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TRANSPORT START-UPS: A GROWING INDUSTRY IN SUB-SAHARAN AFRICA

By Nomvo Kasolo, Frost & Sullivan

A wave of innovative transport start-ups is helping to keep Africa's heartbeat sector growing. In the past year, the transportation sector achieved an impressive record of 21 start-up companies, the majority of which were aimed at unlocking new growth opportunities through software, internet-enabled solutions, and alternative e-mobility solutions.

With roads being the arteries through which the African economy pulses, the ongoing challenges have been key hindrances to sustainable economic growth and global competitiveness and trade. However, the

spark of positive change being driven by recent start-ups in markets like Nigeria, South Africa and Kenya has the potential to continue being driven by global trends but will require the continued support of innovators by both the private and public sectors.

Furthermore, this startup wave is one step closer to achieving the estimated jump of \$16-billion in intra-regional trade that economists and trade experts expect to be possible through the African Continental Free Trade Agreement (AfCFTA).

Though plagued by several challenges, including an infrastructure investment shortfall of \$67-billion and \$107-billion annually, according to the IFC, a look at recent start-ups and their funding avenues in Africa points to a growing attraction of the continent as the last growth frontier for investors.

In 2021 alone, the continent attracted about 564 start-ups, with fintech accounting for the majority share. For transport start-ups specifically, the records show a proactiveness by innovators to help solve Africa's connectivity predicament, where supply chain challenges and limitations in physical infrastructure network limitations amount to about 40 – 60% surcharge costs on goods on the continent.

The record of companies also points to an industry gearing up for global trends that are likely to leave lasting changes in the industry. These trends as recognised by the Association of African Exhibition Organisers (AAXO) were likely noted to be

around technology and automation and Environment Social Governance (ESG). In the African context, these have already been adopted and are surfacing through a rise in the e-logistics and e-mobility sectors.

2022 is expected to follow the growth trajectory seen in 2021, through several ongoing joint efforts to support innovators. Among these are incubation and accelerator platforms like the Baobab Network (which raised funding worth \$200-million in just eight months); private sector participation like Toyota's Mobility 54 venture unit and several more new financing options offered to solutions targeted at reaching the untapped markets in Africa. South Africa saw an impressive seven start-ups in 2021, with the WhereisMyTransport company raising about \$14.5-million.

With Africa's population expected to nearly double by 2050 (to 2.5-billion), achieving efficiency in the connectivity of goods and people will be critical, which begs the importance of supporting current business avenues that are proving to work well. The transport start-up industry is evidently one of them, particularly in Nigeria, South Africa and Kenya, and the North African countries. Moreover, with the ongoing challenges around fuel hikes, and disruptions caused by the Russia-Ukraine conflict, African nations have a keen opportunity to strengthen their networks through forward-thinking solutions, but also to leverage the potential of the AfCFTA through collaboration. 🌐



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The new 30 t class ADT is ideally suited for quarrying, coal mining and large infrastructure projects.



LIEBHERR TA230 MAKES ITS SOUTHERN AFRICAN DEBUT

Liebherr-Africa has launched the Liebherr TA 230 Litronic articulated dump truck (ADT) in southern Africa. The new ADT – which plugs the gap in the company's earthmoving product range – made its local debut at an Open Day held on 24 June 2022.



"With the addition of the TA 230 Litronic, we have become a full-liner in the earthmoving area. The ADT is the last piece of the puzzle, making us a one-stop shop for all our customers' earthmoving equipment needs."

Dieter Schmid, MD of Liebherr-Africa

Following its global unveiling last year, the Liebherr TA 230 articulated hauler is finally available for the local market. Speaking at the Open Day, Dieter Schmid, MD of Liebherr-Africa, said the new ADT closes a crucial gap in the company's wide earthmoving equipment range.

"With the addition of the TA 230 Litronic, we have become a full-liner in the earthmoving area. The ADT is the last piece of the puzzle, making us a one-stop shop for all our customers' earthmoving equipment needs," said Schmid.

Tendayi Kudumba, General Manager: Earthmoving at Liebherr-Africa, says the new 30-tonne (t) class ADT is ideally suited for quarrying, coal mining and large infrastructure projects. Thanks to its optimal structure gauge, the TA 230 can also be deployed in special applications such as tunnel construction and underground mining.

In fact, the very first TA 230 Litronic in Africa, which has been delivered to

The TA 230 being put through its paces at Liebherr-Africa's Open Day held on 24 June.

6-cylinder

The TA 230 is powered by a 6-cylinder engine with a 12 l displacement, delivering 265 kW of power. A drivetrain with an 8-speed automatic powershift transmission ensures optimal force distribution.

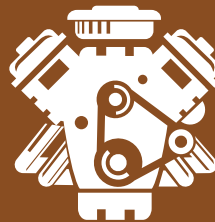
The first TA 230 ADT in Africa has been purchased by Orca Group, a Zimbabwe-based mining contractor.

**AVAILABLE
NOW**

Following its global unveiling last year, the Liebherr TA 230 articulated hauler is finally available in southern Africa



A major talking point is the TA 230's unique design, which earned it the coveted 2021 Red Dot Award for high design quality



The TA 230 is powered by a 6-cylinder engine with a 12 l displacement, delivering 265 kW of power



The machine's large and robust trough is designed for the effective transport of a 28-tonne payload

Zimbabwe-based mining contractor Orca Group, will be deployed in an underground application at the Freda Rebecca Gold Mine in Bindura, Zimbabwe, hauling ore from the underground tunnels to the overland crushers. This, says Gordon Watson, MD of Orca Group, will be a true

test for the new ADT.

"We are very excited to be the first recipient of this ground-breaking machine in Africa," says Watson. "We will deploy it in a taxing underground application, an application we believe will test the machine to its limits."

Machine design

A major talking point is the TA 230's unique design, which earned it the coveted 2021 Red Dot Award for high design quality. The Red Dot Award, considered one of the most important international awards in the field of design,



Tendayi Kudumba, general manager: Earthmoving at Liebherr-Africa (far left), hands over the first TA 230 in Africa to Gordon Watson, MD of Orca Group (middle), with Ian Duncan, MD of R&S DieselPro Services (Liebherr-Africa's Zimbabwean dealer) looking on.

As soon as slip occurs at an axle, the torque is cleverly transferred to the axle or axles with traction. The new dump truck impresses with an excellent driving performance and enormous pulling force, even in the most difficult ground conditions and on challenging gradients. Maximum safety is always guaranteed thanks to optimal adhesion.

"The interaction of balanced weight distribution, permanent 6x6 all-wheel drive, solid, flexible axle mounting, a large bank angle and the high ground clearance enable the TA 230 Litronic to deliver maximum performance in tough underfoot conditions."

Tendayi Kudumba, General Manager:
Earthmoving at Liebherr-Africa

"As soon as slip occurs at an axle, the torque is cleverly transferred to the axle or axles with traction. The new dump truck impresses with an excellent driving performance and enormous pulling force, even in the most difficult ground conditions and on challenging gradients. Maximum safety is always guaranteed thanks to optimal adhesion," explains Kudumba.

The machine's large and robust trough is designed for the effective transport of a 28 t payload. Numerous improvements have been made for quick and efficient loading and unloading, as well as safe transport of the material.

The front of the trough is straight and the sills are low so that loading with a wheel loader, for example, is easily possible across the entire length of the truck. To quicken the release of the material during unloading, the inner edges of the new trough are tapered. The two tipping cylinders at the side give the TA 230 Litronic high tipping pressure.

The load can be tipped against the slope easily and quickly. During transportation, the long chute at the end of the trough ensures minimal material loss. The trough volume can be increased with the optional tailgate. Thanks to the large opening width, tipping of large and bulky transported material is easily possible. Even with the tailgate the overall width of the TA 230 Litronic is still below 3 m – this allows the machine to be easily and quickly transported on the low-loader.

is a true reflection of the painstaking research and development that went into the construction of the machine, says Kudumba.

Designed from scratch and guided by extensive customer input, market analysis and a punishing testing programme, the TA 230 Litronic scores with modern designs in the front-end area, which create maximum ground clearance for true off-road performance, explains Kudumba.

For example, the powershift transmission is positioned safely and compactly under the operator's cab. The newly designed, solid articulated swivel joint allows independent movements of front and rear end, thus ensuring maximum manoeuvrability. The robust and positive-locking swivel joint with tapered roller bearing is perfect for the shear stresses arising during use, withstands maximum loads and provides optimal

force distribution.

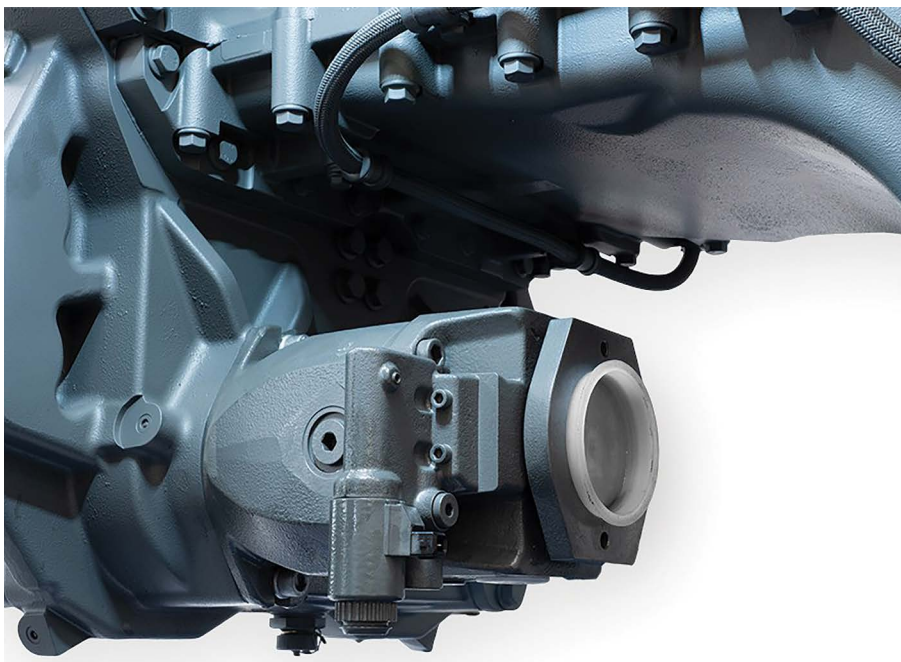
"The interaction of balanced weight distribution, permanent 6x6 all-wheel drive, solid, flexible axle mounting, a large bank angle and the high ground clearance enable the TA 230 Litronic to deliver maximum performance in tough underfoot conditions," says Kudumba.

Efficiency and productivity

The TA 230 which, in South Africa, is Emission Level Tier 0, meaning that no DEF is needed as there is no SCR system and that no EGR is required, is powered by a 6-cylinder engine with a 12 l displacement, delivering 265 kW of power. A drivetrain with an 8-speed automatic powershift transmission ensures optimal force distribution. With the actively controlled longitudinal differential locks, automatic traction control is also available for the TA 230.



The TA 230 is powered by a 6-cylinder engine with a 12 ℓ displacement, delivering 265 kW of power



Three robust Liebherr axial piston pumps LH30VO with a nominal pressure of 280 bar, support the optimal operation of the ADT.

An innovative, standard weighing system shows the current payload during the loading process on the display in the operator's cab. An optional loading light on both sides at the back of the operator's cab shows the loading level outdoors.

Maintenance

With uptime in mind, the machine comes with an optimised maintenance concept. Thanks to the clever sensor technology, the TA 230 automatically performs the daily check itself. The machine runs through an inspection catalogue at the start, where levels of engine oil, coolant and the central lubrication system, for

example, are checked for the nominal state. Any deviations are shown on the display in the operator's cab.

The electrohydraulic opening bonnet, as well as an integrated, folding ladder with non-slip steps, provide easy, safe and clear access to the entire engine compartment. All relevant service points are visible and easily accessible. Maintenance work can be performed comfortably and safely from a platform. Refuelling with fuel or urea solution is also done easily and safely from the ground.

Assist systems

The modern assist systems installed in the new TA 230 Litronic support the

A touch display with integrated rear camera also increases visibility in the rear area. In the soundproof cab ergonomically arranged control elements facilitate intuitive operation of the machine. Various trays and storage spaces expand the spatial offering.

machine operator, thus increasing safety and comfort during operation. Apart from a hill start assist, a speed assist is also available. With the hard stop function, the end position damping of the trough lifting cylinders can be activated or deactivated at the touch of a button. The trough lift is limited for work in a height-critical area with the aid of the height limit.

The speed-dependent steering provides additional driving comfort. The adaptive steering system continuously adapts the ratio of the steering movements to the current speed. This makes possible easy and accurate manoeuvring at low speeds, but also accurate steering at higher speeds, as well as fewer steering corrections when cornering or taking bends.

In addition, the newly developed, spacious operator's cab of the TA 230 Litronic provides ideal conditions for comfortable and safe working. Thanks to the panoramic windows without any annoying struts, as well as the short, inclined bonnet, the machine driver always has an optimal view of the driving, working and articulating area of the machine.

"A touch display with integrated rear camera also increases visibility in the rear area. In the soundproof cab ergonomically arranged control elements facilitate intuitive operation of the machine. Various trays and storage spaces expand the spatial offering. The offset steps, as well as the large driver's door, also make possible convenient and safe access to the operator's cab," concludes Kudumba. 🌟

Ipelegeng Transport Trust's latest purchases was for 24 Scania buses.



BUSES ARE BACK

A renewed partnership with Scania has helped Ipelegeng Transport Trust put the challenges of the last two years firmly in the rear-view mirror.

It's been a tough two years for bus operators. Covid-19 pandemic regulations mandated operators to run with a 50% passenger capacity which Kabelo Mphahlele, chief operating officer of Ipelegeng Transport Trust, says was an enormous challenge for his business.

"Following a 50% passenger load capacity doesn't support the business model. Fuel and driver costs remained at 100% but we could only earn a maximum of half of our normal revenue."

Unstable business operating environment

Recent threats of violence emanating from a competing transport sector are also threatening to derail the bus industry's recovery efforts.

"The cake is now smaller," says Mphahlele. "Passengers should be allowed to choose where they want to spend their money. However, our competitor wants to keep their passenger loads at levels that reflect past figures. These are no longer sustainable."

Mphahlele cites Ipelegeng company data that shows an influx of people travelling on their buses every Monday and only returning again on a Friday.

"This suggests they are staying closer to work during the week and commuting home at the weekends," says Mphahlele. It is a changing trend that is affecting the whole commuter industry.

"The government needs to step up and protect us. We have lost a bus through violence. It was shot at and set alight," says Mphahlele. Despite these difficult challenges,

Ipelegeng is continuing to serve its passengers and a new customer-centric partnership with Scania promises to take the company to new heights.

Business background

Founded in 1998, Ipelegeng Transport Trust operates in the Sedibeng District in Gauteng and provides a commuter service moving more than 10 000 people from home to work, malls and events daily. The company runs a fleet of 93 buses made up of 40 Scania buses, 15 competitor buses and 38 older vehicles covering around 300 000 km monthly.

Their relationship with Scania began with the purchase of 16 Scania F250 manual buses nearly a decade ago.

"It was a different relationship back then," says Mphahlele. "I have seen a positive evolution at Scania. Our latest purchases of 24 Scania buses has been faultless. They understand our business and are committed to helping us succeed."

Scania reliability

The Scania F250 manuals have proven to be a great asset to the company.

"Even though they are manual boxes, the running costs are low compared to the other vehicles in our fleet. These buses are robust and adapted for our operating conditions," says Mphahlele. "Scania can take on all terrains. The buses aren't shy to go on the back roads. Since we started running Scania, we have only had to replace one engine due to damage. We've never replaced a gearbox."

Mphahlele adds that low tech specifications have also




Ipelegeng Transport Trust operates Gauteng's Sedibeng District and transports more than 10 000 people each day.




Kabelo Mphahlele, COO of Ipelegeng Transport Trust.


TAKE QUICK




Mphahlele cites Ipelegeng company data that shows an influx of people travelling on their buses every Monday and only returning again on a Friday



"Scania can take on all terrains. The buses aren't shy to go on the back roads. Since we started running Scania, we have only had to replace one engine due to damage. We've never replaced a gearbox."



The recent addition of 24 new Scania buses with automatic transmissions has taken the operation to new levels of cost efficiencies with fuel savings.



Since partnering with Scania, the company has recorded an improvement in uptime: "Our business relies on our ability to run efficiently."

translated into less wastage and increased cost efficiencies.

"With the rough roads and array of potholes along many of our routes, vehicles with too much tech tend to have a lot of issues, including burnt-out fuses and other problems." The Scania vehicles still deliver a CPK of under R2, nearly a decade after they first started running.

Fuel efficiency and cost saving

The recent addition of 24 new Scania buses with automatic transmissions has taken the operation to new levels of cost efficiencies with fuel savings being the main driver of increased profitability.

"The older vehicles we had before the Scania's were highly inefficient. At some stages, we were recording 56 litres per 100 km. With the Scania's, we are realising 40/38 litres per 100 km."

It is a significant cost saving that Mphahlele says will improve thanks to the support he is receiving from the Scania team.

"Labour costs have been the biggest cost driver in our business. But increased fuel prices will soon make diesel our primary business expense." Working together with Scania, Mphahlele anticipates Ipelegeng will soon see further fuel savings.

"Scania is assisting us to find fuel effi-

ciency solutions," says Mphahlele. Using the monthly telematic vehicle reports issued by the Scania team, Mphahlele has been able to pinpoint the drivers whose driving styles need attention.

"The reports allow us to keep drivers updated on their performance so they can correct any issues," says Mphahlele. Drivers who need support to drive more efficiently are offered training which Mphahlele values highly: "The key to fuel efficiency is driver behaviour. One of the first costs operators cut is driver training. Training is very important. Over the long-term, there is a significant increase in fuel efficiency."

Additionally, Ipelegeng has extended its travel times to facilitate a more relaxed driving environment.

"We are rearranging our shifts," says Mphahlele, "With road conditions as they are, there is always a new pothole or speed hump to navigate. We want our drivers to slow down before the potholes and continue to drive slowly without accelerating so that fuel is saved. To support our drivers, we are extending our travel times by 20 minutes so drivers aren't under pressure and can drive at speeds that support maximum fuel efficiencies."

Ipelegeng also employs mapping on their gearboxes. "The Scania vehicles are so smart. By setting the Scania Opticruise gearbox to Economy Mode, the vehicle optimises fuel efficiencies, regardless of how the driver performs," says Mphahlele.

Service and maintenance plan

Maintenance is another key focus area. Ipelegeng has had its own onsite workshop since 1998.

"We maintained our first Scania vehicles," says Mphahlele. "Our technicians were trained by Scania and had Scania

The new Scania fleet has assisted Ipelegeng Transport Trust to streamline the accessibility of its parts.



Ipelegeng Transport Trust runs a fleet of 93 buses including 40 Scania buses.



accreditation." After purchasing the new Scania buses, Ipelegeng opted to go with a Scania maintenance contact.

"Scania set up a workshop on our premises and this is working very well," says Mphahlele. "They have given us a superb technician who is kind and knowledgeable. He is always ready to assist and supports our other mechanics in terms of problem-solving."

Since partnering with Scania, the company has recorded an improvement in uptime: "Our business relies on our ability to run efficiently", says Mphahlele. "Having Scania in our depot has allowed us to speedily attend to issues that arise with the vehicles. We have seen an improvement in terms of breakdowns with the Scania buses."

The new Scania fleet has also assisted Ipelegeng to streamline the accessibility of its parts. "Some of the vehicles we have are more than 40 years old. Finding reliable parts is a challenge. With the new Scania buses, parts availability is resolved," says Mphahlele. "The Scania parts are high quality and easily sourced".

Marketing drive

A consistent marketing drive is also ensuring the company remains top of mind for commuters.

"We market as much as we can," says Mphahlele. Simple benefits like having doors that open by themselves and a no-touch ticketing system have given passengers peace of mind even as most pandemic

restrictions have been dropped.

"The new Scania buses have given us new marketing content," says Mphahlele. "Among other luxuries, we can now offer our passengers a heated environment which is getting a great response"

Driver motivation

Mphahlele is also keeping his drivers motivated with a Driver-Of-The-Month and Driver-Of The-Year awards programme.

"The monthly winners receive an honorary tie that announces their achievement, while the driver of the year is awarded a shopping voucher. Ensuring our drivers feel welcome and appreciated is a top priority for us," says Mphahlele.

Ipelegeng Transport Trust is a family orientated business. It is an environment Mphahlele works hard to maintain.

"Every month we celebrate our drivers' birthdays. We gather in the boardroom and enjoy a cake together. It's an opportunity to catch up and talk. It helps the drivers to realise that management has their best interests at heart," says Mphahlele who also attends all his drivers' family functions.

Even as tough operating conditions have required Ipelegeng management's full attention, they have their eyes fixed firmly on the future. This has extended to exploring alternative fuel options.

"We investigated CNG," says Mphahlele. Challenges included the availability of the gas and the cost to convert. "The cost of creating our own CNG bus was too high. We are looking forward to investigating a bus with spec to run on CNG. We would also consider an electric bus in the future."

Future plans

Other plans include the purchase of eight new buses.

"Upgrading is proving profitable for us," says Mphahlele. "With the upgrades, maintenance is decreased and fuel efficiency is significantly improved."

Coming back from a negative operating environment has not been easy but Mphahlele credits the Scania team as a key factor in the company's recovery.

"We've been with other OEMs and we've never come close to seeing the kind of service we are getting from Scania. I appreciate being able to sit down with the team and find the solutions that are taking our business forward."

This is a sentiment echoed by Oan Scriven, sales manager, Scania Southern Africa. "When there are challenges, we are able to be flexible and adapt. I think we are making great inroads and we look forward to supporting Kabelo and the Ipelegeng Transport Trust team in their future efforts to grow the company." 🌟

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CASTING THE SPOTLIGHT ON INNOVATION AT BAUMA 2022

Judging from pronouncements made by some of the leading capital equipment exhibitors thus far, bauma 2022 will shine the spotlight on innovation, with trends such as automation, electromobility and digitalisation set to take centre stage. By Munesu Shoko.

Initially scheduled for April, bauma 2022 – the biggest trade show of its nature in the world – returns later this year from 24 to 30 October, following the Covid-19 influenced postponement. The impact of the pandemic on the events industry has been significant and bauma was no exception.

However, the show returns at a time when the global equipment market is seemingly enjoying a good run. According to the KHL Group's Yellow Table, which compiles and ranks the sales results for the world's biggest equipment manufacturers, the construction equipment sales for the world's top 50 original equipment manufacturers (OEMs) have hit record levels. In the 2022 Yellow Table, sales were up 20,8% to take the table to its highest ever total of US\$232,7-billion as most markets in the world saw growth with industry bounced-back from the impact of the Covid-19 pandemic.

In light of evolving customer behaviour, which has accelerated due to the pandemic, this year's event will however miss some of the big names in the industry, with companies such as Volvo Construction Equipment, JLG and JCB not exhibiting at the show.

Last year, Volvo Construction Equipment announced a new marketing approach aimed at even closer engagement with its customers. Carl Slotte, head of Region Europe at Volvo CE, says that while physical interaction remains important, the company is beginning to see significant changes in the way customers want to engage with the OEM, both digitally and face-to-face. This is driven by technological possibilities of doing business more efficiently and the increasing need to do business more sustainably.

"Despite our withdrawal from this year's event, Volvo CE has not ruled out future participation at bauma or other tradeshow. "We will continue to review the way our customers want to interact with us and base our strategy on their

needs and demands," says Slotte.

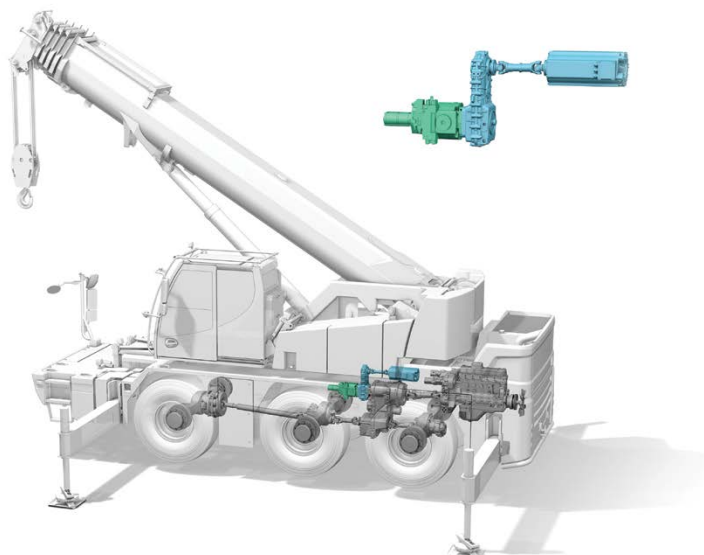
JLG based its decision on concerns regarding the ongoing pandemic and environmental considerations, coupled with changing dynamics of staff working patterns and technological improvements in virtual meetings.

While Caterpillar will also miss this year's event, its dealer in Germany and in 12 other countries in Europe and Eurasia, Zeppelin Baumaschinen GmbH will assume responsibility for display of Caterpillar construction equipment, services and solutions.

Towards digital construction sites

The past few years have seen the increasing role of technology in mining and construction. Looking ahead, it is time for technology to play an even bigger role with trends such as digitalisation and automation coming to the fore across many industries. The COVID-19 pandemic has also reinforced the need for a quick uptake of digital and automated solutions.

A number of barriers standing in the way of digital construction sites – particularly the



Liebherr developed the electric power unit for the LTC 1050-3.1 using the slogan *zero emission, full power*. The electric motor drives the crane pump through a distributor gear.

QUICK TAKE	
<p>bauma 2022 will shine the spotlight on innovation, with trends such as automation, electromobility and digitalisation set to take centre stage</p>	
<p>A number of barriers standing in the way of digital construction sites – particularly the lack of data standards – must be eliminated</p>	
<p>Moving towards the digital construction site, Doosan's exhibit is themed 'Powered by Innovation'</p>	
<p>Caterpillar has made the commitment that 100% of its new products through 2030 will be more sustainable than the previous generation</p>	

lack of data standards – must be eliminated. Industry experts will explore the challenges and solutions during *bauma TALK*, a webinar series that acts as a base of information for *bauma 2022* and delves into the key topics of the construction-machinery trade fair.

The most recent presentation and discussion event was held on May 24 and focused on the digitalisation of construction sites. In particular, the conference

highlighted the key role that machinery data is already playing in efficient construction practices – from predictive maintenance to smooth transport and logistics operations and many other construction site processes.

Alexander Mozer, team leader of machinery digitalisation at Leonhard Weiss, discussed some of the technologies involved: "In terms of CO₂ emissions, telematics can provide us with important

information about the fuel consumption of every piece of machinery. Digital position information helps reduce search times, and automatically collected operating hours are an important parameter used in maintenance planning and invoicing."

However, the jobs of integration and management are complicated by several factors – the different interfaces used by various manufacturers, sensing accuracy and intervals as well as data interpretation. "The simple job of adding or deleting a piece of machinery to or from a system can end up being a very time-consuming process," Mozer says.

Professor Jürgen Weber, who chairs the fluid-mechatronic system engineering division at the Technical University of Dresden and heads the association research project called *Bauen 4.0* (Construction 4.0), says non-homogeneous fleets of machinery with their various data solutions are far from the sole cause of problems related to the development of the vision of a digital construction site.

"In many cases, there is simply no mobile Internet available. The required network coverage does not exist," he says. As a potential solution, Weber has presented a concept that combines a local network with a construction-site control system. In this solution, programs can perform such jobs as record and analyse all machinery data, as well as simulate construction processes in real time run on a server.

"The machinery must be outfitted with a connectivity module that enables it to exchange data with the central construction-site control system and with other machines," Weber says. "A platform-independent OPC Unified Architecture is used as a standard to facilitate communications and networking."

Construction machinery is far from the only thing that is getting smarter. Digitalisation of tools that can be combined with them is progressing as well. "Good solutions are already being widely used in the hydraulic and electric interfaces to accessory equipment. But the job of facilitating cross-manufacturer data transmissions between components has run into some massive problems," says Katharina Schick, project engineer at Liebherr-Hydraulikbagger GmbH.

In response, a MiC 4.0 working group has been developing an open, manufacturer-independent data interface – the MiC 4.0 bus – over the past two years. "We conducted some promising tests with it on an excavator in April 2022," she says. A demonstrator of the new interface will be presented during *bauma* at the MiC 4.0 booth in the LAB0 innovation hall. The interface protocol will be released



Bobcat will use bauma 2022 to demonstrate its T7X all electric loader concept.



Doosan will showcase the new DX225LC-7X, its first 'smart' crawler excavator designed to help operators work faster and more efficiently.

by the German Mechanical Engineering Association after the trade fair has concluded and the final work has been completed.

Zero emission movement

In order to achieve international climate objectives, economies worldwide must reduce their greenhouse gas emissions significantly in all sectors. This also applies to the construction industry and its partners. Consequently, exhibits by some of the major OEMs will also focus on the industry's quest for zero emissions.

Apart from new equipment launches, Liebherr will showcase its efforts in developing zero emission products. The new LTC 1050-3.1 compact crane features an electric motor in addition to its conventional internal combustion engine. This enables crane movements to be powered electrically as an option. The new version of the compact 50-t crane therefore helps to reduce CO₂ emissions and meets the requirements for operating on "zero emission" sites.

"We want to be able to offer our

customers full crane performance even with the alternative electric power unit. The LTC 1050-3.1 still has a conventional internal combustion engine, powered by diesel or HVO, for driving on roads and for crane operations. However, as an alternative it also has an electric power unit for crane operations so that it generates 'zero emission'. That means that all the familiar usage properties of the crane will be retained, regardless of whether the crane operations are powered by its zero-emission electric motor or its internal combustion engine," says Dr Ulrich Hamme, technical director at Liebherr-Werk Ehingen GmbH.

The company is also launching six unplugged machines from the fields of piling, drilling and lifting. These include the LRH 100.1 unplugged and LRH 200 unplugged piling rigs, the LB 25 unplugged and LB 30 unplugged drilling rigs, as well as the LR 1130.1 unplugged and LR 1160.1 unplugged crawler cranes.

Since the launch of the LB 16 unplugged, the concept has quickly established itself on the market and the design has been extended to further product areas. An

outstanding feature of the battery-powered unplugged units is zero emission. They do not produce any exhaust fumes and are extremely quiet. This strikes the right note especially in noise-sensitive regions and finds favour with construction site personnel and residents.

Meanwhile, Zeppelin Baumaschinen GmbH will highlight Caterpillar's commitment electrification. Said to be the world's first high-drive electric drive dozer, the D6 XE moves up to 35% more material per litre of fuel than its predecessor D6T. Operator productivity is increased up to 50% using the broad range of Cat technology choices. The machine on display will feature Cat Abrasion undercarriage that extends wear life of the undercarriage in high-abrasion, low- to medium-impact applications, while its patented relieved tread idler design extends life up to twice as long.

Caterpillar has made the commitment that 100% of its new products through 2030 will be more sustainable than the previous generation. The 20 next generation Cat excavators on display with capacities from 1,6 to 95 t will all feature increased productivity and lower fuel consumption. The exhibited new Cat 336 hydraulic excavator offers high production with low-cost operation. Its new 1 000-hour oil and fuel filters extend service intervals and reduce parts and labour costs.

In the future, certain models of Cat equipment will also include battery-electric with zero-exhaust emissions while still delivering superior productivity. Caterpillar will use bauma 2022 to unveil several electric models currently under development. Additionally, the modified tethered electric Cat MH3024 material handler excels in indoor applications where less mobility is needed and no exhaust emissions are required.

Bobcat will also use the show to showcase its T7X concept, said to be the world's first all-electric compact track loader. The 62-kWh lithium-ion battery pack can give four hours of continuous use. This is made possible partially by a load-sensing power management system, which automatically reduces the power output to be no more than is required for the task at hand. Operators are also able to manually tune the performance of the T7X for specific jobs, including the ability to vary its drive speed while at full torque.

"Another striking feature of the T7X which really stands out from any loader on the planet is the fact that there are virtually no fluids in the machine. The traditional hydraulic work group has been completely replaced with an electrical drive system consisting of electric cylinders and electric



One of the key topics at bauma 2022 will be the move towards the digital construction site.

drive motors. The only fluid that goes in the machine is about four litres of eco-friendly coolant,” says Joel Honeyman, vice president of Global Innovation at Bobcat.

Further developments

Doosan’s exhibit at bauma 2022 will focus on innovation. Under the theme of Powered by Innovation, the company will present the latest developments in the company’s leading-edge Concept-X, Xitecloud and DoosanCONNECT systems, together with other new products such

as the world’s first ‘Transparent Bucket’ and the new DX225LC-7X, Doosan’s first ‘smart’ crawler excavator.


Doosan will be demonstrating the latest version of Concept-X, the world’s first unmanned automated and integrated control solution introduced in 2019, for construction, quarrying and mining sites. XiteCloud is the first stage in commercialising Concept-X – it maximises productivity by incorporating complex 3D drone construction surveys and earthwork calculations into a cloud platform,

allowing them to be completed in just one to two days.

The company will also showcase its DoosanCONNECT TMS fleet and asset management system. DoosanCONNECT is a mobile application available for both Apple and Android devices that now offers customers a new all-in-one management system for Doosan construction equipment.

Elsewhere, Bobcat’s E35 concept will highlight the company’s developments in automation. As in most heavy-duty excavators, the hydraulically controlled joysticks of the 3,5-t mini excavator are replaced by an electro-hydraulic system. Such a system allows Bobcat to customise the machine controls to all levels of operator skill. Additional digital functionalities and special features on the machine are also available to the operator.

“With the help of integrated sensors, the machine can also carry out some semi-automated tasks, helping the operator with precise grading and levelling, trenching or repetitive tasks such as return to dig among others. We want to show the capability of such a concept and prove the value it brings to the operator’s job and their productivity,” says Vijay Nerva, head of Innovation and Acceleration at Doosan Bobcat EMEA. 🌟



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The programme is especially attractive in the mining and quarrying sectors, where machinery rapidly clocks up high production hours.



INTEREST GROWS FOR VOLVO CERTIFIED REBUILD PROGRAM IN AFRICA

By refurbishing machines to the standard of new ones, the Volvo Certified Rebuild Program is helping to tackle issues of environmental impact, cost and machine supply, with quality and uptime guaranteed.

Launched in Africa in 2016, the Volvo Certified Rebuild Program has received renewed interest of late for its sustainability and offer of a like-new machine with a short lead time and at a lower cost. The programme is especially attractive in the mining and quarrying sectors, where machinery rapidly clocks up high production hours.

Once a machine has reached a certain number of hours on the clock, the dealer will carry out a thorough inspection and may recommend the replacement of one or more parts to prolong its service life.

Where replacement parts are needed, the customer can choose new parts or the

cheaper and more sustainable option of factory remanufactured components from Volvo Reman. Where multiple parts should be replaced, Volvo Construction Equipment (Volvo CE) offers three packages through the Volvo Certified

Rebuild Program: Complete Rebuild, Powertrain Rebuild, or Hydraulics Rebuild. The dealer inspection report will define what kind of rebuild is needed for that specific machine

"The point at which replacement parts are required varies case by case, depending on the machine type, where and how it has been used, and how well it has been maintained. For some machines it might be after 15 000 hours, while for others it might be after 40 000 or even 60 000 hours," explains Adriana

30 – 40%

The price of a remanufactured engine, for example, can be 60 – 70% of a new one, while the cost of rebuilding an entire machine can be up to 30 – 40% less than buying a new one.



Volvo CE offers three packages through the Volvo Certified Rebuild Program: Complete Rebuild, Powertrain Rebuild, or Hydraulics Rebuild.

QUICK TAKE

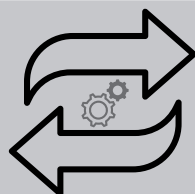
The programme is especially attractive in the mining and quarrying sectors, where machinery rapidly clocks up high production hours



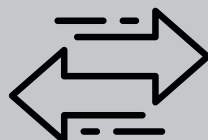
Where replacement parts are needed, the customer can choose new parts or the cheaper and more sustainable option of factory remanufactured components from Volvo Reman



With each package, the old components are removed and directly replaced with remanufactured components, which are fully covered under a Volvo warranty



The old components, called cores, are returned to Sweden for the Reman process



Rebuilding machines also offers significant cost benefits as customers can protect their initial investment and prolong the life of the asset for a much lower price



Prodell, product manager for the Certified Rebuild Program at Volvo CE.

With each package, the old components – whether those are the engine, transmission, drop box, or hydraulic pumps – are removed and directly replaced with remanufactured components, which are as good as new and fully covered under a Volvo warranty.

The old components, called cores, are returned to Sweden for the Reman process. Here, they are completely dismantled, cleaned and assessed to decide which pieces can be reused and which must be replaced with fresh ones. Once completed, the remanufactured parts go into the Volvo CE Reman parts stock at Volvo CE parts warehouses, where they remain until a dealer orders them.

This means that the old components from a customer's machine are unlikely to be reinstalled in the same machine again after they have been remanufactured. They will go in another machine of the same model and the same specification.

Promoting a circular economy

"At Volvo, we really care about the environmental impact of our products throughout their lifecycle, and we advocate the sustainability of restoring, rather than scrapping machines," says Prodell.

"Large wheel loaders, articulated haulers and excavators contain hundreds of kilos of copper, aluminium, and bronze, and we want to develop a circular economy where we can recycle



The cost of rebuilding an entire machine can be up to 30 – 40% less than buying a new one.

and reduce consumption of these raw materials as much as possible," she says.

Significant cost savings

Rebuilding machines also offers significant cost benefits as customers can protect their initial investment and prolong the life of the asset for a much lower price than buying a new machine.

The price of a remanufactured engine, for example, can be 60 – 70% of a new one, while the cost of rebuilding an entire machine can be up to 30 – 40% less than buying a new one.

"Through the Volvo Certified Rebuild Program, customers receive a fully operational machine with high productivity and secured uptime, without

any impact on capital expenditure.

Studies also show that the total cost of ownership is reduced when rebuilding a machine compared to buying a new one, as the depreciation and insurance costs, for example, are also lower," says Prodehl.

Minimal lead times

Finally, at a time of high global demand for construction equipment, rebuilding machines is an attractive alternative to waiting months for new machines to be delivered. The entire rebuild process takes a matter of weeks, enabling customers to schedule a short period of downtime and maintain high productivity and profitability on site.

"All in all, faced with growing concern for the planet, tougher productivity and profitability targets for producers, and global supply chain challenges, the Volvo Certified Rebuild Program is emerging as a practical and effective solution," says Prodehl.

Machine rebuilds are suitable for any larger machines within the Volvo range of wheel loaders, articulated haulers, and excavators, and are offered throughout Africa. 🌍



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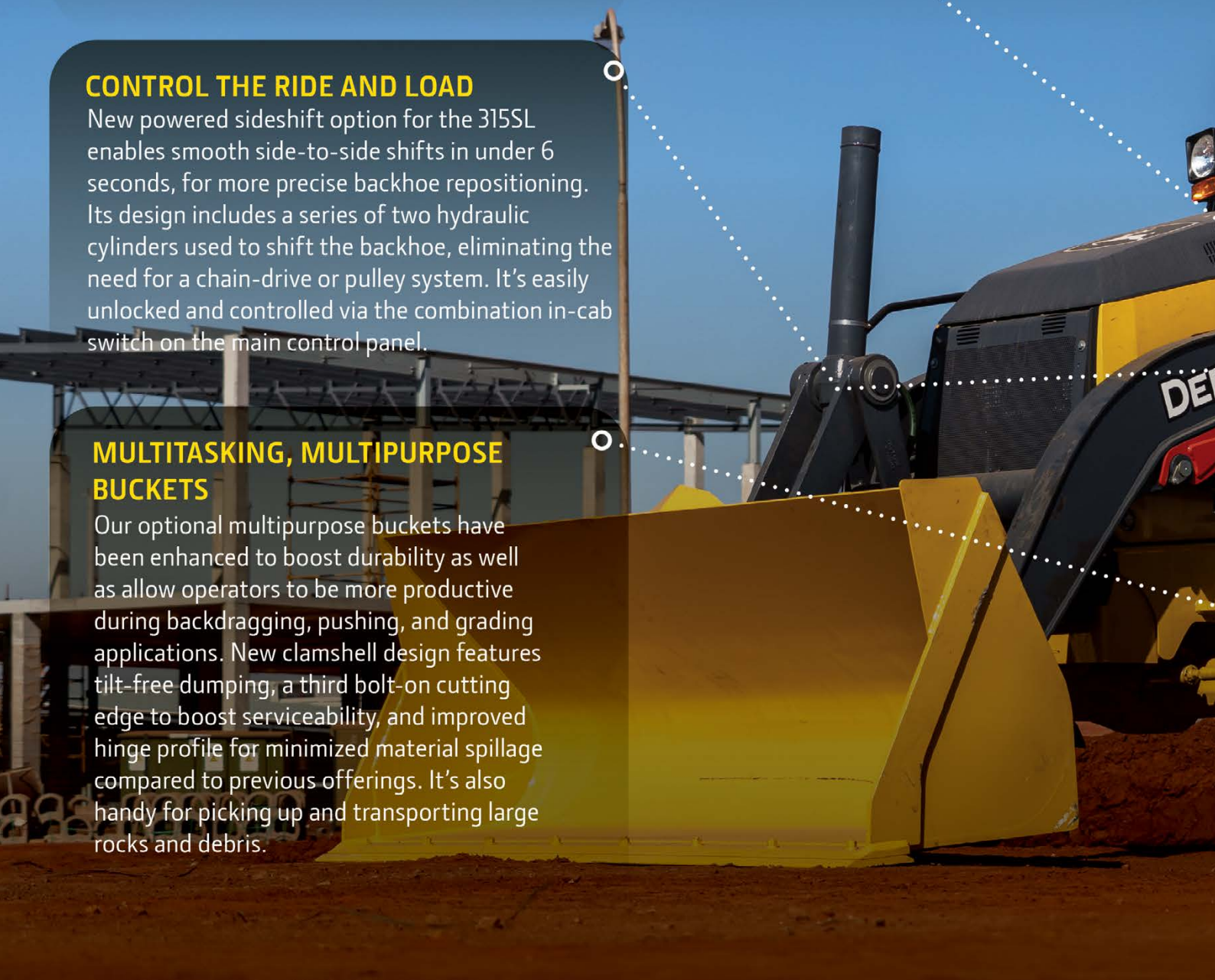
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New powered sideshift option for the 315SL enables smooth side-to-side shifts in under 6 seconds, for more precise backhoe repositioning. Its design includes a series of two hydraulic cylinders used to shift the backhoe, eliminating the need for a chain-drive or pulley system. It's easily unlocked and controlled via the combination in-cab switch on the main control panel.

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Our optional multipurpose buckets have been enhanced to boost durability as well as allow operators to be more productive during backdragging, pushing, and grading applications. New clamshell design features tilt-free dumping, a third bolt-on cutting edge to boost serviceability, and improved hinge profile for minimized material spillage compared to previous offerings. It's also handy for picking up and transporting large rocks and debris.



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CONTROL THE RIDE AND LOAD

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CONTROL IN CLOSE QUARTERS

Precision mode reduces the speed of hydraulic backhoe functions without sacrificing lift performance, for close work around underground utilities or jobsite obstacles, or when lifting. This control-enhancing feature is especially useful for less experienced operators or new trainees.



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IMPROVING UPTIME AND INCREASING PROFITABILITY IN THE MINING SECTOR

by Jaco du Plooy product manager at Eaton and Devan Reddy, field product manager – Power Management and Control Components at Eaton.

The drive to move to renewable energy has gained significant traction following COP26. Ahead of Enlit Africa 2022, Dinesh Buldoo, MD: Power, WSP Africa and Martin Mkhabela, director: Power, WSP in Africa, discuss the opportunities this presents for a cleaner energy mix in Africa.

Given the business climate recently, it is understandable why many companies have had to cut back. However, cutting corners on crucial maintenance won't pay off in the long-run – on mines, vehicle and equipment failures and malfunctions can slow and even completely stall operations by far longer than routine maintenance operations would require.

It's for this reason that routine maintenance, along with several other crucial factors, is key to improving uptime and increasing profitability for mines.

Maintenance – working smart, not hard

Mining operations and machines, including drills, trucks and processing equipment, vary in nature and complexity, and each part has its own wear points, any of which could fail if unmaintained and cause significant periods of downtime.

While hesitation around frequent maintenance is understandable from a cost and productivity standpoint, technological advances in preventative maintenance have made these processes a lot more streamlined, efficient and cost-effective.

Preventative and corrective maintenance are the two traditional maintenance approaches that the global mining industry has long relied on. However, predictive maintenance strategies have shown up as a far more efficient solution.

Devan Reddy, field product manager – Power Management and Control Components at Eaton, says that with digital transformation creating new possibilities for the mining industry, predictive main-

tenance has become a crucial part of the maintenance conversation.

"And the benefits of predictive maintenance for mines are two-fold – not only does it help prevent catastrophic failure that can cause damage to personnel and equipment, but it also allows maintenance staff to plan correctly and put in place alternate processes to try and keep the plant operating."

Examples of predictive maintenance and predictive maintenance sensors include vibration analysis, oil analysis, thermal imaging and equipment observation. These innovations are increasingly being used in mines to ensure increased uptime by optimising how maintenance gets done.

"Ultimately, maintenance is a manual intervention, but the process of understanding when to perform maintenance can be automated. This is where the Industrial Internet of Things (IIOT) can come in to play," says Reddy. "IIOT fundamentally is all about getting information via sensors or equipment with intelligence built in. This information can be used to raise alarms automatically when pre-determined conditions, for example, operating temperatures, are exceeded.

The growing need for alternative energy

Ageing machinery and normal wear and tear are not the only factors affecting uptime and necessitating maintenance. Mining operators at some of the largest mines in the country have reported operations and processes being severely affected by load-shedding. In fact, mines were forced to halt operations entirely in

2019 as a result of Stage 6 loadshedding being implemented and requests from the national utility to reduce consumption.

Power interruptions cause loss in production output and, as a result, revenue. They also have implications for the safety and wellbeing of workers in mines, often requiring that personnel be evacuated and operations come to a standstill. From a life safety point of view, many mines are opting to install emergency lighting that is energy efficient and powered from off-grid sources not only to ensure the safety of workers but also to help prevent unnecessary downtime where possible.

Grid instability has also brought the topic of alternative energy sources such as solar, hydro and wind power to the fore, as well as replacing equipment with more energy-efficient models and installing uninterrupted power supply (UPS) systems to help reduce overall power consumption.

"UPS setups are crucial in mining settings for safeguarding critical devices, hardware and machinery from damage and arc flash incidents. Essentially, they allow mining operators to safely shut down and back up data in emergency situations, and before a power cut occurs," explains Jaco du Plooy, product manager at Eaton.

From poor maintenance protocols to power instability, there are many factors that can have an enormously negative impact on production and profit, not to mention the possible risk to human life and the environment. For this reason, the mining industry should be focused on implementing new strategies that also employ digital technology to reduce unplanned downtime while still saving money with a positive bottom-line impact. 🌟

A Potain IGO 50 from Crane and Hoist Equipment SA during erection.

THE BENEFITS AND APPLICATIONS OF THE SELF-ERECTING TOWER CRANE

The self-erecting or 'bottom-slewing' crane offers advantages including reduced siting costs, ease of mobility, a small on-site footprint and excellent reach and lifting capacity. For this feature, we approached two local distributors for their take on the applications and benefits of self-erecting tower cranes, as well as the ranges available in South Africa. By *Mark Botha*



"South African clients often prefer self-erecting cranes due to the minimal establishment costs and the convenience of being able to move the crane on site with ease."

Jared Terry, sales manager, MMS Mobile Cranes

MMS Mobile Cranes sales manager Jared Terry describes the self-erecting or 'bottom-slewing' crane as a specific type of tower crane that does not require a mobile crane to be erected. He says this type of crane uses its own hydraulic cylinders to erect itself and is used in applications such as building, structural steel installation and the pouring of concrete on smaller construction sites.

To Brenden Crous, MD of Crane and Hoist



The cost of establishment and de-establishment of self-erecting cranes is very low as a mobile crane is generally not required.



"A great benefit offered by the self-erecting tower crane is its comparatively low transport cost to site, in light of today's high cost of fuel."

Brenden Crous, MD of Crane and Hoist Equipment SA

the need for an additional mobile crane for the erection as is the case with conventional tower cranes. He says the IGO and Hup ranges of Potain self-erectors, which are supplied by Crane and Hoist Equipment SA, also allow for the jib to be shortened or luffed upwards to accommodate for varying site conditions.

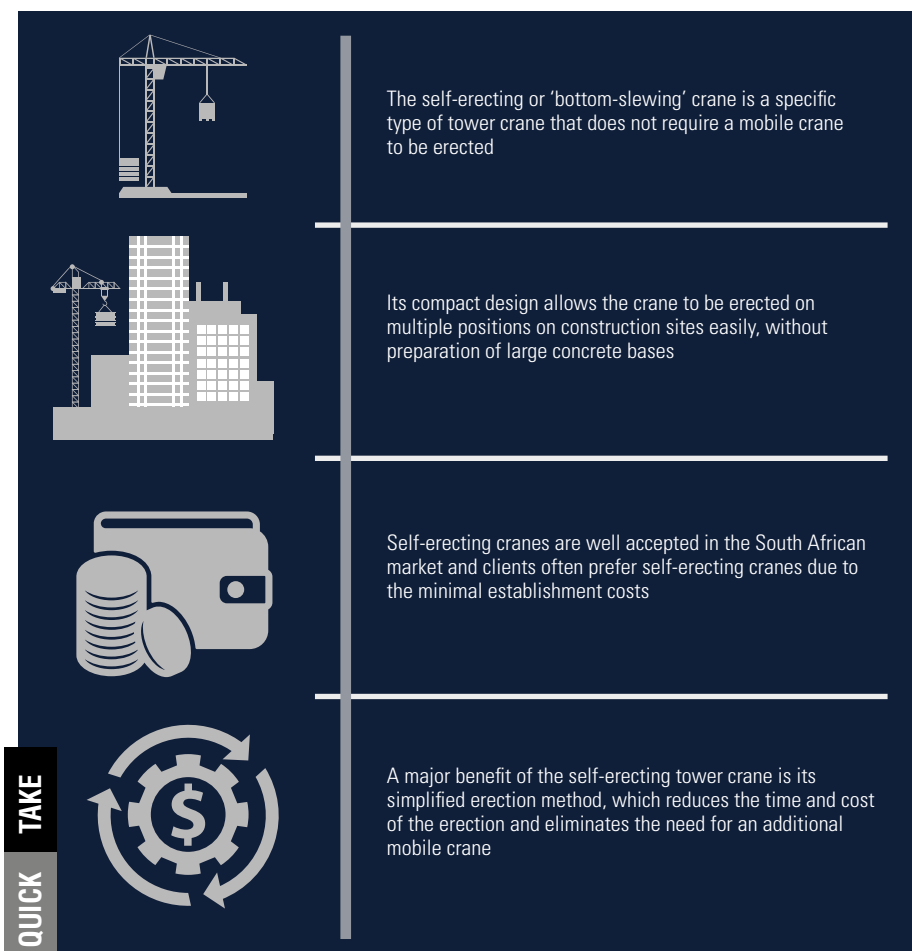
"Another great benefit offered by the self-erecting tower crane is its comparatively low transport cost to site, in light of today's high cost of fuel. The IGO and Hup self-erectors can be towed directly to site on their own axles while only one truck is needed to transport the counterweights. This greatly reduces the number of trucks needed when compared to transporting conventional tower cranes," he says.

Terry agrees that the cost of establishment and de-establishment is very low as a mobile crane is generally not required. He says total cost of ownership on self-erecting tower cranes is also low.

Self-erecting cranes are also safer on site than conventional tower cranes, which Crous ascribes to the reduced erection time of the self-erector, the fact that fewer trucks are needed for transport and the elimination of large mobile cranes for erection. He says these allow the self-erector tower crane to be established on site without disrupting the entire site, so reducing the safety risks during erection.

Ranges

Crous says that, as the Potain agents for southern Africa, Crane and Hoist Equipment SA supplies the Potain IGO and the latest Hup range of self-erecting tower cranes to the construction, mining and



Equipment SA, the self-erecting tower crane is a compact and easy to erect crane which can be transported to site behind a truck or on a low bed.

"Its compact design allows the crane to be erected on multiple positions on construction sites easily, without preparation of large concrete bases." He says these cranes are erected and dismantled via remote control. "This process is controlled automatically by hydraulic cylinders. The hydraulic system unfolds the mast and jib sections into the final operating position

of the crane."

According to Terry, self-erecting cranes are well accepted in the South African market and clients often prefer self-erecting cranes due to the minimal establishment costs and the convenience of being able to move the crane on site with ease.

Self-erecting cranes: benefits

Crous says a major benefit of the self-erecting tower crane is its simplified erection method, which reduces the time and cost of the erection and eliminates



A Potain IGO 50 from Crane and Hoist Equipment SA erected.



A Potain IGO 50 transported on a low-bed trailer.



Self-erecting cranes are often used on construction sites.



MMS Mobile Cranes' range of Terex tower cranes extend from 18 m reach to 40 m reach, with capacities up to 4,4 t.

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manufacturing sectors. They are used on smaller construction projects where the required hook height and lifting capacities are less than on larger, high-rise projects.

As the authorised distributor of Terex Tower Cranes, MMS Mobile Cranes' range of self-erecting cranes for sale or rental range from 18 m reach (CBR18) up to 40 m reach (CSE40) with capacities up to 4,4 t.

"The new CSE range includes a system called Terex Power Plus (TPP) which increases the capacity of the crane by 10% if required for specific lifts," says Terry.

He says new Terex tower cranes come standard with T-Link, a telematics system which allows the company or the factory to view faults on the crane from a remote location.

"T-Link also acts as a 'black box', allowing us to access information about hoisting speeds, slewing directions and wind speeds during the lifespan of the crane." 🌀

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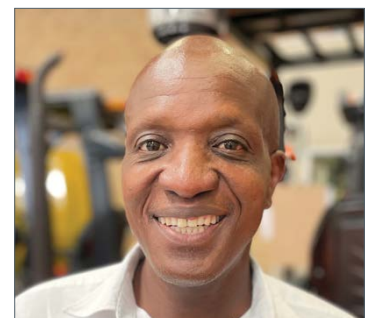
BACKHOE LOADERS: CENTRE-MOUNT OR SIDE-SHIFT?

This feature discusses the differences between centre-mount and side-shift backhoe loaders and casts the spotlight on their respective advantages and applications. We explore the metrics to consider when choosing between the two and highlight some models available in the South African market. By Mark Botha.

Discussing the differences between centre-mount and side-shift backhoe loaders, John Deere Construction & Forestry sales manager covering Africa and Middle East, Griffiths Makgate says that, on centre-mount backhoe loaders, the backhoe is mounted to the centre of the machine with fabricated stabilisers that ex-

tend outwards, making it the ideal machine for general construction work where space is not a constraint.

"The machine works in open fields, road building, on farms and in any application that can accommodate the outward stabilisers," he says. John Deere's 310 L model backhoe loader is equipped with standard length stabilisers.



"Side-shift backhoes afford the operator a bigger digging range without having to reposition the backhoe loader while a centre-mount backhoe would require the backhoe loader to be repositioned before resuming digging."

Victor Nemukula, MD
of Shumani Industrial
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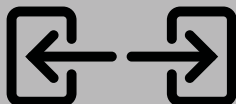
Griffiths Makgate, John Deere
Construction & Forestry sales manager
covering Africa and Middle East.



Caterpillar offers five side-shift models in the southern African region: the Cat 426F2, pictured, and the Cat 428; Cat 432; Cat 434 and Cat 444.



On centre-mount backhoe loaders, the backhoe is mounted to the centre of the machine with fabricated stabilisers that extend outwards



With side-shift backhoe loaders, the operator can easily unlock and shift the backhoe along the H-frame



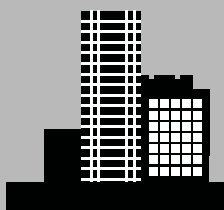
Side-shift backhoes afford the operator a bigger digging range without having to reposition the backhoe loader



Centre mount TLBs work on construction sites where space is not restricted and their side-shift counterpart is suited to sites where you might have to dig a trench next to a wall or a more confined space

TAKE

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Side-shift backhoe loaders are better suited to work in built-up areas

With side-shift backhoe loaders such as John Deere's 315 SL, the operator can easily unlock and shift the backhoe along the H-frame using a single combination in-cab switch located on the main control panel.

This, says Makgate, eliminates the risk of damaging streets, parking lots or other terrain when manually shifting the backhoe with the rear bucket. He says that, with two hydraulic cylinders to shift the backhoe, the design eliminates the need for a chain-drive or pulley system.



"Backhoe loaders are very common and can be used for a wide variety of tasks including construction, small demolitions, light transportation of building materials, digging holes/excavation, landscaping and breaking asphalt."

Kobus Hartzenberg, Revaro Equipment workshop and equipment parts manager.



"Demand for backhoes in southern Africa is essentially for side-shift models while the demand for centre-pivot models remains low."

Richard Maddocks, backhoe loaders product and application specialist at Caterpillar.

Bronze wear pads are used on the H-frame to reduce friction and improve the durability and wear life of the slide rail. This feature enables offset digging for improved visibility to the trench and the powered side-shift option allows operators to take full advantage of the 315 SL's narrow footprint with vertical stabilisers.

As the name implies, says Revaro Equipment workshop and equipment parts manager Kobus Hartzenberg, a centre-mount or centre-pivot machine is mounted at the centre of the rear frame.

"This is a fixed position from where the stabilisers swing out and down from the sides of the frame."



The 426F2 is a particularly popular model in the southern African region as it is easy to own and operate.



John Deere's 310 L model backhoe loader is equipped with standard length stabilisers.

He says a side-shift backhoe loader is designed with the backhoe's kingpost mounted on a carrier.

"This carrier can slide from one side to the other along a frame with rails that include stabilisers, which are mounted on both sides and can extend vertically."

Victor Nemukula, MD of Shumani Industrial Equipment, says side-shift backhoes afford the operator a bigger digging range without having to reposition the backhoe loader while a centre-mount backhoe would require the backhoe loader to be repositioned before resuming digging.

Centre-mount or side-shift: metrics

On the metrics to consider when deciding between a centre-mount or side-shift backhoe loader, says Revaro's Hartzenberg, the prospective buyer should consider what their project requires of the machine.

"For example, what type of trench they plan to dig or the space that they will have to work with," he says.

According to Makgate, the site requirements and application will be the deciding factors.

"Side-shift backhoes are particularly valued in applications such as street repair; underground utility work in congested urban areas; constructing trenches, and digging next to buildings, walls, or other structures," he says. "Centre-mount backhoes can be used in more general applications."

Nemukula agrees, saying either of the two are capable options, but that the user would have to consider the application in which the machine would be used for, as well as the amount of space available for manoeuvring.

"For example, a centre-mount in a dedicated hammer application such as demolition or the breaking of oversized rocks

on a grizzly in a mining application works well. However, in a construction application where you're working in confined spaces, the versatility of a side-shift backhoe loader becomes very useful."

Applications

Hartzenberg says backhoe loaders are very common and can be used for a wide variety of tasks including construction, small demolitions, light transportation of building materials, digging holes/excavation, landscaping and breaking asphalt.

He says their relatively small frame and precise control make backhoe loaders "very useful and common" in urban engineering projects such as construction and repairs in areas too small for larger equipment.

"Centre mount TLBs work on construction sites where space is not restricted and their side-shift counterpart is suited to sites where you might have to dig a trench next to a wall or a more confined space."

"Side-shift backhoe loaders," says Nemukula, "are better suited to work in built-up areas. The side-shift boom allows for operation closer to buildings and busy roads, making it an obvious option for construction and civil contracts." He says the centre-mount backhoe is better suited to applications where hammer work is the main operation.

Ranges

Makgate says John Deere offers the centre-mount John Deere 310 L Backhoe (64 kW at 2 000 rpm) and the John Deere 315 SL Backhoe (69 kW at 2 000 rpm) with optional side-shift.

Key features of these backhoe loaders include 4-wheel drive on command whereby limited-slip differential combined with mechanical front-wheel drive (MFWD) provides true 4x4 performance and excellent traction in any ground conditions by delivering up to 65% of the available power to the wheel with the best traction.

The company's PowerShift™ transmission provides smooth, on-the-go clutchless gear changes for the operator. AutoShift™ automatically shifts the PowerShift™ transmission to the appropriate gear. The control lever is set to the highest gear desired, and the transmission will shift optimally based on engine rpm and ground speed.

A new powered side-shift option for the 315 SL enables smooth side-to-side shifts in under 6 seconds, for more precise backhoe repositioning, especially when working in confined spaces.

"This means that you can move your operation without moving the machine. Its design includes a series of two hydraulic cylinders used to shift the backhoe,



Revaro Equipment is the distributor of the Revaro brand TLBs in Africa available in 76, 96 and 100 hp.



A Bobcat B730 from Shumani Industrial Equipment.

eliminating the need for a chain-drive or pulley system. It's easily unlocked and controlled via the combination in-cab switch on the main control panel," he says.

Ride Control is a hydraulic option available on all L-Series backhoes. The loader hydraulics of the backhoe act as a shock absorber for the machine when this feature is active.

"The operator will notice a significant improvement in the comfort of the ride as well as improved material retention in the loader bucket during transport operation," says Makgate. "Less time will be spent on site clean-up and more time will be spent on the task at hand."

He says Ride Control also improves the pin and bushing life of the loader by reducing the shock loading in the structures.

The Transmission Quick Shift feature on John Deere's backhoe loaders is new to the L-series.

"A Quick Shift button has been added to the loader control grip on the 315 SL backhoe loader equipped with front auxiliaries," says Makgate. "The operator has two Quick Shift modes. In the first mode, he can downshift one gear with each press of the button. In the second mode, he can downshift one gear with the first button press. On the second button press

the transmission will 'cancel' the downshift, returning the machine to the selected gear."

He says that, if AutoShift is enabled, the second button press will return to AutoShift, allowing the transmission to select the appropriate gear based on speed and load.

"This feature allows the operator to always keep his hands on the steering wheel and the loader lever during truck loading operations. By using the button to quickly shift down when going into the pile and quickly shifting back to the desired gear, the operator can increase productivity during loading operations."

The John Deere Power Tech engine features Eco Mode which, when activated, limits the maximum engine RPM in both loader and backhoe operation for maximum fuel savings. The engine speed is limited to 2 100 RPM when the operator is facing the loader with the transmission in neutral, first or second gear, and it is limited to 2 000 RPM when facing the backhoe.

The company's backhoe loaders feature John Deere's proven Powertech™ Wet-Sleeve engine with replaceable wet-type cylinder liners for superior cooling, reduced oil breakdown and reduced ring wear.

Hartzenberg says Revaro Equipment is the distributor of the Revaro brand TLBs in Africa, available in 76, 96 and 100 hp.

"Revaro backhoe loaders dig deeper, push harder, load higher and exceed all expectations."

He says a comparison study was done between these machines and some of the most popular brands in the world.

"Revaro machines outperformed the competition on all levels and this shows why our backhoe loaders are the best machines for the job at an affordable price in the South African and African markets."

He says backhoe loaders from Revaro are versatile and suited to any environment and weather conditions. Revaro weatherproof cabs and 4x4 capabilities increase productivity as there is less downtime during unfavorable conditions.

"All our backhoe loaders come standard with a side-shift digging arm, enabling the operator to dig closer to permanent structures like buildings and walls. They also offer the option of Quick Hitch, making it simpler, faster and more user friendly to switch between a wide range of attachments."

Revaro backhoe loaders feature Kirloskar engines, Carraro transmissions, Hydro control valves, Casappa pumps, Carraro axles, Danfoss brakes and AKG radiator coolers.

Nemukula says the Bobcat B730R from Shumani comes with ROPS and FOPS certification and features a side-shift backhoe configuration. Some of the standard features include 4x4 wheel drive, diff lock and auxiliary hydraulics.

Richard Maddocks, backhoe loaders product and application specialist at Caterpillar, says demand for backhoes in southern Africa is essentially for side-shift models while the demand for centre-pivot models remains low.

He says Caterpillar offers five side-shift models in the region: the Cat 426F2 (68,5 kW); Cat 428 (74,5 kW); Cat 432 (74,5 kW); Cat 434 (74,5 kW) and Cat 444 (74,5 kW).

"The 426F2 is a particularly popular model in the region. It is easy to own and easy to operate. With simple mechanical controls and maintenance made easy, this machine is perfect for new and experienced operators."

The key features of Cat backhoe loaders include a variable displacement piston pump which offers full power at any engine speed, helping to provide class-leading fuel efficiency, especially compared with machines with traditional gear pumps.

A rear differential lock can be engaged on-the-go to increase productivity and reduce fuel burn and tyre wear, especially when working in tough environments. An Excavator Style Boom increases productivity with less machine positioning required.

The Cat 416 is available from Caterpillar for those who specifically need a centre-pivot model. 🌟



DON'T COMPROMISE ON VIBRATING SCREEN HEALTH

Vibrating screens work at the heart of an operation; every tonne of material must be screened at least once before it is loaded into a truck for sale. And just like the human heart, they need to be kept strong and healthy to do their job well. By Wilm Schulz, service manager, Haver & Boecker Niagara.

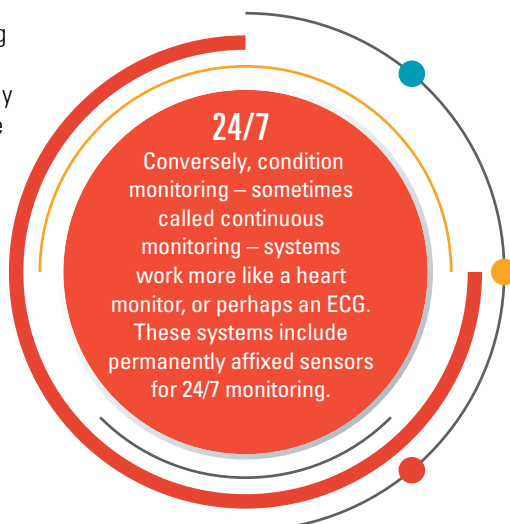
Maintenance crews have a lot to take care of. From vibrating screens and crushers to conveyors and load trucks, the list is a long one. It's tough to be an expert on every piece of equipment.

By partnering with a technical vibrating screen OEM that also specialises in equipment monitoring, operations can rely on a team that not only manufactures the equipment, but offers comprehensive diagnostic tools, product-specific knowledge and years of engineering experience. The result can be peace of mind, minimised downtime through faster problem solving and lower repair costs down the line.

Hard-earned experience

There's a wide range of OEMs to choose from. While many have engineered reputable screening equipment, it's important

to consider the services they offer to take care of that equipment for the long run. One that has dedicated research and development focused on diagnostic tools, for example, will be that much further ahead in keeping that heart of the operation healthy.



Vibration analysis and monitoring

Vibration analysis is one such tool dedicated to measuring the health of vibrating screens. These systems measure and transmit real-time vibration data such as acceleration, orbit, deviations and more. While the machine is in operation, the data is transmitted via sensors that are placed at dedicated locations on the screen body. The information is recorded to software in a phone, tablet or computer, or to a cloud service where it can be viewed from multiple devices.

In addition to analysing current machine performance, some systems also store historical data in order to predict the machine's future performance and schedule maintenance accordingly. All of this data is used to fine-tune equipment for optimal performance and maximum output, as well as locate issues that could lead to larger repair costs or machine failure and unplanned



Condition monitoring systems include sensors for 24/7 monitoring and data collection for trends analysis.

QUICK TAKE	
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downtime if not addressed.

An OEM should perform a vibration analysis on any new vibrating screen before it leaves the factory. This provides a baseline for how the machine should run. At each service visit, vibration analysis should be used to better

understand the machine's condition before any repairs are made. Once technicians make the necessary repairs, another vibration analysis should be completed to ensure the problem has been solved and to document that the machine is running at optimal condition once again.

The vibration analysis sensors themselves are something to consider. All vibration analysis systems require some sort of sensor – often magnetic – to be placed on the vibrating screen. Some are wired and require the user to stand within range while holding the connected device. Others are wireless, providing the safety benefits of allowing the user to stand farther away.

A vibration analysis setup may include one sensor that must be moved to multiple parts of a machine for a full reading. Others save time by including multiple sensors, allowing for a comprehensive look at the entire machine at the same time.

Vibration analysis systems work similarly to a stethoscope – they analyse the machine at the same time it is being measured. Conversely, condition monitoring – sometimes called continuous monitoring – systems work more like a heart monitor, or perhaps an ECG. These systems include permanently affixed sensors for 24/7 monitoring.

Some condition monitoring systems include automated alerts if problems are detected, allowing for a quick shutdown before the problem becomes potentially catastrophic. The accumulating data can be used to improve efficiency by illustrating trends, making predictions as to how long before an issue may arise, and more. Some around-the-clock monitoring systems allow OEM certified technicians to monitor results remotely, analyze the data and send expert recommendations to ensure equipment longevity.

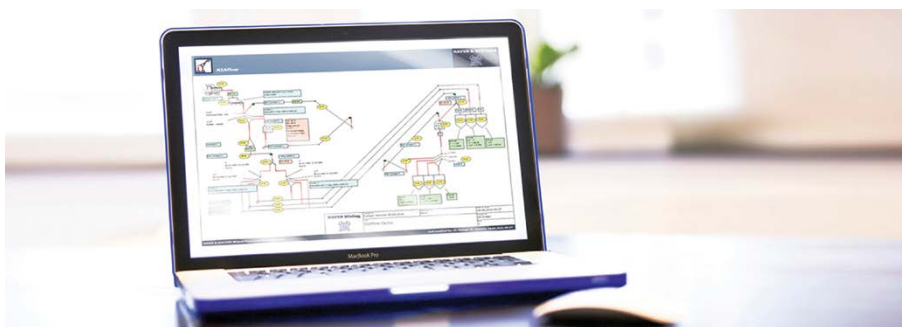
While many vibration analysis and condition monitoring tools are available, only a small number are manufactured by a vibrating screen OEM. An OEM offers the benefit of having engineered the equipment, fully understanding its operational parameters, and providing in-depth analysis and recommendations.

In one recent example of an operation benefiting from these tools and services, a British Columbia producer worked with an OEM to conduct a vibration analysis on a vibrating screen that appeared to be healthy. The resulting data indicated a problem, however, and caused the operation to discover a broken spring which had led to damage to the vibrating screen's foundation. Catching the problem early saved the producer money in downtime and repair costs.

Many producers conduct biannual vibration analysis tests on their vibrating screens. Another western Canadian producer has saved significant time and money through the service by



Only a small number of vibration analysis and condition monitoring tools are manufactured by vibrating screen OEMs, like Haver & Boecker Niagara's Pulse Vibration Analysis.



Plant simulation tools like Haver & Boecker Niagara's NIAflow, pictured offer a high-level view of an entire operation's efficiency.



Partnering with an OEM can include the benefits of site visits by certified technicians.

detecting problems early on that he and his team weren't able to identify, including a twisted frame on one of the vibrating screens. In this case, they knew something was wrong, but it took a vibration analysis to determine exactly what.

Plant simulation software

Plant simulation tools offer a high-level view of an entire operation's efficiency. This helps optimise processes and look at opportunities for improvement in both existing sites and new mines or quarries

for all mineral processing operations. The software also helps operations spot and fix bottlenecks.

Plant simulation programs take into account the equipment used throughout the plant, from material washers and conveyers to crushers and vibrating screens. The operation's existing setup, or a proposed setup, is entered into the program to understand and predict overall performance and plant flow. The systems use scientific calculations to monitor input, output and waste piles, as well as calculating mass and volumetric

flow rates based on machine placement and machine-specific operating parameters. The tool is also useful for insights into product specification or production rate changes – such as dry and wet crushing, screening and sorting – as the software can be used for pre-calculations.

A quick search will turn up a handful of brands of plant simulation software, but few are created by processing equipment OEMs. While solid functionality and user interface are clearly important, extensive experience and understanding of the equipment and processes the software is meant to optimise may be more so.

Partnering with an OEM can allow for the most accurate simulations and enhanced features based on engineering expertise and application knowledge gained from actual site visits and understanding an operation's challenges firsthand. An OEM can interpret the data to provide recommendations for improvements within the operation regarding production and profits. In addition, OEMs may offer virtual or on-site training of their software, teaching how to use the software correctly and how to implement it in a way that benefits plant flow and design.

Comprehensive service approach

Any service tool is most effective when paired with a comprehensive, hands-on service approach. Partnering with an OEM can include the benefits of site visits by certified technicians who not only know how to use the vibration analysis, condition monitoring, and plant simulation tools, but are able to conduct thorough vibrating screen and screen media inspections to complement the analysis. Some OEM technicians follow the inspections with diagnostic reports to point out areas that could be improved.

OEM warranty programmes can be another benefit of partnering with a manufacturer on a service programme. Some are offered for up to three years and include biannual site visits, inspections, vibration analysis, screen media evaluations and overall recommendations.

A member of your team

Choosing to partner with a technical OEM for equipment monitoring through diagnostic tools – in addition to regular service – results in a comprehensive service programme designed to optimise plant flow, boost production and increase profits, keeping the heart of an operation in optimum health. 🌟

Doosan launches enhanced value range of diesel forklifts

Doosan has launched its NXS Series – an enhanced value range of four-wheel diesel powered counterbalanced forklift trucks – hitting a value between the high-spec D25S-9, for heavy duty applications, and the economy D25NXP series for occasional users.

Fully compliant with Euro Stage V, the NXS Series is powered by Doosan's highly fuel-efficient G2 engine – as used on the premium D25S-9 models – and is available across a range of capacities from 2.0 to 3.5 ton. Doosan's powerful G2 diesel engine provides high torque at low RPM, which combined with a lowered centre of gravity and a rigid transaxle facilitates smooth, safe operation on gradients of up to 25% – making the NXS Series perfectly suited to a wide variety of industrial applications.

These versatile diesel-powered trucks offer an unbeatable combination of outstanding fuel efficiency, performance, driver comfort and durability.

Powerful performance

An important cost-saving standard feature of the new range is the multi torque function, allowing the operator to select the performance most suited to the task. ECO mode minimises fuel consumption, cutting down on unnecessary acceleration; High mode increases power output to match the

demands of heavy-duty work; and Standard mode maintains output at levels suited to everyday tasks.

Aiding productivity, the gear-pump and mast regulator valve on the NXS are optimised to enhance lifting/lowering operations, which together with the highly responsive acceleration and top travel speed of the NXS Series, boosts work-cycle efficiency.

The steering angle on the NXS has been extended which increases the turning radius, making the vehicle highly manoeuvrable in confined spaces.

Safety designed in

The sleek looks of the new NXS Series are combined with sound ergonomics – taking safety, driver comfort, ease of maintenance and productivity fully into account.

The cab is designed for operator comfort with low noise at 77dBA, a fully adjustable suspension seat as standard, and excellent all-round visibility for safer manoeuvring with greater awareness. Clever arrangement of hydraulic hoses and chains provide clear visibility through the wide-view mast and other features include, a compact steering wheel with an adjustable steering column and a 5" (optional 7") full colour LCD display, which clearly presents operating and maintenance information, even outdoors.

Ease of access for the operator has been advanced by removing the tilt cylinder from the floor plate and repositioning the accelerator and brake pedals to offer better clearance. More legroom has been created too, providing greater comfort for the driver, and the pedals have been adjusted to minimise ankle fatigue.

Further safety features included with the NXS Series include: large entry grip bar and wide anti-slip plate for easy and safe mounting and demounting, a sizeable panoramic mirror, LED lights, an ISO 3691 hydraulic locking valve – preventing unintentional lowering and tilting of the mast – and an operator sensing system that only allows the truck to operate when the driver is seated. Further to this, an electric parking brake and an adjustable speed limiter is fitted as standard.

Oil-cooled disc brakes

Also included as standard is Doosan's industry leading sealed, oil-cooled disc brake system, which is virtually maintenance free and lasts up to five times longer when compared to conventional shoe brakes. The sealed units protect against outside elements such as dirt, water and grit, ensuring top-rate braking performance for enhanced safety and increased productivity. ⚙

New Hyster A-series lift trucks scale to industry challenges

Businesses can now easily fine-tune a forklift to match their specific industry and application needs with the new scalable Hyster A Series lift truck series.

With A+ Logic, the Hyster lift trucks can be configured with a range of features to help overcome common materials handling challenges across industry, while delivering a low total cost of ownership.

Tough solutions for construction materials handling

In construction materials applications, lift trucks will often be used outside in dirty or dusty environments with poor ground conditions. A+ Logic with the Hyster A Series lift trucks offers several adjustable features that can help optimise trucks everywhere, from concrete manufacturing operations to those handling bricks and blocks.

Dust can result in wear to parts and components. The Hyster A Series features sealed electrical connectors to help manage this but selecting oil-immersed brakes, tilt cylinder boots, and mud guards may provide some applications with additional support. Heavy-duty air intake can also help reduce



service intervention requirements.

Where debris is an issue, on-demand cooling includes a reversing fan feature to blow debris out of the engine bay, helping to minimise radiator and engine bay cleaning. Debris on the floor can also be tackled by

choosing a belly screen option and string cutter, helping to optimise uptime.

The Hyster A Series also provides a 2-year / 4000-hour warranty as standard in regulated EMEA markets, giving tough applications peace of mind. ⚙

Ammann soil compactor offers high value with efficiency

ELB Equipment, one of South Africa's largest compaction machine suppliers, offers clients the Ammann ARS 122 soil compactor, an industry leader in compaction efficiency.

"The Ammann ARS 122 soil compactor provides outstanding productivity and reliability. The powerful engine and heavy-duty hydrostatic drive of the wheels ensures great traction and travel performance at lower operating cost. The roller is suitable for compaction of a wide range of soil, from silt to crushed stones," says Keon Kardolus, ELB Equipment earthmoving and construction sales manager.

He says that, due to the compactor utilising Ammann's effective vibratory system, with varied amplitude settings as well as energy being driven into the material and away from the operator, the Swiss manufacturer has ensured the ARS 122 outdoes its competitors on the field.

"This compactor offers operators hydraulic propulsion of wheels with independent hydro motors (and no axles). Furthermore, there is a low centre of gravity for stability and manoeuvrability and better ground

clearance," says Kardolus.

Other key features of the Ammann ARS 122 include the clear dashboard layout which enables easy and safe operation. The compactor also has a fully isolated operator platform for maximum comfort. With the rising cost of fuel, another notable feature is the compactor's fuel efficiency due to the highly durable Cummins engine. In terms of time saving, the compactor has easily accessible maintenance points.

"The Ammann ARS 122 offers clients a wide variety of applications at medium to large job sites. These can include transport construction such as motorways, railways as well as airfields. For applications in construction, the compactor can be used in industrial zones as well as harbours. It is suitable for compaction of all kinds of soils and wet mixes," says Kardolus.

Standard equipment included with the Ammann ARS 122 soil compactor includes



drum and wheel propel system; operator platform with guard rails; lockable dashboard with Vandal guard; smooth drum; manual tilting of hood, cab or platform; working head lights front and rear and engine air pre-cleaner.

Optional items which can be added include ACE (Ammann Compaction Expert); Ammann Traction Optimiser (ATO); working speed increase kit; tractor tyres; bio-degradable hydraulic oil; bolt on pad-foot shell kit air conditioning (cab) and rollover protection structure (ROPS) with or without hard canopy. ☼

Liebherr Generation 8 crawler excavators conquer Corsica

Liebherr Generation 8 crawler excavators are successfully penetrating the French market. Corsica in particular, with its thriving market for crawler excavators and all other construction machinery, represents an important sales area. The R 934 crawler excavator for customer Graziani TP was the first Generation 8 excavator delivered to Corsica. Frederick Graziani, the company's MD, is particularly satisfied with the stability during work and the performance combined with low fuel consumption of just 18 l/h.

In addition, he particularly appreciates the reliability and versatility of the excavator. This allows the company to take on larger jobs, such as earthmoving work or large-scale rock crushing. Decisive purchase criteria for Frederick Graziani were also the origin of the excavator, which is produced in Europe, and the good reputation of the Liebherr brand. According to the managing director, Liebherr represents a very good price-performance ratio and efficient customer service.

In Balagne, at the other end of the island, there is also a satisfied customer who specialises in quarrying rock. Valérie Mercuri, MD of the company Sablière de Calenzana, particularly appreciates the versatility of the R 945 crawler excavator. On the one hand, dump trucks can be loaded very quickly, and on the other hand, the flexible changeover from bucket to a hydraulic rock breaker also



allows drilling work for easier placement of explosives. The R 945 replaces an older Liebherr excavator at the customer's. The new model is even more manoeuvrable, lighter than its predecessor and at the same time significantly more effective and efficient. Like all Generation 8 excavators, the R 945 is equipped with Liebherr's Positive Control hydraulic system, which forms the basis for smooth combined movements and an overall increase in performance.

Valérie Mercuri particularly appreciates these technological advancements, which enable fuel consumption to be reduced by

around 20 % to just 23 l/h, and this with even better performance data.

The operator has a spacious and comfortable workspace in all working situations. The Generation 8 excavators offer a high level of operator comfort with reduced vibrations and a low noise level. The cab is equipped with an air-sprung seat with vertical and longitudinal shock absorption.

Liebherr customer service is also a big plus for all customers and operators. The Liebherr branch in Marseilles addresses all customers' concerns and ensures a fast and tailored service. ☼

Volvo CE delivers construction machine built using fossil-free steel

In the latest step on its path toward carbon neutrality, Volvo Construction Equipment (Volvo CE) becomes the first manufacturer to deliver a construction machine built using fossil-free steel to a customer. This demonstrates the fast-tracking of innovation to real-world solutions as companies across the value chain come together to drive change.

The A30G articulated hauler built using fossil-free steel was handed over by president of Volvo CE, Melker Jernberg, to long-standing customer NCC on 1 June 2022, at a ceremony hosted by LeadIt – the Leadership Group for Industry Transition – in conjunction with the United Nations environmental meeting Stockholm +50. It was attended by John Kerry, US special presidential envoy to climate, and Annika Strandhäll, Swedish minister for climate. The move comes just nine months after the company unveiled the world's first vehicle concept using fossil-free steel, as part of the testing of the implementation in an ordinary production setup. While commercial introduction is expected to be gradual with selected customers, this speedy first handover is an important milestone in the Group's ambition to drive industry transformation towards global climate goals. The A30G is produced at Volvo CE's



Braås facility in Sweden, using the existing manufacturing process, with fossil-free steel from Swedish steel company SSAB.

Jernberg says: "We are sure that to succeed in decarbonising the construction industry, actors in the value chain will need to collaborate and act. Thanks to our strong partnerships with other driven and forward-thinking companies, we are now able to lead the change towards fossil-free construction and be the first to deliver a machine built using fossil-free steel to a customer. Turning commitments into actions is key to building the world we want to live in."

Tomas Carlsson, CEO and president of NCC, says: "NCC has a firm commitment to contribute to sustainable development. We are working determinedly and system-

atically to reach that target, which includes selecting machines that live up to our high demands. As demonstrated in this great example, it takes strong and proactive partnerships between several players to make the sustainable shift possible."

As part of its Science-based Targets commitment, Volvo CE is set to achieve net-zero greenhouse gas emissions by 2040. Alongside the electrification of its machines, the company recognises the importance of reducing its carbon footprint across its entire value chain. This includes the raw materials used in its products, of which steel is a major component. The production using fossil-free steel in Volvo CE's machines and components will be gradual and depend on aspects such as steel availability. 🌱

Skyscraper construction in Singapore a world first for Liebherr luffing jib cranes

Limited space, lifts weighing several tonnes and a world first: two new Liebherr luffing jib cranes are currently raising a 48-storey office building in the centre of Singapore. Internal climbing systems have been a successful part of high-rise building construction for a number of years now. What makes the Singapore project a world first is that the two 710 HC-L cranes are using a 24 HC 1000 tower system to climb up on the inside.

The cranes started work in November 2020. Back then, the cranes were assembled freestanding at a tower height of around 40 m. The Central Boulevard Towers are being built right next to the historic "Lau Pa Sat" building, also known as "Telok Ayer Market". One of the two new towers will be approximately 241 m in height. It's for this part of the project that the two 710 HC-Ls, with jib lengths of 40 and 45 m, are being used.

The two cranes will reach their maximum tower height of 245 m in just ten climbing stages. This is made possible by a 57 m high tower. "The number of times a crane has to climb impacts how long the downtime is for customers," says Liebherr



Tower Cranes project manager Eric Konijn. "We were able to offer our customer a solution with ten climbing stages, which saves them valuable time and consequently money." One climbing stage takes about two hours, so the cranes stand still for as short a time as possible. In addition, there are significantly fewer storeys to reinforce, which also has a positive impact on cost efficiency.

Due to the amount of guying that is legally required, and the resulting significantly increased costs, having the cranes climb completely on the outside of the

building wasn't a viable option. Plus, there isn't enough space on site to use exterior climbing cranes.

The high-performance Liebherr 710 HC-L model was chosen because of the tight conditions on site, and the project's heavy load and handling capacity requirements. The 710 HC-L has a maximum lifting capacity of 64 t and is the largest luffing jib crane Liebherr offers. It can easily lift and precisely position the pre-cast concrete parts, weighing up to 30 t, which are needed for the skyscraper's construction. 🌱

Booyco Electronics builds capacity, skills in SA economy

Driven by stringent mine safety requirements underpinned by legislation, South Africa is a global front-runner in proximity detection systems (PDS) with Booyco Electronics as a recognised local trailblazer with growing production and engineering capability.

The company's Jet Park facilities have for years been a hive of activity, increasing output even through the Covid-19 pandemic. Quentin Kruger, CFO at Booyco Electronics, highlights the company's constant investment in its technology and its people.

"One indication of our commitment to serving our markets sustainably is the steady growth in our staff complement, which increased by about 30% in the past financial year," he says. "This has gone hand-in-hand with strengthening our engineering team and our capacity to produce quality equipment."

With a home-grown suite of technology solutions for PDS and collision prevention systems (CPS), Booyco Electronics' local production facility is rooted in its engineering competence. The facility's engineering team has recently expanded to over 30 skilled engineers, artisans and technicians.

"No two mines, whether underground or surface operations, have exactly the same needs in terms of PDS and traffic manage-

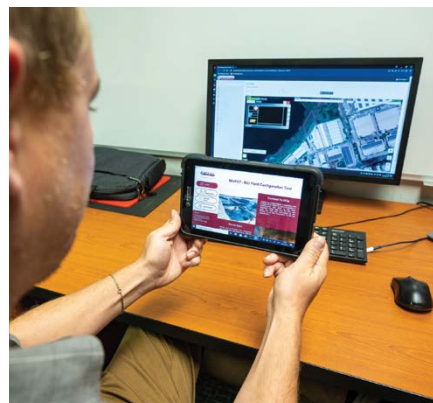
ment systems," he says. "Sales engineers work with the customer to generate specifications, or a scope of work, and the engineering team then designs a fit-for-purpose solution based on our technology."

"Quality checks begin with incoming items from suppliers, and specialised personnel keep a close eye on the process in the production area," he says. "This ensures that any issues can be identified even before the product is completed."

Final quality checks are also conducted, both on the hardware and software aspects of the finished product. Kruger notes the highly specialised nature of the technical tasks at Booyco Electronics, requiring ongoing investment in local skills development.

"Being a local, home-grown company which is constantly developing and upgrading innovative technology, we need to always be nurturing expertise," he says. "For instance, our registered in-house trainers take our production staff through technical courses accredited by the Manufacturing, Engineering and Related Services Sector Education and Training Authority (Merseta)."

Creating opportunities for South Africa's youth, Booyco Electronics takes on learnerships through the Youth Employment Service (YES) programme. With over 20 learners currently employed, it is hoped that many



of these young people stay on after their learnerships – and grow with the company.

"We also provide bursaries for school leavers and even for our people who want to study in fields that would add value to the business," he says. "While we target technology-related fields, this tertiary education may relate to skills as varied as supply chain management."

He says the company's investment and training efforts align well with the Mining Charter's emphasis on local procurement and skills development in South Africa. As a key local player in PDS and CPS – with a growing global market – Booyco Electronics is fully committed to these imperatives, says Kruger. 🌱

Speciality lubricants reduce downtime for essential mining equipment

Failure to use the correct lubricants in mining equipment increases maintenance costs and leads to more downtime and production losses. Fuchs Lubricants has been a trusted partner of the global mining industry for more than 85 years.

"Our comprehensive range of lubricants for surface and underground applications meets extreme demands," says Dave Gons, national sales manager, mining and regional mining manager, sub-Saharan Africa at Fuchs Lubricants South Africa.

"Our range not only boosts equipment life but improves the health and safety for operators and other workers."

The mining industry is an important growth area for the supplier in South Africa, not only in terms of products, but in servicing the centralised lubrication systems deployed by large mining operations.

"We have both a sales and service division, each with its own specific focus. The aim is to provide our mining clients with complete solutions for their lubricant requirements," says Gons.

Depending on the specific mine, Fuchs Lubricants offers either a roving field

technician to respond to any maintenance or support issues, or it has an on-site technical team on a full-time basis.

"These technicians are responsible for looking after all equipment using Fuchs products, in addition to carrying out any repairs necessary and compiling full reports," says Gons.

Mines also have specific shutdown periods that provide a critical window for essential maintenance and repair of major equipment.

"We have a dedicated shutdown team to meet this need," adds Gons. Fuchs Lubricants has the technical capability and resources to install any centralised lubrication systems on-site, as well as to provide the necessary technical and support backup.

Commenting on the latest trends in lubricants developed specifically for the arduous operating environments of the mining industry for both underground and surface operations, Gons says the spotlight is now on blending calcium sulphonate greases. Another trend is fire-retardant hydraulic fluids, which is a major focus for global research and development.



Products for the mining industry include Renolit greases for permanent and long-term lubrication for high performance, reliability, and process compatibility, and Renolin industrial oils for diverse applications from hydraulic oils to turbine oils.

"The mining industry has adapted due to global issues like the Covid-19 pandemic and the resultant slump in commodity prices. Reducing costs and improving the return on investment are increasingly crucial factors, especially when it comes to maintaining any equipment and ensuring optimal performance at all times. This is where our speciality lubricants continue to play a leading role," concludes Gons. 🌱

Global growth for proven Multotec trommel screens

The demand for trommel screens is picking up globally, contributing to the growing international footprint of South Africa-based minerals processing equipment specialist Multotec.

According to Francois Fouche, vice-president of screen media at Multotec, the company's reputation for quality, performance and reliability continues to drive sales in new and existing markets.

"One of our recent successes is the performance of our screen media in the SAG mill trommels of a large copper producer in South America," says Fouche. "Our panels were able to significantly extend the duration between replacement."

He says an important factor behind the recent successes of the company has been the referrals from customers in one country to operations elsewhere.

"Our trommel screens really work hard for the customer, and good news travels fast – both within and between companies," he says.

Over half of Multotec's revenue now comes from customers beyond South Africa's borders, and the company again earned a place in the Exporter of the Year Awards last year, hosted by the South African Capital Equipment Export Council (SACEEC).

"Our trommel screens have long dominated the African market, while we are

well established in Australia, Europe, North America and South America," he says. In leading copper producing areas such as Zambia and the Democratic Republic of Congo, these trommels reach 5,5 m in diameter and 6 m in length – regularly treating throughput of 5 000 t/h.

Fouche notes that much of Multotec's customer base remains the original equipment manufacturers (OEMs) of semi-autogenous (SAG) mills – large, multinational players with demanding expectations.

"A trommel screen is a key piece of equipment in the process circuit, so our continued servicing of this segment of the market is a good indication of their trust in our ability," he says. "A mine will frequently rely on just one SAG mill, and if the trommel screen on that mill fails, the whole mine can stand."

Multotec has been designing and producing trommel screens and screen media for 40 years, and has an installed base numbering some 1 000 units around the globe. Closer to home, two large trommel screens were recently dispatched to a leading heavy minerals miner in South Africa. In this application, the trommels are self-driven, as there is no prior milling process. The trommels therefore have a scalping function, removing vegetation and over-sized material before the main commodity stream can enter the process plant.



Multotec provides after sales service and technical support for the trommels sold, and customers have the option to enter into a service level agreement with the company where a field service team will conduct condition monitoring and trommel maintenance.

Fouche notes that current screen media demand continues to focus on rubber and polyurethane panels, which prove cost effective and abrasion resistant in most applications. There remains a demand for steel trommels, but usually in very specific markets and applications. 🌐

Sandvik customers welcome new crushing solutions

Quarry owners have given an enthusiastic reception to two new Sandvik static crushing solutions – the Reborn plant and the FastPlant™ – which both offer fast delivery times and substantial cost savings.

The Reborn package delivers a new factory-tested crusher that is fully compatible with the customer's existing plant infrastructure at a fraction of the cost of a complete crusher system while the FastPlants are a range of pre-defined crushing and screening plants that reduce delivery and installation times dramatically.

"South Africa has a very mature quarrying industry with a big population of relatively old crushers out in the field and yet they are often matched with infrastructure and auxiliaries such as hydraulic and lubrication systems, drives and motors, conveyors and electrical components that are still perfectly serviceable," says Glenn Schoeman, vice president – Sub Sahara Africa at Sandvik Rock Processing Solutions.

"This is where the Reborn plant comes into its own. Sandvik can install a new crusher on the same footprint and link it

seamlessly to the existing infrastructure and auxiliaries. The new unit will be covered by an extended warranty and the package will also include comprehensive on-site training and periodic condition inspections. All told, capex savings can be as much as 40 %."

Schoeman says that Reborn crushers can be equipped with all the latest technological advances from Sandvik. These include advanced automation features such as the company's Automation and Connectivity System (ACS) which continually monitors, analyses and optimises the crusher's performance or its E-dump valve control system, which counters the problems caused by tramp iron and other uncrushable objects encountered during the crushing process.

He also points out that even when an existing crusher is working reasonably well, a Reborn replacement will often make sense given the enormous productivity benefits and energy savings associated with new Sandvik machines. "Take our new 800i series range of cone crushers," he says. "The performance improvements which come with these machines are amazing. These come

not only from the ACS which is installed as standard but from other features. Bolted rather than welded top and bottom shell liners make liner changing 90 % faster, to give one example, while all the machines in the range deliver more power output from less energy compared to their predecessors."

Turning to the FastPlant concept, Schoeman says the prime advantages of these packages are fast delivery and installation, allowing the plant owner to get into production faster, as well as economy, as the need for expensive customisation is eliminated.

Sandvik has just completed a FastPlant installation at the City of Tshwane's Bon Accord quarry in Pretoria North.

"A full suite of Sandvik equipment including jaw and cone crushers, screens and feeders make up the plant," says Schoeman.

Further north in Africa, Sandvik is also supplying a 300 t/h FastPlant to a quarry owner in Mali. "We are certainly not limited to the South African market with our Reborn and FastPlants and we expect them to prove very popular throughout the continent," says Schoeman. 🌐

RUNNING A FLEET — NOT FOR THE FAINT-HEARTED

By MiWay Business Insurance

Setting up and running a fleet of trucks means you must be on top of your game – this is a cut-throat industry and, with so many balls in the air, it's easy to drop one.

There's no doubt that logistics is booming, driven at least in part by the massive move to online commerce powered by the Covid-19 pandemic, says Jason Mellow, head of MiWay Business Insurance. It's the owners and managers of truck fleets who are the backbone of the complex logistical web that ensures that goods get to the stores and then to the end-user.

What does it take to make a success of a fleet business, whether it's a third-party logistics supplier or an in-house capability?

"Money and lots of it," is the immediate answer from Nonkosi Dyantyi, CEO of Lebama Group Logistics, a black female-owned company. It's not only a question of buying trucks but also the essential accessories such as hydraulics, trailers and others, she says.

Joseph Ghanem, CEO at Hyperbuild, a major brick distributor which runs its own fleet of eight trucks, agrees that capital is the first requirement.

"A good truck will set you back R3-million, and you'll need a further R3-million as working capital," he estimates. Working capital is so essential because the various members of the value chain offer different terms – some demand cash or immediate payment, whereas others have to carry their customers for 30 days or even longer. The logistics operator has to be able to balance all these requirements without running out of cash.

The challenge is finding the funding,

says Dyantyi. "Some funders want you to demonstrate a certain turnover, but you haven't yet secured your first contract! Others will accept your projections, but they want you to have a client signed up – even though you don't yet have any trucks," she says.

"Subcontracting can offer start-ups a way to build traction and gain credibility. Nevertheless, a subcontractor still has to be able to perform at the level the main contractor requires."

And, cautions Ghanem, anyone running a fleet must understand that they need to have a strong management structure in place to coordinate dispatch, ensure that proper maintenance takes place, deal with breakdowns, negotiate contracts and manage drivers.

Your business in the palm of your hand

Vehicles are obviously critical to any logistics/ fleet business but arguably it's the drivers who can make or break the operation. Dyantyi and Ghanem say that drivers have their own agendas, and trustworthy drivers are vital. Ensuring that drivers are properly screened and their documentation verified is a critical first step, both in building that trust and in meeting the requirements of your insurer.

The correct insurance is critical, says Ghanem – funding losses from one's own pocket can cripple any business and is a cause of so many going under. Other important items to look for are ensuring that the vehicle and all its accessories are properly itemised and specified on the policy; many insurers also require comprehensive data on the kilometres travelled

by each vehicle and how long it is on the road, so good record-keeping is essential.

When it comes to cargo, it's equally important to provide excellent documentation as to what is being carried and its value.

As with all insurance, it's vital that the correct amount is insured, and that all risk disclosures are made.

"Your insurance company or broker can be a huge help in getting all of this right upfront so you can claim if necessary," says Mellow.

Suggestions

Dyantyi has suggestions for how insurers can up their game. She has found that the claims procedure can be too cumbersome, and she really wishes that fleet insurance came with the same links to trusted service providers that a typical household policy would have.

"As a female fleet owner, it would be a dream come true if the insurer had a network of registered mechanics that one could use when a truck breaks down in a remote place," she says.

One huge plus that insurers offer is roadside assistance. Swift roadside assistance will get that valuable truck going in the shortest possible time, and can be the difference between a salvaged load or one that is completely lost.

Logistics is a tough business, and it needs a proper amount of capital. But with that in place, along with the right systems and a do-or-die attitude, one can build a sustainable business. After all, trade is what makes the world go round, and that means moving goods from place to place is always going to be needed. 🌐



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