover.

When servicing the machines, the new engine hood has a larger opening making it easier to reach all the components. The new hydraulic sight glass also helps technicians in carrying out effective regular maintenance checks.

“Our SDLG motor graders are already

proving popular on the market and these latest updates to their visibility, durability, ease of operation and maintenance are set to make them even more of a safe, reliable and productive choice,” says Henrik Sjöstrand, product manager for SDLG. 🌟

## Civplant Civils expands its fleet with Hyundai excavators

Civplant Civils has extended its fleet of Hyundai construction equipment with the addition of two R300LC-9S excavators and a R220LC-9S excavator from HPE Africa. These machines provide high productivity in many applications in township infrastructure and civil engineering.

“During tough times in civil engineering, where lack of work is one of the most worrying issues, our team pulls together even closer to strengthen relationships we have established with customers over the last 20 years. We make sure we provide the highest quality work, on time and within budget constraints,” states Don van der Riet, one of the owners of Civplant Civils and Civtek Limited. “The investment in quality equipment, reliable support from suppliers and professional operator training, are critical to being able to achieve our goals.

“As specialist suppliers of township infrastructural services and civil engineering, we have to continually extend Civplant’s fleet of construction equipment, to cope efficiently with a broad range of tasks. These include bulk earthworks, road works, water, storm water and sewer reticulation, as well as commercial and industrial projects.

“In the plant selection process, we need to carefully consider the following critical



Civplant has taken delivery of three Hyundai excavators from HPE Africa.

factors: to match the correct size machine to project requirements; to consider budget restraints and to find a reputable supplier with a proven track record, that will provide dependable back-up support and an efficient spare parts service.

“Key machines in our fleet are Hyundai

excavators, which offer high productivity, fuel efficiency and low maintenance – even in tough working conditions. The latest addition is a Hyundai R300LC-9S excavator, which since its acquisition in September 2019, has been fully operational in a civils application in Gauteng.” 🌟

## Modernise your lifting equipment

Everything in life has a sell by date, but not everything needs to be replaced, in particular your overhead cranes, which can easily be upgraded as critical components reaching the end of their economic service life or your business expands and production requirements change through Konecranes' Modernisation Services.

"The state-of-the-art technology that came with your last overhead crane investment, has most certainly been replaced by something more advanced and enhanced, this is inevitable as more research and development is conducted to make cranes quicker, more efficient, safer and cost efficient. Additionally, there is a very good chance that safety regulations have changed or become more stringent, requiring your cranes to be re-inspected and upgraded in order to be compliant. This doesn't mean that the equipment always has to be replaced, they can be modernised," says Emil Berning, MD of Konecranes SA.

"Likewise, if your business has expansion needs, or certain production processes need to be upgraded or adapted, Konecranes have professionals able to conduct a modernisation analysis of all the crane equipment

and associated components, and provide a detailed report as to how your assets can be modernised at an economic cost vs replacement," he says.

The most common modernisations include replacement of hoists, trolleys, operator cabs and controls so that an increased capacity, speed, duty, ergonomics and/or load control can be achieved. Steel structures and runway can also be modified to meet new technical and safety requirements.

Factors such as crane speed, lifting capacity, safety features, positioning capabilities, enhanced operator safety or the replacement of outdated components that have become high-maintenance all lend themselves to a modernisation analysis, which is the best way to protect, while extending, your original investment.

A Crane Reliability Study, undertaken by Konecranes, assesses what is the current state of your crane equipment, giving a theoretical estimate of its remaining design longevity. Elements analysed include all electrical and mechanical functions of the crane's system, including trolley processes.

The scope of analysis study will also combine one or a combination of

the following: automation, capacity/performance upgrades, change of application/location.

The analysis will also inform the customer of the way forward to meet the needs for greater performance and throughput or how modernisation of your assets can support the implementation of an entirely new process. 🌐



Konecranes offers Modernisation Services for lifting equipment.

## Potain tower cranes still leading with technology that works

Available from Crane & Hoist Equipment SA, the Potain MDT 389 is well suited to crowded construction sites where space is tight and multiple cranes are needed.

Like other topless cranes it has been designed to allow more cranes to over swing in a smaller area. Louw Smit, sales director of Crane & Hoist Equipment SA, the sub-Saharan distributor for Potain tower cranes, says there are a host of features which make the Potain MDT cranes stand out from the competition.

The complete range, including the MDT 249, MDT 259, MDT 269, MDT 319 and the MDT 389, is equipped with Manitowoc's Crane Control System, or CCS. CCS is a standardised, user-friendly operating system on all Potain tower cranes.

"CCS assists users to enjoy the highest levels of comfort, flexibility, ergonomic control and, most importantly, improved lifting capacity. The enhanced productivity achieved as a result translates into a faster return on investment for Potain crane owners," Smit says.

In addition to having a fresh and modern design that allows for ultra-fast ground preparation and assembly, the Potain MDT range easily beats the competition when it comes to transportation.

"For example, the turntable, cab mast and Ultra View cab travel in a single compact package, while the counter jib can be folded and the winch platform can be sized to take up less space," Smit explains. Another advantage is that the mechanisms are grouped in a central technical zone for easier access and maintenance.

As part of its standard features, the Potain MDT 389 is equipped with Manitowoc's CraneSTAR, a GSM data transfer system that provides information on crane location and operation to support fleet management.

There are two versions of the Potain MDT 389, one with a 12 t maximum capacity and the other with a 16 t maximum capacity. Both versions have up to 75 metre (m) of jib available. The 12 t version can lift 3,4 t at its jib end, while the 16 t version can handle 3,3 t.

Potain also offers a smaller range of CCS equipped cranes, the Potain MDT City line, which includes the MDT 219. Other cranes in the range are the MDT 109, MDT 139 and MDT 189.

Like the Potain MDT 389, the MDT 219 is the highest capacity model in its range. There are two versions of the Potain MDT 219, one with an 8 t maximum capacity

and one with a 10 t maximum capacity. All are evolutions of previous Potain MDT City cranes with jib lengths ranging from 55 metres to 65 m and hoisting capacities ranging from 6 t to 10 t. 🌐



Potain Topless cranes are equipped with Manitowoc's Crane Control System, or CCS.

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