

CAPITAL EQUIPMENT¹ NEWS

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SEPTEMBER 2020

SCANIA PUSHES THE LIMITS WITH FIRST PBS TRUCK FLEET



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PBS — NEW ERA IN TRUCKING?

The costs of logistics in South Africa, and Africa at large, are dominated by high transportation and fuel costs, which are ultimately carried by consumers. To provide some context, the Council for Science and Industrial Research's State of Logistics Survey indicates that the costs of logistics for 2013 and 2014 totalled 12,5% and 12,8% of the South African GDP, respectively. The overwhelming majority of the costs was attributed to transportation at 58,8% for 2014, totalling a whopping R227-billion.

In 2018, logistics costs in South Africa amounted to almost R670-billion. In

that same year, logistics costs in Africa totalled US\$355,4-billion. From an industry perspective, the South African sugar industry alone spends in the order of R750-million per year on sugar cane transport. Although rationalisation processes are underway, innovative systems are needed to reduce these costs even further.

Road transport remains the biggest mode of transport for the logistics sector in South Africa and Africa as a whole. Heavy haulage vehicles in most African countries currently comply with a set of prescriptive regulations which specify a number of restrictive parameters. The regulations, in most cases, differ significantly from one country to the next. Efforts in various parts of the world, including the SADC region, to achieve regional harmonisation and effective road use have had limited success.

It has, however, been recognised that the prescriptive regulations do not address a vehicle's dynamic performance, and place a constraint on the innovative use of technology to develop new transport vehicles. It is for this reason that a Performance-Based Standards (PBS) approach, also known as the 'Smart Truck' initiative, is being considered. In this case, standards specify the performance required from the operation of a vehicle on a network rather than prescribing how the specified level of performance is to be achieved.

To overcome the limitations of prescriptive legislation, PBS regulations are coming into play, and as you will see in this edition of **Capital Equipment News**, Scania has just delivered its first PBS fleet in South Africa, which has been deployed in a mining environment. The objective of the PBS philosophy is to utilise technology to reduce road damage, improve safety, increase payloads and reduce costs.

PBS is being explored not only as a means to decrease the costs of transportation among heavy vehicles, but also to regulate safety of the trucks. A PBS approach to regulating heavy vehicles allows for

increased payload, while specifying stringent safety performance measures.

Prescriptive regulation is simple to understand and easy to enforce, but does not adequately address the dynamic performance and efficiency of vehicles on the road. A PBS approach to heavy vehicle regulation, in contrast, specifies on-road performance and safety requirements, allowing a relaxation of vehicle mass and geometry.

To provide context, the Scania PBS fleet, for example, employs one additional axle per trailer to handle a 120-tonne gross combination mass without exceeding legal axle loads, thus exceeding the permissible maximum combination mass limit of 56 000 kg.

PBS also offers flexible design rules. Design is based on a set route decided by the transport operator and approved by road authorities along the route. It is also based on making the truck and trailer combination perform safely on that route while carrying larger payloads. The design considers things like acceleration, braking, roll stability, tail swing and cornering.

Some of the key benefits of the PBS approach include increased gross combination mass; better cubic capacity; improved productivity and freight efficiency; innovative and optimised vehicle designs for specific applications; more flexible combination and vehicle design rules and improved safety.

The gains of the PBS approach are massive. The South African pilot project, initiated in 2004, has collected and processed over 100-million km of data to date, indicating overall net benefits of the PBS framework, including a 12% reduction in fuel use and emissions, a 13% decrease in road wear impact, 39% reduced road crashes and 22% fewer truck kilometres travelled on South African roads. I believe, therefore, that PBS ushers in a new era in trucking economics and safety. It is high time African countries start adopting this philosophy. 🌍



Munesu Shoko – Editor



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SCANIA



SCANIA PUSHES THE LIMITS WITH FIRST PBS TRUCK FLEET

Scania South Africa has delivered 20 Scania Performance-Based Standards (PBS) trucks (Smart Trucks) to S Hauliers, a subsidiary of the Reinhardt Transport Group, one of its biggest customers in South Africa. The PBS – an alternative regulatory framework for governing heavy vehicles – pushes the limits by allowing for increased payload, while specifying stringent safety measures, thus decreasing costs of transportation significantly, writes *Munesu Shoko*.

In a ground-breaking delivery, Scania has handed over a 20-unit fleet of Scania R 560 A6x4HZ CR20N trucks to its longstanding customer, Reinhardt Transport Group. The transport giant is one of Scania South Africa's biggest tipper transportation customers, operating in excess of 700 Scania trucks at the moment.

The 20 trucks, explains Johnny-Ray Basset, key accounts manager at Scania South Africa, have been deployed at a mining contract in Mpumalanga, transporting mining products between Steelpoort, in the Limpopo province of South Africa, and Maputo, Mozambique. The first 10 of the new trucks were delivered during the second week of August, and

the second batch of 10 followed during the third week of the same month.

The new fleet ushers in a new era for both Scania and the customer, as it is the first Scania fleet in South Africa to be designed and operated under the Performance-Based Standards (Smart Trucks) framework. The Performance-Based Standards (PBS) Scheme offers the heavy vehicle industry the potential to achieve higher productivity and safety through innovative and optimised vehicle design.

PBS vehicles are designed to perform their tasks as productively, safely and sustainably as possible, and to operate on networks that are appropriate for their level of performance. The basic principle of PBS is matching the right vehicles to the right tasks.

Background to PBS

The PBS or 'Smart Truck' project is a South African research initiative designed to trial the introduction of high productivity road freight transport in the country. The initiative is being led by stakeholders from the Council for Scientific and Industrial Research (CSIR), government, industry and academia.

'Smart Trucks' are developed and regulated according to a PBS framework, which has proven highly successful in Australia, New Zealand, Canada and parts of Europe. The South African pilot project was initiated in 2004, and grew to include 245 demonstration vehicles in various industries by 2018, which are closely

Scania South Africa has handed over a 20-unit fleet of Scania R 560 A6x4HZ CR20N trucks to the Reinhardt Transport Group.



monitored for impact and performance.

Over 100-million km of data have been collected and processed to date, indicating overall net benefits of the PBS framework, including: a 12% reduction in fuel use and emissions, a 13% reduction in road wear impact, 39% reduced road crashes, and 22% fewer truck kilometres travelled on South African roads.

In most countries throughout the world, heavy vehicle use on the road network is controlled predominantly by prescriptive regulations. The PBS in South Africa is being run as an alternative framework regulating heavy vehicles. Section 81 of the Road Traffic Act of 1996 currently governs all vehicles using prescriptive limits, with two main restrictions placed on heavy vehicles being overall vehicle length and mass.

The PBS approach to heavy vehicle regulation, by contrast, specifies on-road performance and safety requirements, allowing a relaxation of vehicle mass and geometry. Prescriptive regulation is simple to understand and easy to enforce, but does not adequately address the dynamic performance and efficiency of vehicles on the road.

The PBS approach offers flexible design rules. Design is based on a set route decided by the transport operator and approved by road authorities along the route. The design is also based on making the truck and trailer combination perform safely on that route while carrying larger



Rodney Houston-McMillan, Group COO at Reinhardt Transport Group (left), takes delivery of the new trucks from Johnny-Ray Basset, key accounts manager at Scania South Africa.

QUICK TAKE

Scania South Africa has delivered 20 Scania Performance-Based Standards trucks to S Hauliers, a subsidiary of the Reinhardt Transport Group



Reinhardt is one of Scania South Africa's biggest customers in South Africa, operating in excess of 700 Scania trucks

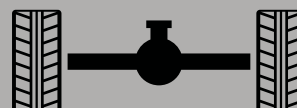
OPERATING IN EXCESS OF 700 SCANIA TRUCKS



The new fleet ushers in a new era for both Scania and the customer, as it is the first Scania fleet in South Africa to be designed and operated under the Performance-Based Standards framework



The PBS combination is an adaptation of the baseline vehicle, and employs one additional axle per trailer. In this instance, the added axle allows the Scania PBS vehicles to have a gross combination mass of 120 tonnes without exceeding legal axle loads





The truck and trailer combination are approved as a set.



The PBS combination is an adaptation of the baseline vehicle, and employs one additional axle per trailer.

Scania PBS in detail

Basset explains that the PBS combination is an adaptation of the baseline vehicle, and employs one additional axle per trailer. In this instance, the added axle allows the Scania PBS vehicles to have a gross combination mass of 120 t without exceeding legal axle loads.

"The trucks have been specified as PBS combinations, calling for an adaptation of the baseline vehicle, the Scania R 560 model in this instance, employing one additional axle per trailer to handle the 120-t gross combination mass without exceeding legal axle loads. The overall length of the PBS combination is 22,25 m," he says, adding that the PBS combination thus exceeds the permissible maximum combination mass limit of 56 000 kg and the maximum length limit of 22 m.

According to Basset, the Scania R 560 model was chosen specifically for its massive power that allows it to pull the abnormal loads. The R 560 is powered by a 16-l V8 Scania engine delivering 560 hp, allowing the truck to discharge more than enough power for the task at hand.

The trucks have been specified with hub reduction axles to be able to carry the abnormal loads, says Basset. In an axle with hub reduction, the gear reduction takes place in two steps. This means that the load is split up and there is little load on the driveshafts and the final drive.

In essence, a hub reduction axle is additional gear reduction at each wheel hub of an axle. A conventional axle directly spines to a wheel hub, and the wheel hub and the axle have the same rotational speed (rpm). In a hub reduction axle, on the other



"The trucks have been specified as PBS combinations, calling for an adaptation of the baseline vehicle, the Scania R 560 model in this instance, employing one additional axle per trailer to handle the 120-tonne gross combination mass without exceeding legal axle loads. The overall length of the PBS combination is 22,25 m."

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

payloads. The design considers things like acceleration, braking, roll stability, tail swing and cornering. The truck and trailer combination are approved as a set.

Some of the key benefits of the PBS include increased gross combination mass; increased cubic capacity; improved productivity and freight efficiency; innovative and optimised vehicle designs for specific applications; more flexible combination and vehicle design rules; improved safety; and more sustainable transportation task.

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hand, the wheel hub and the axle have different rpm based on the hub gearing ratio.

In this instance, hub reduction axle provides additional gear reduction (or torque multiplication). A hub reduction is common in special applications like PBS. This is mainly to provide large wheel end torques or slower speeds than what the normal driveline reductions provide.

To ensure that the trucks are loaded correctly, the fleet has been installed with Loadtech's on-board weighing system. In an operation like this, the equipment is the starting point and Reinhardt has used its expertise to choose the correct supplier in Scania to ensure that the company meets its performance targets.

Once the major equipment has been specified, the operational costs become the biggest challenge. Key to the success of any bulk transport contract is the ability to consistently load the trucks to the legal maximum limit. In reality, 90% of the income goes towards repayment of capital and daily running costs, leaving a very thin margin for net profit. If the contract is based on a rand per tonne, then loading the last tonne becomes critical in ensuring the remaining 10% or 'cream' of the profit.

To meet the loading requirements, Loadtech has supplied its proven on-board weighing system. The system consists of remote weight sensors and a centralised display mounted in the cab. Total gross weight of the vehicle plus axle group weights are shown on the display, allowing the driver to take responsibility for the load of their truck. The system enables the truck to be loaded consistently to within 2% of the maximum load on every trip, thus maximising the income per load.

Full solution

To ensure maximum uptime and profitability, the Reinhardt Transport Group is using Scania's full suite of services, including finance, repair and maintenance (R&M) contracts and onsite servicing. Scania has over the years developed a range of solutions that form part of its total solutions approach.

One of the services that has seen exponential uptake is the R&M contract offering as it has become a norm for customers like the Reinhardt Transport Group to buy new vehicles with R&M contracts. Scania has, over the years, enjoyed huge market penetration for its R&M contracts. To context, in 2019 alone, more than 77% of new vehicles in South Africa were sold with a maintenance or R&M contract, and 74% for the southern African region.

Basset says R&M contracts allow Reinhardt to budget more effectively over the life of the vehicle, by allowing them to know what their maintenance cost will be for the next few years upfront.

"It also decreases the amount of administration and personnel required from the customer's perspective," says Basset. "Contracts are invoiced monthly rather than having to provide purchase orders or make payments every time a vehicle is in the workshop." This, he says, also allows "us to decrease the amount of time spent in the workshop and getting the vehicle back on the road as soon as possible".

With Scania's R&M contracts, the OEM takes on all the risk in the case of a costly repair, leaving the customer free of any surprises that may affect their cash flow negatively.

Additionally, Scania's R&M contracts are recognised by all of its wholly-owned dealerships and independent workshops across southern Africa. This means one account for the customer, managed centrally, allowing flexibility if operations or routes change.

To ensure maximum vehicle uptime, Reinhardt has also taken the on-site servicing option. Scania South Africa has its technicians stationed at the customer's premises to look after the vehicles. 🌟

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Crusher liners need replacement once completely worn. Should they not be replaced, extensive damage can be transferred to the crusher itself.



UNDERSTANDING THE COST FACTOR OF CRUSHER LINERS

In the current economic climate, cost base is a major factor in managing a successful crushing business, and wear costs associated with crusher liners can be a major cost item. How significant are crusher liners in the overall cost equation of running a crusher and how can operations reduce costs related to this component? By *Munesu Shoko*

Crusher liners are wear items exposed to the material entering the crusher chamber during crushing. As such, says Tyron Ravenscroft, Finlay product manager at Bell Equipment – Terex Finlay’s dealer in southern Africa, they need replacement once completely worn. Should they not be replaced, he says, extensive damage can be transferred to the crusher itself. Such damage can be in the form of premature bearing failures, cracking of the crusher chamber castings and signs of wear on the crusher chamber casting itself.

Juha-Pekka Vilpas, parts product manager at McCloskey, says that as crushing is an abrasive process, the crusher liners protect crusher structures and components by being the main crushing contact surface. Crusher liners’ shape, he adds, can also have a big effect on the crushing result in terms of particle shape and gradation.

According to Jorge Abelho, director Technical Support at Pilot Crushtec International, a liner is a sacrificial part designed to protect and prolong the life of the very expensive machine by isolating the machine’s structural components from

material being processed. The machine’s structural components are designed for strength and durability whereas the liners have different qualities designed for abrasion resistance, toughness and impact resistance.

“The industry term, ‘crusher liners’, refers to a specialised set of sacrificial liners within a jaw or cone crusher. These special liners are subjected to the full compressive forces inside a crushing chamber and absorb large amounts of energy. They are not your typical liners you would find in other materials handling machines,” he says.

Crusher liners serve several very important purposes inside a crusher. The first and most important task is to protect the crusher from expensive or irreparable damage. The liner material is ductile and can endure plastic deformation without fracturing. By having the correct chemical composition, with a special manufacturing process, liners protect the machine’s frame and guarantee that the crusher will have many years of service.

The second vital aspect of crusher liners, explains Abelho, is that they can have complex and intricate profiles. The

liner profiles may look simple but they create specific and complex force vectors inside the crushing chamber. The liner profiles also determine material flow paths between them, crushing efficiency, crusher throughput, as well as influencing wear patterns and the physical product characteristics such as size and shape.

Abelho says crushers are designed to maintain the ideal crushing chamber profile while enduring high crushing forces and abrasion from the processed material. “The liner profile is a feature that often does not get enough attention from the machine operator. A change to the liner profile can give significant improvements in crusher throughput and product quality – a benefit that has a bigger impact the plant’s bottom line than the wear resistance characteristics that operators tend to focus on,” he says.

Another vital function of crusher liners, adds Abelho, probably the most spoken about, is to resist wear from the crushing process. This characteristic is probably the one that customers tend to focus on the most, sometimes to the detriment of the other vital liner qualities.

“Crusher liners have unique material

Crusher liners are subjected to the full compressive forces inside a crushing chamber and absorb large amounts of energy.



are indeed a constant cost when operating jaw, cone or impactor crushers. In terms of the cost, he reasons that some applications will be more demanding than others, and putting a specific percentage figure can be a challenge and also varies from one location to the other.

"Overall, it is important to optimise the chamber operation and control the materials to ensure your wear liners and blowbars provide a positive return on investment," says McGirr, maintaining the case for using genuine OEM wear parts to get the most out of your liners.

According to Ravenscroft, there are many factors that play a part in the life of liners and the rate at which they wear. Such factors, he says, include type of material, bulk density, moisture content, comprehensive strength and hardness index, abrasiveness index and material characteristics.

"With these factors taken into account, the percentage of a crusher's cost related to crusher liners can vary drastically. There have been many cases where the material characteristics change as the mine develops, resulting in a change in the liner wear rate at the same operation," explains Ravenscroft.

The same view is expressed by McCloskey's Vilpas, who says that crusher liners' share to the overall plant costs depends a lot on the application and how well the crusher is being maintained. "On total crushing costs, liners can be even +30% of the total crushing costs in a typical hard rock application. When feed material is not that abrasive, the percentage is less," he says.





According to Abelho, crusher liners are expensive items, but their cost in terms of overall plant running costs is relatively low. Diesel costs, electrical power costs, salaries and wages, he says, are generally higher than the cost of the crusher liners.

"As an OEM, we prioritise getting the maximum volume of in-spec material through the plant per hour of operation. The overheads are normally a fixed cost so any additional sellable product reduces the rand per ton cost of the plant. We recommend that liners be replaced as soon as plant production reduces by 10%, irrespective of the life left in the liner. The impact of a 10% reduction in production has a major effect on plant profitability. Often keeping the liners in the machine until there is no life left in them comes at the expense of production rates," says Abelho.

Reducing wear

With that in mind, focus has in recent years been placed on reducing crusher liner wear to manage running costs. Commenting on

QUICK TAKE

A crusher liner is a sacrificial part designed to protect and prolong the life of the very expensive machine by isolating the machine's structural components from material being processed

There are many factors that play a part in the life of liners and the rate at which they wear. These include type of material, bulk density, moisture content, comprehensive strength and hardness index, abrasiveness index and material characteristics

It is important to optimise the chamber operation and control the materials to ensure your wear liners and blowbars provide a positive return on investment

Understanding the factors that affect wear can empower equipment owners to get the most value out of their crushers

properties which allow them to work harder when subjected to high compressive forces. This work hardening feature resists the gouging and grinding wear from the material being processed inside the crushing chamber," explains Abelho.

"The chemical composition and heat treatment play a significant role in determining the wear life of the liners. One element critical in the crusher liner manufacturing process is manganese (MN). This has resulted in crusher liners often being referred to as crusher manganese or manganese liners. Manganese is however only one element of several others in the chemical mix of a crusher liner."

Cost of crusher liners

A sizeable chunk of the overall crushing costs can be attributed to crusher liners. Eamonn McGirr, product manager at Terex Finlay and Powerscreen, says crusher liners and blowbars

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Good practice crushing techniques play a major factor in the life of crusher liners.



"Many crusher manufacturers have incorporated independent pre-screens on their mobile crushing units. This allows material already in size to bypass the crusher chamber, increasing the life of the liner."

Tyron Ravenscroft, Finlay product manager at Bell Equipment



"We recommend that liners be replaced as soon as plant production reduces by 10%, irrespective of the life left in the liner. The impact of a 10% reduction in production has a major effect on plant profitability. Often keeping the liners in the machine until there is no life left in them comes at the expense of production rates."

Jorge Abelho, director Technical Support at Pilot Crushtec International

TALKING POINTS

some key developments in that regard, Ravenscroft says reducing the percentage of fine material (material already crushed to the desired size specification) entering the crusher chamber helps increase the life of crusher liners.

"Many crusher manufacturers have incorporated independent pre-screens on their mobile crushing units. This allows material already in size to bypass the crusher chamber, increasing the life of the liners," says Ravenscroft.

Good practice crushing techniques, adds Ravenscroft, play a major factor in the life of crusher liners. Examples include a consistent feed of material to the crusher – not having material purging into the crusher chamber; staying within the specified crushing ratio designed for the crusher; and maintaining the maximum allowed feed size for the specific crusher.

Vilpas says there is a continued focus on development of more abrasion resistant liner materials, proper application and setup, and using crush material to interact with crush material – essentially a layer of crush material to work like a liner.

Reducing crusher liner wear is a good initiative as long as it doesn't compromise the quality or throughput of the crusher, says Abelho. Often there is a misconception, he says, that a thicker or heavier liner lasts longer than a thinner liner and is therefore better. But if the crusher dynamics and cavity profile are negatively affected, then the crusher could draw more power and produce less in-spec product, both of which increase plant costs. It is more important to measure tonnes produced by a liner set, rather than life of the liner.

"As a starting point, Metso uses a computer simulation software known as Bruno that

assists in plant design and optimisation. The calculations are based on years of testing and experience gathered by Metso. Bear in mind that the simulations are only as accurate as the information inputted and if not all the information is available, assumptions have to be made. The Bruno will recommend liner profiles to start with," explains Abelho.

"Then to optimise the crushing process and maximise productivity, we need to study the real conditions on site. Metso has for several years offered a service for liner cavity profile analysis. This is a site and crusher specific study which is a scientific way of determining the optimal crusher liner for a particular application by analysing a worn crusher liner, understanding the feed material characteristics as well as the required product quality, then, with computer modelling suggest the best available liner setup. Where the ideal cavity profile does not exist, this may require a special design from the Metso engineering team," says Abelho.

Another exciting development in the crusher lining area is the Metso MX Liner range, adds Abelho. These liners are specially designed for abrasive applications. The material is a hybrid design, using the ductile, hard manganese steel as the base with very hard wear-resistant material inserts. The matrix design can double or even triple liner life in some applications. This reduces the frequency of liner changes.

Very new to market and with big potential is the Metso VisioRock particle size analyser, says Abelho. This instrument gives real-time production information on particle sizing and distribution. The information can be fed back into crusher control system to optimise crusher production.

"This gives the production team live information and ensures that they are producing the right products. The perfect crusher to make use of this real-time technology is the latest generation Multi-Action cone crushers from Metso. The MX cone crusher allows for dynamic setting adjustment and automatic wear compensation without stopping or interrupting the crushing process," adds Abelho.

Selecting the right crusher liners

Selection of an ideal crusher liner for the task at hand is a significant parameter and depends upon many factors. According to Vilpas, hardness of material, presence of tramp iron, size of feed material and CSS (closed side setting) are all factors that affect liner choice with respect to liner contour and composition.

"Choosing correct crusher liners has a direct impact on maintenance and energy



Crusher liners' share to the overall plant costs depends a lot on the application and how well the crusher is being maintained.

costs which play a major part in total crushing costs. At the end, cost per ton is all that matters," says Vilpas.

McGirr says different applications and conditions demand different approaches. Whether that be a hard granite or soft limestone operation, there are some key factors to consider such as the material composition, feed size, shape and type, hardness, abrasiveness, type of wear, abrasion and fatigue.

"There are also environmental factors such as temperature and moisture to consider, and of course machine settings and operation. A key element is the type of liner design or blowbar to use and its metallurgy. Using the correct proven high quality Terex wear part for the application will ensure good results but also the support from the dealer and factory teams ensures that you are able to maximise the returns in your application," explains McGirr.

The selection of crusher liners, adds Ravenscroft, is important and is dependent on the material to be crushed – type of material, moisture content, compressive strength, hardness index, abrasiveness index and material characteristics.

"Choosing the correct liner pattern is important as different liner patterns grip material differently and subsequently crush material differently. Different liners have different feed size restrictions and these need to be considered for the application as well," says Ravenscroft.

The same view is shared by Abelho, who says that the material feed size and gradation, as well as desired product qualities are important in determining the liner profiles. Material properties such as strength and chemical composition affect the liner material selection.

"There are several tests that can be performed on the material to be crushed, such as particle size distribution, abrasion index (estimates how abrasive the material is), bond work index (estimates energy required to crush the material), material density and moisture content. All of these factors influence the liner profile selection. Tools like the Metso simulation software, Bruno, help to quickly identify which designs are most suited to each application," says Abelho.

Optimising liner life

Commenting on how operations can further reduce liner wear, Abelho says understanding the factors that affect wear can empower equipment owners to get the most value out of their crushers. These factors include ensuring that the feed is evenly distributed within the crushing chamber, limiting feed material drop height, avoiding segregated feed material, removing as much fines before the crusher as possible, ensuring the crusher is choke fed at the optimal level and always ensuring that the correct closed side setting is constantly maintained. These are all basic checks, and the challenge for the equipment owner is to find a way to implement and manage the variables efficiently.

Ravenscroft says using the machine within the parameters of the crushing unit is important for liner wear. This will reduce uneven wear on liners and the need to scrap liners before they are completely worn out. "Preparation of material is also very important – to have the material sized correctly and all oversize removed from the stockpile to be processed for crushing. This includes removing unwanted material such as rebar and other steel items," says Ravenscroft.

McGirr says reducing liner wear will always be a constant and Terex is continually evolving with regards to the materials and processes used to develop crusher liners. "For example, provision of telemetry solutions has complemented liner development at Terex. Incorporating the Pulse or T-Link system with the OMNI system allows owners to see, discuss and innovate new approaches to maximise returns using data analysis," he says.

In conclusion, Abelho says Pilot Crushtec always advises its clients to use genuine OEM liners. "We find that in some instances clients resort to pirate liners without considering the actual implications and far too often the decision on liner suppliers is made by procurement departments whose interest predominantly lies in monthly expenses as opposed to a 'rand per ton' achieved from the production team," he says.

"Pirate liners can certainly cut a small percentage of the upfront cost but we often find that clients have problems fitting the liners correctly or there is inconsistency in the end-product. We have also experienced critical failures in crushers as a result of using pirate liners. OEM products are consistent, proven, reliable and tailored to the crushers to ensure a well-balanced machine at all times," concludes Abelho. ☼

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Epiroc employees in the company's Control Tower.

CAN DIGITAL TECHNOLOGIES UNLOCK PRODUCTIVITY IN A POST-PANDEMIC ERA?

With mines seeking to return to profitability following the impact of the COVID-19 pandemic, digital technologies have the potential to unlock new ways of managing variability and enhancing productivity. By Mark Botha

When asked how digitalisation can help miners improve their productivity and return to profitability following the impact of the COVID-19 pandemic, Epiroc South Africa regional automation centre manager Kumeshan Naidu says mining operations will adopt a more risk-averse financial position after the pandemic.

"Many major manufacturing facilities were brought to a halt, with borders being shut and countries implementing safety measures to slow the spread of the virus or at least prepare themselves for the fallout."

He says demand for raw materials has dropped while commodity stockpiles grew. It is under circumstances such as these that well-crafted digital systems in the mining environment demonstrate their true worth, he says.

"Mining organisations equipped with systems providing real-time or near-real-time insights into their entire operation can make more informed decisions and react with some immediacy to environmental challenges."

He says that, for more "digitally mature" organisations, the aim would be to have a 'digital twin' and integrated 'financial triplet' that would enable the creation and analysis of operational scenarios from which the financial implications can be assessed.

This digital replica of the mine is constructed using multiple data sets such as design drawings, geological surveys, production records, 3D scans, in-situ IoT devices, ERP systems and others, to simulate the entire operation

or parts of it in the digital realm.

"At very little expense, these organisations will understand the implications of their decisions, focusing more attention on value-based trade-offs, rather than on gut-feel or lessons learnt alone."

He says that, in a world where the digital edge can make or break an organisation, companies able to operate at the highest possible efficiencies demonstrate adaptability and fluidity in the face of adversity and "will inevitably yield better results than those who cannot".

"For organisations currently transitioning to digitally enabled operations, or even those contemplating their suitability for application of these systems, the adoption of digital technologies in core areas could contribute to tremendous improvements in operational efficiencies, ultimately driving improved profitability."

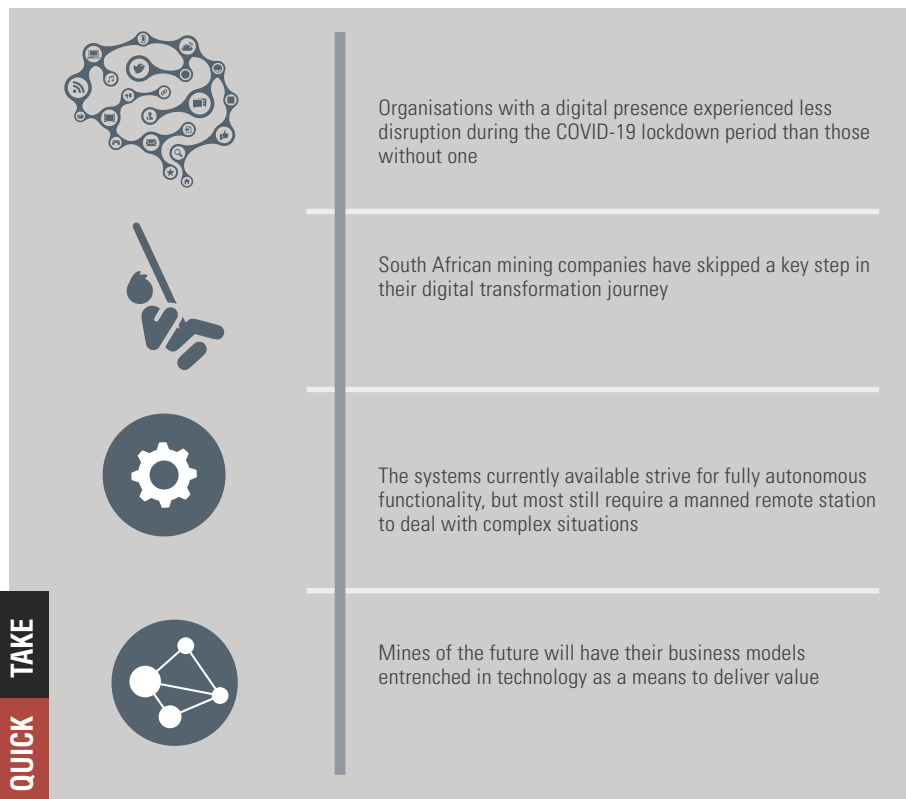
He says a major consideration faced by engineering and maintenance managers in times of crisis, is the reduction in their Capex budgets.

"Executive management sees frugality as a necessity and, as such, requests that operations 'make do' where possible. Practically speaking, this translates to delayed equipment replacement schedules and a higher focus on equipment maintenance practices."

Stretching equipment's useful life can be realised by leveraging collected telematics data which can optimise maintenance schedules, anticipate breakdowns and prepare for upcoming service activities at varying levels of complexity.



Organisations with a digital presence experienced less disruption during the COVID-19 lockdown period than those without one.



These levels of complexity, says Naidu, vary from Basic, where warnings are sounded through Internet of Things (IoT) devices, to Intermediate, where integrated planning systems consider production targets, spare parts availability, workshop capacity and other factors.

In the Advanced level, he says, data analytics and machine learning enable predictive maintenance: "They use historical data to determine the circumstances under which major failures will occur, then project the estimated timeline to when these will

occur, based on the current health status of that machine."

Accenture Technology in Africa Industry X.0 MD Eric Croeser says organisations with a digital presence experienced less disruption during the COVID-19 lockdown period than those without one.

"We have seen a need for mining organisations to expand their digital footprints and most of these opportunities are now in the Connected Worker category, following the pandemic." He says a recent IDC study showed that mining organisations

globally have moved their short-term focus to autonomous operations and operational decision support, including Connected Worker.

"We have developed digital solutions around five key pillars with regards to post COVID-19 workforce resilience, as mining organisations look for ways to return workers to the mine safely and with limited risk to co-workers."

This is done through a combination of digital technologies including thermal scanning, wearables, tracking apps and others. The data generated from these solutions is used to assist in planning and executing essential services through data insight platforms.

"Digital can further assist in the drive to increase efficiencies through Rapid Remote Expert solutions which assist field workers with 'remote coaching' through wearable and mobile devices."

He says the consolidation and integration of data sources can lead to insights generated across the value chain, driving further improvements in efficiency and profitability.

thyssenkrupp Industrial Solutions global product lifecycle management, Automation and Digitalisation Martin Krex, and Matthias Göing, the company's head of Global Product Lifecycle Management, say an important point now is to analyse the entire process chain, to identify bottlenecks.

"This can be done most effectively by means of our #digitalizedexpertise drive, which covers the entire digitalisation chain of the plant, i.e. from the use of an edge device, over the data transfer into the cloud, an analytic service, up to the plant optimisation recommendation and, should the customer so choose, the optimisation of the plant itself. All of this can and will be done remotely," says Göing.

Slow adoption, business case

On the mining industry's traditionally slow adoption of new technologies due in part to the scale and complexity of their operations, Naidu says industry has taken the "fastest follower" approach, whereby they are more open to the adoption of tried and tested solutions than to cutting-edge technologies.

"Having said this, mining operations are primed to invest heavily and deploy such systems more readily than most other industries," he says.

However, many factors are considered with these types of decision, including the projected life of mine; current operational performance; robustness of available technology in rough

and sometimes hazardous environments; suitability of the technology; the organisation's understanding of their digital maturity and others.

"As with all business decisions, embarking on the use of technology would require a strong value proposition and an accompanying financial benefit. After this, the work begins."

He identifies five points to consider when devising a strategy to implement digital technology on mines, the first of which being a "root cause understanding" of the requirement.

Another point is the decision to optimise systems and processes prior to technology



"We have been seeing big opportunities in the use of digital technologies for our clients and for thyssenkrupp."

**Matthias Göing, thyssenkrupp head,
Global Product Lifecycle Management**



"The adoption of digital technologies in core areas could contribute to tremendous improvements in operational efficiencies, ultimately driving improved profitability."

**Kumeshan Naidu, Epiroc South Africa
regional automation centre manager**



"All transformation activities require a catalyst to ignite the journey. COVID-19 may just be one of those catalysts."

**Eric Croeser, MD, Accenture
Technology in Africa Industry X.0**



"Data availability and connectivity are the prerequisites of digital transformation. Without these two main pillars the advantages of digital cannot be harvested."

**Martin Krex, thyssenkrupp Industrial
Solutions global product lifecycle
management, Automation and
Digitalisation**

deployment as new systems can cut out time-intensive activities that offer minimal value-add, allowing employees to focus on their core tasks.

"When making the 'partnership versus out-the-box solutions' decision, the mine decides whether it is suited to changing its operation to fit the technology or whether the technology should augment the mine's current abilities. There are many products and companies that sell the dream of the mine of the future. If you dig a little deeper, you may find a reluctance to develop solutions that suite your needs."

Mines should insist on interoperability where practical and, should further expansion be on the cards, ensure that the individual service providers and their offerings facilitate these functionalities.

He says representatives at varying levels of the organisation affected by the technology should be at least consulted prior to the decision-making process to ensure that the systems will address the problems within the organisation and promote buy-in when they are deployed.

The last point on his list is that of effective communication: "Strong, digital-focused leadership with an effective and timely communication strategy around technology deployment aids acceptance through understanding."

He says once organisations' leadership delves into technology adoption in the mining environment, they soon realise the complexity and may perceive the solutions as too costly.

"If done correctly, however, the use of technology could unlock significant value that has been lying dormant in these organisations."

Accenture's Croeser says the business case for going digital "has always been there". He ascribes its slow adoption to the lack of value realisation at scale.

"South African mining companies have skipped a key step in their digital transformation journey. Enamoured by the promise of technologies such as artificial intelligence, autonomous vehicles and augmented and virtual reality, they have overlooked investments in key foundational technologies such as advanced analytics and integrated platforms."

He says, in doing so, these companies miss out on nearly R51-billion arising from the deployment of advanced analytics and integrated platforms.

"They also risk not being able to completely tap the gains available from the digital technologies already deployed. Our research has shown that organisations who focus on the processes, technologies and people experience huge returns on their digital investments. Our evaluation of the

potential value to be realised led us to develop the Value-at-Stake framework.”

This framework assesses the impact of digital transformation initiatives on industry, customers, society and the environment, and identifies potential value-creation opportunities.

“It provides likely value estimates of the industry operating profits at stake between 2017 and 2026, and the contribution that digital transformation can make to customers, society and the environment in that timeframe.”

He says the value at stake for the industry comprises the potential impact on the industry’s operating profits to be generated because of the digital initiatives (value addition) and operating profits that will shift between different industry players (value migration).

The value at stake for society includes three elements: customers, society and the environment.

The value impact for customers is measured as the potential gain to both B2B and B2C customers, while the impact on society is measured as the financial and non-financial impact of digital initiatives on productivity gains and jobs. The impact on the environment is seen as the estimated impact of digital initiatives on increasing or reducing CO₂ emissions.

“All transformation activities,” he says, “require a catalyst to ignite the journey. COVID-19 may just be one of those catalysts.”

Krex and Göing say the effects of COVID-19 on their clients’ businesses and on thyssenkrupp as a supplier are “immense”.

“We have seeing big opportunities in the use of digital technologies on both sides.”

They say some of their clients have had “very positive” experiences during recent weeks and have already indicated that they would continue with these digitalisation efforts into the future.

“For instance,” says Krex, “it was sometimes impossible to send our service personnel to the mines in the event of faults or unplanned downtime. Working with our clients, we have found ways and means of remote service support that got the operations running again. We are convinced that our clients have seen the advantages of digitalisation and will implement solutions going forward.”

Technology clusters

They agree that several clusters of digital technology exist which can help mines improve their productivity.

“thyssenkrupp Mining holds many of these technologies in our digital product portfolio. Some examples are autonomous operation, artificial intelligence, data analytics, predictive maintenance, remote services and others,” says Göing.

Epiroc’s Naidu says the technology suites designed to improve operational efficiencies can, in most instances, be categorised into two disciplines: data centric and autonomous technologies.

He says autonomous mining technologies are focused on the understanding that they will improve operational efficiencies through consistent repeatability; improve productivity during shift changes and breaks; promote safety in hazardous areas and reduce equipment damage, typically caused by operator abuse.

“The systems currently available strive for fully autonomous functionality, but most still require a manned remote station to deal with complex situations. It would be logical, then, for mine operators to build their digitalisation efforts to provide their workers with tools that help them improve productivity, rather than aim to replace them with the dream of autonomous equipment.”

If they are to remain profitable and competitive, most

medium-to-large mining companies will have to consider some level of automation as a way to run their operations.

“This said, operational constraints and opportunities exist in different areas in mining operations. For example, fixed-type equipment (as found in processing plants) is more readily automated than low-profile underground drill rigs which chase undulating seams of gold or platinum ore.”

He says production activities such as drilling, blasting, loading and hauling are seen as the current bottlenecks in the mining cycle.

“Due to their static nature, process plants have been the focus of optimisation efforts in the recent past and, as such, do not feature prominently as areas of concern in most operations.”

Data centric systems, on the other hand, are “far more diverse” than purpose-designed autonomous systems.

“Systems can have divergent focuses and functionalities and can tie together IoT devices over communication networks for analysis or visualisation at a central command centre, or be used to design an entire mine and plan every activity, down to the shifts.”


Combining such systems would allow for task rescheduling in line with completed or non-completed activities while considering the available fleet and appropriately skilled personnel who could be redeployed, while constantly monitoring the integrity of the tunnels or benches.

“The main purpose of these types of system would be to allow personnel to make informed decisions relating to either productivity or safety after considering their effects across the entire value chain.”

Naidu says there are “hundreds, if not thousands” of products and systems currently available, each focused on addressing a particular problem in the mining cycle. At their core, each system tries to provide insights through monitoring key indicators.

“Each, in their own right, will propose a certain value creation. The mine of the future will need to leverage these individual system strengths and combine them to enable operational transparency and fluidity.”

Croeser says research by Accenture identifies seven key digital initiatives



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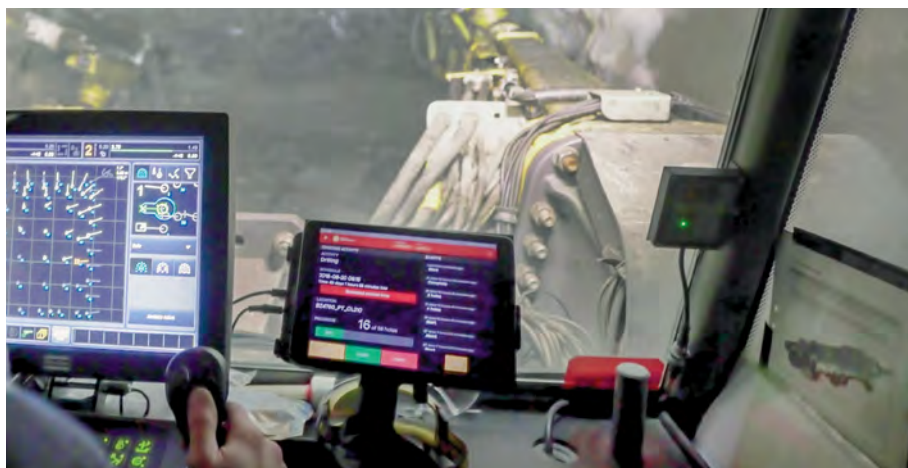
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Epiroc's Mobilaris Mining Intelligence provides a 3D real-time information model where not only the position of machines, vehicles or personnel but also other vital information sources like shift planning, machine and production data are presented.

that can unlock in excess of R153-billion in value by 2026. These initiatives are autonomous operations; mobile and field devices; analytics; integrated platforms; remote operations centres; smart sensors and cyber security.

Autonomous operations entail the deployment of autonomous trucks, trains, diggers and drills to enable mining companies to perform multiple tasks with a great degree of autonomy, over extended periods and without human intervention.

"Autonomous trucks, for instance, can carry out hauling operations round the clock using predefined GPS courses to navigate roads automatically. By implementing such initiatives, mining companies can realise some R44-billion in value in the form of increased throughput, safer operations and improved productivity levels."

Mobile and field devices such as the Connected Worker initiative, where field workers are equipped with augmented- or virtual reality (AR/VR) or mobile devices, help mining companies introduce digitally-enabled ways of working.

"AR/VR devices fed with real-time data," says Croeser, "can enable field workers to carry out more targeted and efficient extraction and exploration." He says workers can use these devices to repair faulty equipment through real-time assistance or access to on-demand digitised instructions.

"With an expected cost reduction of R37-billion, the Connected Worker initiative could represent the second largest driver of value for South African mining, after autonomous operations."

Advanced analytics processes data, identifies trends and patterns from structured or unstructured data, and uncovers relationships between events.

"Mining companies can leverage such insights to identify operational bottlenecks or waste patterns, and make plant

operations more efficient," says Croeser.

"These insights also help predict potential disruptions, learning useful lessons from the past and informing future actions."

He says advanced analytics can also identify ore value during exploration quickly and effectively, and could therefore help local mining companies unlock R28-billion through improved productivity and streamlined operations.

Integrated platforms provide visibility and monitoring capabilities by linking operations, disparate devices or technologies across the value chain. They leverage advanced analytics and machine learning to forecast, track, learn, predict, report and manage company resources and business processes, says Croeser.

"This drives collaboration across functions or even key partners such as suppliers, and could help South African mining companies unlock some R23-billion in value.

Remote operations centres (ROCs) allow mining companies to remotely monitor and control multiple operations simultaneously. These centres facilitate round-the-clock operation at mining sites, with fewer accidents. They also integrate diverse data sources to support real-time decision making.

"In doing so, ROCs can deliver R9-billion in cost savings and improved productivity."

Smart sensors can help mining companies collect critical data from their vehicles or equipment across multiple processes and provide insights into potential failures while "traditional" sensors such as gas detection sensors can help monitor the levels of toxic gas in the environment

"In line with these considerations, mines that are maturing in their digital competencies have recognised the need for an integrated technology support function that holds the equivalent influence as engineering or finance in the organisation."

Naidu says some mines have branded

these teams as "Industrial IT" while others have included the requirement for technology skills in every facet of their organisation.

"Either way, the importance of connectivity in mining is becoming more prevalent as technology is seen as the only way forward."

Accenture's Croeser quotes W. Edwards Deming, the engineer who famously said, "Without data, you're just another person with an opinion".

"That quote is even more true today," he says. "Data is the lifeblood of a mining operation, and the connectivity is the veins."

He notes that South African mines are some of the deepest, oldest and most complex in the world.

"From an infrastructure perspective, this brings an array of additional challenges. The lack of (or limited focus on) foundational technologies restricts mines from sharing information and monitoring operations across the value chain, from pit to port."

Meanwhile, workers are hamstrung by the absence of analytics-driven insights that can help make evidence-based, real-time decisions. As a result, they fail to identify and prevent problems in one area from propagating through the chain.

However, a decline in the cost of connectivity and the increase in data generation capabilities within the mining environment are overcoming these challenges.

"Investing in digital initiatives opens the possibility for local mining companies to unlock significant value through improved operational performance, better visibility across their value chains and real-time, evidence-based decisions.

"Timely and predictive decisions will not only help minimise hazards and unplanned mine shutdowns – they also position mines to respond to potential disruptions with greater speed and agility. But, like all initiatives, the success of digital initiatives hinges on where resources are allocated and how they are used. In this case, the South African mining industry must rejig its investment focus."

To prioritise digital investments in frontline operations technology, mines must deploy foundational technologies actively to unlock the full value of digital investments and see better outcomes today and in years to come. These foundational technologies not only underpin strategic, data-driven decision making; they support future digital expansion."

thyssenkrupp's Krex sums it up: "Data availability and connectivity are the prerequisites of digital transformation. Without these two main pillars the advantages of digital cannot be harvested." 🌐

COVID-19 IS ACCELERATING E-COMMERCE, AND THE EQUIPMENT INDUSTRY IS NO EXCEPTION

The way we do business is changing – and with COVID-19 and social distancing measures disrupting so much, 2020 is proving to be a pivotal time for industries to transform their approach to the digital world. Matt Ackley of Ritchie Bros. shares his views on the current climate of e-commerce, the huge advances made in recent years, and what we can expect in the future.

Matt Ackley, chief marketing officer, GM Platform Business, SVP Product Management at Ritchie Bros., has a long track record of success in the world of tech. Before he joined the auction company, Ackley worked at several start-ups, including eBay and Google, that are synonymous with e-commerce and digital business. While the heavy equipment industry is undoubtedly different, Ackley's focus on digital transformation means he is now able to apply his learning from other areas of the digital world in a new setting.

"One thing is for certain," he says with enthusiasm, "no industry is immune from digital transformation. Even industries that prized themselves on intrinsic human connection and knowledge – such as the medical industry – have seen huge digital advancements in recent years."

Traditionally, the heavy equipment industry is viewed as a more conservative business, but this is an unfair judgment. The construction and mining sectors are arguably the perfect laboratories for the testing of digital technology such as connectivity and automation – as they tend to be controlled environments with limited public interaction.

In recent years, there has been a rapid acceleration in tech R&D from several heavy equipment manufacturers, including Volvo Construction Equipment. The industry may not be at the forefront of technological and digital advancements. Still, it is embracing the benefits on offer and integrating them into complex machinery to deliver surprising results.

E-commerce: the transformation

One of the most prominent digital trends in business is e-commerce. In 2019, worldwide e-commerce sales topped US\$3.5-trillion, an increase of approximately 18% from the year before. However, this year has boosted

the figures even higher with the period between January and March 2020, seeing retail platforms undergo a six percent global traffic increase.

Overall, retail websites generated 14.34-billion visits in March 2020, up from 12.81-billion global visits in January 2020. This is, of course, due to the global coronavirus pandemic, which has forced millions of people to stay at home to curb the spread of the virus. But it also represents a huge – and probably lasting – shift in buyer and seller behaviour.

Ritchie Bros. has been building its digital offerings since the late 1990s and hosted its first online auction in 2002. The company's capabilities were further strengthened with the acquisition of Mascus in 2016 and IronPlanet in 2017. Today online bids account for 75% of the company's sales. Now, with the dramatic impact of COVID-19, Ritchie Bros. is taking the opportunity to accelerate its transformation and pivot 100% to an online business.

"I have been involved in digital marketing and online marketplace technology for 20 years," says Ackley, "and it's thrilling to see them come to life at Ritchie Bros. It's exciting to be involved at this particular time and be able to deliver new technologies and customer experiences to the heavy equipment sector."

Data and insight

Through Ritchie Bros. and IronPlanet's history – 60 and 20 years, respectively – the company has attracted a wealth of global data. This data can be used, among other things, to find the right audience for a piece of equipment, and by using modern advertising platforms (Facebook, Google), new buyers or repeat buyers can be attracted.

"Auctions are essentially dynamic pricing systems," says Ackley. "We can use this data in unique ways to understand how an auction is going to perform. We know ahead

of time who is looking at what and whether they have bought similar equipment in the past. This lets us make real-time marketing decisions before the auction even starts. We use computer algorithms to identify certain demand characteristics and adjust these characteristics ahead of the auction to find more buyers for a piece of equipment."

As well as identifying and targeting buyers, Ritchie Bros. has also used data to help price equipment. In the past, this has been a time-consuming and challenging task. There are so many variables to take into account – model, condition, attachments, location – how can one identify what a piece of equipment will fetch in the marketplace? To solve this problem, Ritchie Bros. recruited a data scientist from eBay and looked at the challenge from a machine learning standpoint.

"This challenge of accurately pricing used equipment is tailor-made from machine learning," explains Ackley. "You have got thousands of variables that drive the price. What we have done for internal use is created an algorithm to sort through all this data. As we have perfected it, we are now beginning to offer these algorithms to our customers, too, through our new Ritchie Bros. Asset Solutions platform. So, customers can easily calculate the value of their inventory and make better decisions on acquiring or disposing of machines." 🌀



Matt Ackley, chief marketing officer, GM Platform Business, SVP Product Management at Ritchie Bros.

COVID-19 has forced many businesses online but what does this mean for you, the customer? Scan QR code to watch a short video of Matt Ackley of Ritchie Bros. discussing the digital transformations taking place in the equipment industry.



Notwithstanding the devastating impact of COVID-19, most Scania Insurance customers have kept their cover.

KEEPING INSURANCE COVER DURING COVID-19

The impact of COVID-19 on the capital equipment sector is far-reaching, with many businesses experiencing crippling financial constraints. Despite the financial pressures brought about by the pandemic, it is critical for equipment owners to maintain their insurance cover to ensure security for their mission-critical assets, writes *Munesu Shoko*.

Disasters can be financially devastating and can seriously disrupt business. Despite the current economic hardships due to the COVID-19 pandemic, insuring assets is a sound risk management strategy. Asset insurance passes the risk of loss or damage to mission-critical assets from the business to the insurance company. This represents a safety net that reduces the financial impact of loss or damage to expensive movable assets like capital equipment.

Notwithstanding the devastating impact of COVID-19, many capital equipment businesses are keeping their insurance cover. "The vast majority of clients are maintaining their cover. We are, however, experiencing an increase in clients who simply can't afford their insurance premiums anymore, as well as companies that had to close their doors because of the financial implications the lockdown had on their businesses," explains Christiaan Steyn, head of MiWay Business Insurance.

The same view is expressed by Neil Botha, Scania Finance South Africa's insurance manager, who says most Scania Insurance customers have kept their cover, except for those who did not operate at full capacity. "For these clients we

have allowed them to change their cover to third party, fire and theft. This option allows for a reduction in premiums, while the assets are parked and not in operation," says Botha.

Significance of cover

Just how important is it for capital equipment businesses to maintain their cover? Botha advises that even in these difficult times, it remains important for businesses to keep their assets covered to ensure continuous operation.

"If you don't want to pay your insurance premiums, you will likely not be able to afford to cover a loss. It is highly important to make sure your business is sufficiently covered should something go wrong," he says.

Steyn agrees, saying that keeping insurance cover in place is crucial. "The loss of an income generating piece of equipment could be the nail in the coffin for a business that is already experiencing financial constraints. As we head into spring, cover against acts of nature (hail, floods, among others) becomes even more important than it is in the winter months," he says.



MiWay has tailored cover for many Business Insurance clients to assist them through this difficult period.

QUICK TAKE

Despite the current economic hardships due to the COVID-19 pandemic, insuring assets is a sound risk management strategy



Notwithstanding the devastating impact of COVID-19, many capital equipment businesses are maintaining their insurance cover



Scania South Africa's partner insurers gave Scania customers a 20% discount on premiums between April and end of July



During the hard lockdown in April and May, MiWay offered clients automatic premium relief of over R40-million in total



Key adjustments

Amid the current financial constraints bedevilling many businesses, several insurers have implemented a series of solutions across their various products to provide flexibility and support to qualifying clients so that they may continue to be covered.

"As a broker it is a difficult situation for us," says Botha, "however, we are aware of our customers' needs during these difficult times, and have provided fitting solutions where needed. For example, the insurers we are in partnership with gave our customers a 20% discount on premiums from April to the end of July," he says.

During the hard lockdown in April and May, MiWay offered its clients automatic premium relief of over R40-million in total. "We have tailored cover for many Business Insurance clients to assist them through this difficult period until their businesses pick up again by reducing cover, removing perils, increasing excesses or temporarily pausing cover for a period," says Steyn.

"For example, equipment that is currently stationary at the business premises and not operating on-site still needs to be insured for theft but accident cover can be paused for the period that the equipment is not being used."

Rethinking insurance

COVID-19 has forced many businesses to rethink their business and do things differently, and the insurance industry is no different. What are some of the changes we are likely to see in the insurance sector post COVID-19?

Insurance solutions are likely to become more usage-based, says Steyn, where the premium paid more accurately reflects the exposure in a given period rather than being based on the average exposure over an annual period.

"The last couple of months made us all realise that we need to accept the things that are out of our control and focus on those that are within. Businesses should consider structuring their insurance so that the financial implication of an unforeseen incident becomes something within their control and not beyond. By choosing insurance cover with a fixed excess structure instead of a percentage-of-claim value excess means a business knows exactly what the financial implication of an incident will be on their cashflow," explains Steyn.

According to Botha, Business Interruption (BI) will be looked at differently. "BI policies usually pay out only if physical damage occurs to an organisation's assets or operations. I am sure we will see insurers underwrite this differently in the future and have more extensions and clauses to this product, and some might even provide more cover than the current BI cover," says Botha.



Amid the current financial constraints bedevilling many businesses, Scania Insurance has implemented a series of solutions to provide flexibility and support to its clients.



MiWay believes that future insurance solutions are likely to become more usage-based, where the premium paid more accurately reflects the exposure in a given period rather than being based on the average exposure over an annual period.

Accelerating change is the new normal

It would be safe to say that every single business has been affected by the outbreak of COVID-19, reasons Steyn. Not only are there new regulations governing the way businesses operate, but regulations also keep changing. Businesses have had to adapt and demand flexibility and concessions from their insurers and other business partners.

"If COVID-19 has taught us anything, it is that you can never be too prepared when it comes to adapting to and taking advantage of change. Agile businesses that have been able to react swiftly and reinvent themselves have been able to move from 'tried and trusted' models to new ones that allow their business to thrive. Across all sectors, companies have had to think differently about every aspect of the way they run a business – anything from adjusting their office seating arrangements and managing production disruptions to the changing customer habits and consumption," says Steyn.

In the process, he says, many are discovering that some of the new ways they have been forced to adopt may become permanent.

"All these changes have affected, and will continue to affect, how businesses operate. Some businesses have had to adjust their operations in order to manage more deliveries (restaurants, e-commerce, retail stores), but in many circumstances, business vehicles have stood idle due to supply chain disruptions impacted by lockdown regulations. Many business vehicles are now doing substantially less mileage than usual," he says.

With fewer vehicles on the road, reasons Steyn, the insurance industry has also had to adapt to these changes by adjusting premiums to reflect the changed risk. It is important, he adds, for insurers to help business clients build financial resilience in the current economic climate without compromising risk mitigation.

"More and more insurers are going out of their way to address the implications of low mileage for personal insurance premiums but very few have considered this provision for business insurance clients. Which is why MiWay Business Insurance offers varying levels of discounts based on each vehicle's average monthly mileage," he says.

"Business vehicles that drive less than 1 000 km a month could qualify for a discount of up to 30%. It is an opportunity for an insurer to tailor an existing product to provide peace of mind and lower premiums – more importantly, though, it demonstrates the kind of cooperation we need to shock-proof our business ecosystems.

"As South Africa moves towards lower levels of lockdown, we will continue to learn lessons and adapt. Businesses must regroup and recover at each stage of the unexpected. The keys to survival will be how well you have planned for change, and how responsive your ecosystem of business partners and suppliers is to a rapidly changing business environment," concludes Steyn. 🌟



"Business Interruption (BI) will be looked at differently. BI policies usually pay out only if physical damage occurs to an organisation's assets or operations. I am sure we will see insurers underwrite this differently in the future and have more extensions and clauses to this product, and some might provide more cover than the current BI cover."

Neil Botha, Scania Finance South Africa's insurance manager



"The last couple of months made us all realise that we need to accept the things that are out of our control and focus on those that are within. Businesses should consider structuring their insurance so that the financial implication of an unforeseen incident becomes something within their control and not beyond."

Christiaan Steyn, Head of MiWay Business Insurance

PURSuing EQUITY IN THE HEAVY MACHINERY INDUSTRY

Millicent Mphela understands just how challenging it is for women to break into male-dominated industries, but she is on a mission to prove that women are every bit as capable as men and to bring an important voice to the corporate table.

As skills development facilitator for the EIE Group, Mphela's role is to drive learning and development in the company and upskill people (many of them women) from disadvantaged areas through internships, graduate programmes, apprenticeships, CSI projects and social development programmes.

Initially armed with a marketing qualification and harbouring dreams of working for a large communications company, Mphela's first job was something else entirely: she started working for a temporary employment services company where she gained human resources (HR) generalist skills.

"I didn't know anything about HR, but skills development kept on peeping through my window and I realised that it was where I wanted to be. I attended a course to brush-up on the various acts and find how they could be integrated into the corporate environment. I also completed an Occupationally Directed Certificate in Education, Training and Development," she says.

Mphela joined the EIE Group in 2015, becoming the intermediary between employer and employees in determining skills requirements. "I make sure the execution of personal development is in line with the company's strategic goals. Obviously, we look at trends or what the skills business needs to reach its targets and differentiate itself from other businesses in the industry," she adds.

Love of heavy machinery

Her attraction to the heavy machinery industry began when she worked at the temporary employment services company, which contracted workers for the metal industry.

"I was fascinated by the various occupations I came across such as pattern makers (metal working), fitting and turning and tool and die makers, among others. I wanted to know more about them and discovered the whole area of occupationally directed qualifications. It was a lightbulb moment for me. These are quite tough

jobs. They need particular skills, dexterity, precision and focus, as well as an understanding of mathematics and science."

While women are in the minority in the heavy industrial machinery industry, Mphela says EIE Group has created a platform for women to enhance their skills. "One of our strategic goals has been to enlist women for our apprenticeship programmes and absorb them into the business when they qualify.

"Women are not always regarded as tough enough for this industry. This is a misguided perception. Of the 30% of women employed at EIE Group between 10% and 20% fulfil technical roles. They understand the machines, are dextrous and not afraid to lift heavy parts or machinery. And skills development gives them incredible confidence," adds Mphela.

Breaking cultural barriers

With nine years in the industry, Mphela says it hasn't always been easy to break down cultural barriers. "Obviously, this is a highly male-dominated and unionised industry. Initially, there was a cultural barrier, especially when it came to my African male counterparts, who believed there were things I was not capable of as a woman.

"They did not want me to address them, chair a meeting or look them in the eye. It took some time for me to build trust and create a relationship that allowed me to facilitate a deeper understanding between the employer and employees. Over the years, I have learned to listen carefully, forge strong relationships with all parties and engender trust among my colleagues and the management team," she notes.

An advocate for occupationally directed learning, Mphela says she was excited when the Gauteng's Department of Basic Education launched the multi-certification project. "I realised it presented an excellent opportunity for young learners, who did not want to pursue pure academic qualifications, to find their niche in the world of work.

"The project involves encouraging schools to specialise in certain occupations that



Millicent Mphela, skills development facilitator at the EIE Group.

offer defined career paths. EIE Group jumped on board and adopted a technical school in Tembisa that focuses on welding, fitting and turning, and mechanical and electrical engineering. With 2 000 learners on board, we make sure the technical classrooms are well maintained and furnished with the latest equipment. We have adopted another seven schools around the country where we provide bursaries to students are interested in engineering and technical learning."

The learners start to gain practical exposure and MERSETA-accredited qualifications from grade 10. Specific components of the qualification are covered between grades 10 and 12 and by the time they leave school, learners have already met 60% of EIE Group's apprenticeship programme requirements and gained a National Qualification Framework Level 2 qualification.

Mphela says education – in all its forms – is the key to personal success. "I believe one of my own greatest achievements is educating myself over the years. My passion to further the advancement of women also resulted in a friend and I creating a WhatsApp group called Career Hub, which is specifically aimed at empowering unemployed women.

"Every week, we share links and tips on various topics such as how to prepare for an interview, common workplace mistakes and how to dress for the corporate world. We also post vacancies and information about learnerships and are proud that we have been able to facilitate jobs for about 40% of the women," she concludes. 🌟



Manitou's 1650 R Mustang fitted with a boom hook.

THE ENDURING POPULARITY OF THE SKID STEER IN THE AFRICAN MARKET

A Grand View Research report valued the global skid steer market at US\$2,15-billion in 2018.

This was expected to show a 4% CAGR from 2019 to 2025. This feature examines why the skid steer remains a favourite in Africa; estimates the size of the local market; explores the numerous applications for these machines and takes a closer look at some of the key features of the units currently available. By *Mark Botha*

Skid steer loaders have, over the years, maintained great popularity in the African market. In South Africa, for example, skid steers are the most sought-after machine range in a number of industries, together with the backhoe loader.

Manitou sales manager Mark Webster ascribes this popularity of the skid steer to its versatility, safety and manoeuvrability on site. He says these compact machines are used mostly on construction, mining, farming and logistics sites to handle material productively and efficiently.

"Skid steer machines provide excellent forward reach at the middle of the lift path," he says. "This provides high performance for loading and offloading capacities."

He says radial-lift machines enhance performance in excavating, grading and digging below grade applications.

"The simple pin design provides superior durability in loading applications and extended durability in the 114 mm lift arm, for added strength."

He also notes that these machines offer an extensive range of attachments "which are quick to master." The quick-hitch attachment system ensures that changing attachments to suit

the application is effortless.

"This means that one Manitou machine can fulfil an array of functions and eliminate the need for multiple capital outlays for a fleet of task-specific machinery."

Wacker Neuson sub-Saharan Africa MD Dennis Vietze says the skid-steer loader is a very compact and versatile machine whose strength lies in its ability to "turn on the spot" in confined spaces.

"These machines can accommodate a wide variety of attachments, making them suitable for a host of applications, which is why some people even describe them as 'motorised wheelbarrows.'"

Bobcat Cape Town sales consultant Christo Swart says skid steers offer the customer superior mobility and versatility on site. He also refers to the "multiple attachments" which can be added "to complete many different applications with one machine".

Bobcat sales consultant Klinton Kane mentions that the skid loader is very powerful for its size and that industries as diverse as construction, plant hire, mining and farming can use it.

"Skid steer loaders can be used in areas where space is limited, as well as in applications such as mining where



The SW16 skid steer from Wacker Neuson.

QUICK TAKE

Skid steer loaders have, over the years, maintained great popularity in the African market. In South Africa, for example, skid steers are the most sought-after machine range in a number of industries



Skid steer machines provide excellent forward reach at the middle of the lift path. This provides high performance for loading and offloading capacities



A standard unit can take over 40 attachments while high-flow units can accommodate over 70 plus attachments, ranging from bale spears to cold planers, industrial grapples, trenchers, and vibratory compactors and material arms



Radial-lift machines enhance performance in excavating, grading and digging below grade applications



larger, more powerful units are needed," he says.

Barloworld Equipment building & construction product manager for southern Africa Thabile Dube also sees the skid steer as one of the most versatile machines as it can be used in a variety of applications.

"A standard unit can take over 40 attachments while high-flow units can accommodate over 70 plus attachments, ranging from bale spears to cold planers, industrial grapples, trenchers, and vibratory compactors and material arms."

Local market

Estimations of the size of the local skid steer market vary. According to Bobcat's Swart, the market for 2019 amounted to some 320 units sold ("of which Bobcat captured 44%"). He estimates that, as of end-June 2020, sales have totalled around 120 units.

Barloworld Equipment's Dube, on the other hand, says some 220 machines have been sold locally so far this year.

However, Manitou's Webster says the South African market sold around 300 units per year over the last three years while Wacker's Vietze quotes the Construction and Mining Equipment Suppliers' Association (Conmesa) figure of 298 skid steer loaders sold in the past 12 months.

"Of these," he says, "239 machines were classified in the payload ranges from 0 – 1 000+ kg, while another 59 machines have not yet been classified."



Bobcat's S850 skid steer loader.



"A standard unit can take over 40 attachments while high-flow units can accommodate over 70 attachments."

Thabile Dube, Barloworld Equipment building & construction product manager, southern Africa



Plant hire and construction constitute the biggest market for skid steers due to their versatility and the array of attachments they can accommodate."

Christo Swart, Bobcat sales consultant, Cape Town



"The skid loader is very powerful for its size and industries as diverse as construction, plant hire, mining and farming can use it."

Klinton Kane, Bobcat sales consultant

Skid steer ranges

Swart says Bobcat currently has on offer a range of 12 machines, in a combination of track and wheeled loaders.

"We have about a 55% market share, offering 18 different sized units, on both wheels and tracks," says the company's Klinton Kane.

Manitou, on the other hand, offers eight skid steer units, ranging in capacity from 600 to 1 900 kg. Webster says these units include the models 1340R; 1500R; 1650R; 1900R; 2200R; 2600R; 3300V and 4200V. The machines are also available in radial-lift and vertical-lift models.

Available from Wacker Neuson are the models SW16 radial lift, the SW17, featuring Powerflow Hydraulics and radial lift, and the SW20 with vertical lift.

"With these models," says Vietze, "we compete in the payload classes 601 – 700 kg (model SW16), 701 – 800 kg (SW17) and 901 – 1000 kg, with the SW20."

Barloworld Equipment, says Dube, has available a range of standard and high-flow machines with either one or two speed options, ranging from 35 to 82 kW.

Applications

In terms of applications, Dube says these models are suited to a variety of uses, ranging from agriculture to both opencast and underground mining, plant hire and construction.

Bobcat's Swart says the latter – plant hire and construction – constitute "the biggest market for skid steers due to the machines' versatility and the array of attachments they can accommodate", while Kane refers to the range of attachments: "The machine is sold with a front-loading bucket as standard. However, we have over 100 attachments available, including trenchers, augers, sweepers, concrete mixers, hammers and others. This opens a massive range of applications within which these machines can operate."

Webster from Manitou says "skid steers dig, lift, load and move materials, usually dirt and sand, and could also be used to grade, load trucks and, paired with a breaker, break up cement or foundations. Other applications include site clearing, road sweeping, trenching, mulching, augering and more."

Key features

"Bobcat offers a variety of machines ranging from small to a large sub-frames, allowing the client to obtain the perfect machine for the application and a perfect fit for limited spaces," says Swart.

Kane says the company offers a double-lifting arm for greater lifting capacity, as opposed to the single-lifting arm offered by some competitors.



Barloworld Equipment has available a range of standard and high-flow machines with either one or two speed options, ranging from 35 to 82 kW.

"Our engines are also mounted horizontally, not vertically, as is usually the case. This provides even more lifting capacity, as the engine acts as a counter-weight." He says the company uses Kubota engines in its skid steer loaders and stresses Bobcat's after-sales service, a high parts availability rate and a 24-hour breakdown standby service.

The company's skid steers, with the exception of the S18 model, include an extended three-year/4 000-hour warranty against repairs due to failures in materials or workmanship, at no additional cost to the client.

"This provides the customer with a higher resale value as remaining warranty coverage can be transferred to the new owner, should the machine be sold. The extended warranty also informs prospective buyers that the machine has received superior care and maintenance."

Manitou also provides extendable warranty offers and maintenance contacts to ensure that customers' equipment remains in "an optimal state of maintenance and repair", says Webster.



"Skid steer machines provide excellent forward reach at the middle of the lift path. This provides high performance for loading and offloading capacities."

Mark Webster, sales manager at
Manitou



"The machines can accommodate a wide variety of attachments, making them suitable for a host of applications, which is why some people even describe them as 'motorised wheelbarrows.'"

Dennis Vietze, MD of Wacker Neuson,
sub-Saharan Africa

"With our Easy Manager telematics system, the machine can be monitored in real time. Data collection and conversion to information allows our clients to manage their operations safely and accurately."

He says the cab designs are mounted forward on the chassis, while the seat is mounted higher, for improved visibility to the front, rear, sides and the cutting edge.

"This allows for precise placement of loads and reduced jobsite incidents. The long wheelbase provides a smoother ride and a lower centre of gravity, for added stability."

Vietze says the hinge pin height on Wacker Neuson's vertical lift loaders provides maximum loading and unloading capabilities.

An engine torque of 308 Nm provides the power needed for improved ground-engaging performance in all kinds of terrain, while the Kohler diesel engine features a maintenance- and regeneration-free after-treatment system, which eliminates the impact of extreme heat and the need for filters.

"A universal skid steer attachment plate enables attachments to be switched easily and hydraulic horsepower is standard. In addition, a 113 l fuel tank allows the operator more time in the cab and less time refueling."

Wacker Neuson created a cab and canopy environment with operator comfort and convenience in mind.

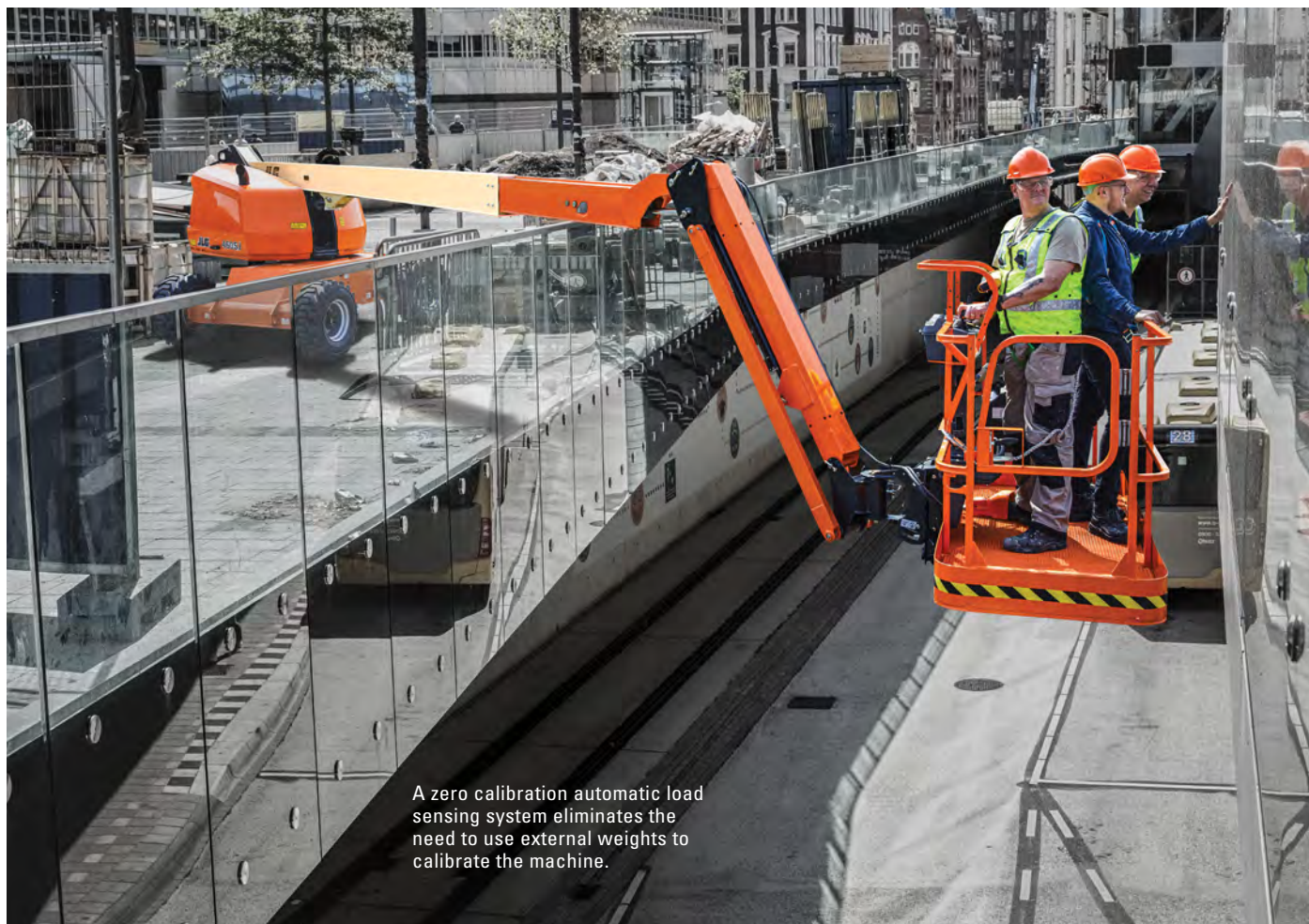
"Access to the cab is easy, as there is no restrictive lap bar, and the controls are placed intuitively. Our cabin machines offer the only one-piece, pod-style cab with full forward tilt when the lift arms are down. This provides complete access to all the maintenance components."

Barloworld Equipment's D3 series features a one-piece modular design to provide a sealed and pressurised cab for a cleaner, quieter operating environment.

"Its high-performance powertrain provides maximum performance and features an electronic torque management system, optional two-speed, and an electronic hand/foot throttle with deceleration pedal capability," says Dube.

She says a high-flow hydraulic system is available for applications demanding maximum hydraulic work tool performance. Dual-direction electronic self-level, return-to-dig and work tool positioner features make light work of repetitive tasks such as grading, digging and loading. The series also has a smart attachment feature, which facilitates plug-and-play recognition between the machine and the attachment.

The B3 series offers a comfortable operator station, high-performance power train and an advanced hydraulic system for maximum power. ☼



MORE PEOPLE AND TOOLS **AT HEIGHT**

Africa's leading work-at-height and material-handling solutions provider, Eazi Access, has brought the first JLG 460SJ HC3 telescopic boom into South Africa. The 460SJ HC3 – the first to be launched in JLG's five-model Hi-Capacity range – addresses market requirements for more people and tools at height by allowing for more flexibility with three working zones and an enhanced capacity that permits up to three workers and tools into the platform. By *Munesu Shoko*

Building on the predecessor 460SJ model, the new JLG 460SJ HC3 telescopic boom addresses market requirements with its greater capacity, allowing more people in the basket and increased flexibility at height.

Marcus Green, GM: Rental & Sales Support at Eazi Access, tells Capital Equipment News that a major market requirement in South Africa and other emerging markets is for companies to take more people and tools up to height. With the machine operator already occupying one of the two available spots in the basket in most conventional telescopic booms, contractors can only therefore take one artisan to work at height.

In cases where two artisans were needed, the artisans had to be trained to double up as operators of the machine to free up space on the basket. To address this market need, JLG is launching five new models in its Hi-Capacity line, ranging from 14 m to 28 m. The first to be launched is the JLG 460SJ HC3. The first unit to arrive in South Africa has already been deployed

on a long-term rental contract, where, according to Green, it is performing beyond expectations.

"With the three-person platform, we can now take the operator and two artisans at full height. In the past we had to provide a bigger machine to do the job because the smaller booms didn't offer enough carrying capacity. It was a situation where we had to over spec the machine, which was costly to the customer. With the arrival of this unit, this is a problem of the past. The increasing demand for more lifting capacity in the platform of boom lifts will be fully covered by the HC3 solution," says Green.

The HC3 model is all about high capacity. A key talking point is the ability to take three people to full height in the basket. It also has the capacity which allows you to do a different job at height. For example, says Green, 5G Towers are currently being installed around South Africa, which technically means that contractors would need two technicians in a basket, an aerial that would need to be mounted as well as an operator.

"This model allows for more productivity in less time as it



To ensure the safety and comfort of the operator and artisans, the machine is fitted with a 2,44 m basket.

permits up to three occupants and tools to height in every zone,” says Green.

Machine in detail

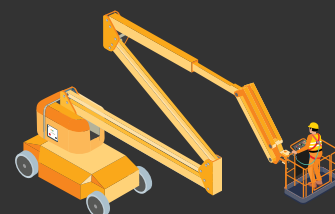
The JLG 460SJ HC3 telescopic boom offers a 16,2 m working height and a maximum outreach of 13 m, depending on the platform load. It also offers a continuous 360-degree rotation. There is a 300 kg capacity available in the entire working envelope and 340 – 454 kg in the restricted area, allowing three people with tools in the basket and a maximum side inclination of 5 degrees.

“The HC in the HC3 refers to the machine’s high capacity, while the 3 stands for the three-person capacity and the three working areas to which the machine automatically adjusts itself. The 460 stands for 46 feet, while the SJ stands for Straight Jib,” says Green.

The machine, explains Green, has a maximum capacity of 454 kg, and the key point is that three persons can be in the basket throughout the entire range of

QUICK TAKE

Eazi Access has brought in the first JLG 460SJ HC3 unit in South Africa



The 460SJ HC3 – the first to be launched in JLG’s five-model Hi-Capacity range – addresses market requirements for more people and tools at height

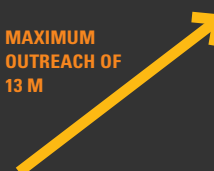


The machine allows for more flexibility at height with three working zones and an enhanced capacity that permits up to three workers and tools into the platform



The JLG 460SJ HC3 telescopic boom offers a 16,2 m working height and a maximum outreach of 13 m, depending on the platform load

**MAXIMUM
OUTREACH OF
13 M**





"With JLG's high capacity booms, operators can enjoy industry leading basket outreach and capacity, allowing them to stay on the job longer, work more efficiently and effectively, anywhere within the operating envelope."

Marcus Green, GM: Rental & Sales Support



The JLG 460SJ HC3 telescopic boom offers a 16,2 m working height and a maximum outreach of 13 m.



There is a 300 kg capacity available in the entire working envelope and 340 – 454 kg in the restricted area.

movement. "This, therefore, allows for an operator and two artisans in the basket at all times, allowing the artisans to concentrate on their task at hand," he says.

For example, three persons weighing in at 90 kg per individual amounts to 270 kg. The capacity of the unit is 454 kg, within a range, thus still allowing more capacity for tools. "Even at a range where full horizontal outreach is required, the capacity is 300 kg, which means there is room for 30 kg more worth of tools," he says.

To ensure the safety and comfort of the operator and artisans, the machine is fitted with a 2,44 m basket, allowing for a large working platform at height. This means that artisans have a large working area over the length of the basket. There is, therefore, no need to reposition the machine all the time. The number of movements at height is limited, maximising safety and productivity.

To be able to cater for more capacity, JLG firstly created a strong base of the machine, putting extra weight in the chassis to act as

counterweight. Secondly, the manufacturer also upgraded the quality of the boom.

More features and benefits

Another key feature of the JLG 460SJ HC3 is the load sensing system, which eliminates guesswork for operators, thus enhancing safety at height. With this system, there is no need to flip a switch to move from one capacity to the other; the machine senses the weight in the basket and automatically adjusts the range accordingly. This feature, says Green, keeps the machine within the allowable work envelope by limiting its use when the platform is overloaded.

"The moment you step into the basket, the machine automatically picks up the weight and immediately adjusts to the range you could work in. The smart design allows for a very safe working environment," says Green.

"With JLG's high capacity booms, operators can enjoy industry leading basket outreach and capacity, allowing them to stay on the job longer, work more efficiently and effectively anywhere within the operating envelope," he says. "Load sensing will automatically adjust the work envelope, allowing for the maximum work envelope or a restricted version."

The 460SJ HC3 is also fitted with JLG's ClearSky telematics system. It provides real-time information about the status of the machine, allowing for easier maintenance of equipment. All activities are logged and can be easily accessed via computer to provide support from a distance.

Meanwhile, the LED display in the platform indicates to operators which load chart is being operated. The upgraded light panel is more visible in the sun, while a chassis tilt alarm alerts the operator when the machine is on a slope that exceeds 5 degrees.

Tough market conditions

Commenting on the state of the market, Green says "it is a difficult market out there". He, however, notes that Eazi Access has managed to stay focused in the face of COVID-19 as a result of its strong leadership and integrated team.

During the hard lockdown, the company focused its efforts on a strong training regime for its sales staff. "When the hard lockdown ended, we had a more knowledgeable sales force that went all out in the market to make it happen," says Green.

"Throughout this difficult environment, Eazi Access has remained committed to partnering with our customers through safety improvements, productivity gains and costs saving initiatives. Finding safe solutions, like the JLG 460SJ HC3, for our customers remains at the core of everything we do," concludes Green. 🌟

Economic crisis drives diesel engine component remanufacture

As South Africa's depressed economy is further hammered by the COVID-19 lockdown, large diesel engine owners can be thankful that the country retains world-class diesel engine component remanufacturing facilities. Andrew Yorke, operations director at Germiston-based Metric Automotive Engineering, says key sectors like rail, mining, power generation and marine transport rely on large, hard-working diesel engines.

"In times like these, customers are forced to take a far closer look at the cost of keeping these assets operational," says Yorke. "The quality remanufacture of large diesel engine components is an ideal way of doing this, as it offers considerable savings over new replacement."

The local remanufacturing option now makes even more sense as the global pandemic fuels exchange rate volatility and disrupts some cross-border supply chains.

"There has been a regrettable trend toward the unprotected importation of remanufactured diesel engines, which threatens the vital remanufacturing element of our engineering sector," he says. "The worsening economic conditions are likely to highlight the benefits of using local exper-

tise and services."

While purchasing decisions tend to be driven by the upfront cost, he warns that the right choice of remanufacture can be the difference between future success and failure. In many cases, diesel engines are mission-critical to business sustainability, so their reliability should be of paramount concern to owners.

"Customers must ensure not only that they get a competitive price for remanufacture of large diesel engine components, but that their service provider has the necessary skills and equipment – coupled with a quality system meeting international standards," he says. "Original equipment manufacturers design their components to be remanufactured several times, but this must be done to their exacting specifications."

This quality is ensured by Metric Automot-



A crankshaft belonging to an 18 cylinder Cummins QSK 78 diesel engine being remanufactured at Metric Automotive Engineering.

tive Engineering, as the most comprehensively equipped diesel engine component remanufacturer in the country. Its facilities keep abreast of the latest technology and trends, with capability to handle large diesel engine components. With one of the leading crankshaft grinding facilities in Africa, it can grind shafts up to 4,7 m long and up to two tonnes in weight. ⚙️

Wacker Neuson expands electric mini-excavator range

Wacker Neuson is expanding its zero emission range to include the EZ17e electric mini-excavator. Due to its specially developed battery technology, flexible charge management and efficiency output, the compact excavator can be applied in as many ways as a conventional model of the same class, completely without compromise.

As Wacker Neuson has already shown many times, the company is thinking in terms of holistic solutions with its zero emission series. "In 2015, we put the first battery-powered rammer on the market and from the start, designed a sustainable system for our customers' purposes. Today, the modular battery can be used in seven units," says Alexander Greschner, sales director at Wacker Neuson Group.

"With the mini-excavator EZ17e, we have expanded our zero emission series. With more than 12 machines, an entire inner-city construction site can be operated completely free of exhaust emissions – without limitations in the sequence of operations or in performance, not least because of the consistently retained zero-tail design."

That the trend is heading in this direction is also shown in the increasingly stricter specifications for environment and user

protection on the national and international levels. Further, various cities are thinking about requirements for pollutant reduction, particularly in the area of the inner cities, and are beginning to support the application of low-emission machines.

The first question when it comes to battery-powered equipment: How long can I work with the battery? Wacker Neuson's answer: a whole workday, even without intermittent charging!

The EZ17e, with its integrated lithium-ion battery, can be used either without a power cable or also, during stationary activities, charged at power sources from 100 to 415 V in ongoing operation.

At all times, the operator can see the current charge level of the battery but also, for example, track whether the power supply network on the construction site is overloaded and take the excavator off the network if necessary. A full charge can be achieved at a household outlet (110 – 230 V) or by quick charging with high-voltage



The new electric mini-excavator is ideal for inner city applications.

current (415 V) in only four hours.

High-quality lithium ion battery technology has been used by Wacker Neuson for several years already and is especially durable. It ensures that all hydraulic functions have the performance of a conventional model of the same class. This way, customers can be sure of working just as flexibly and efficiently with the electric excavator as with a diesel-powered machine – in short: no exhaust emissions, no compromises. ⚙️

Metso Outotec acquires Davies Wear Plate Systems

Metso Outotec has today closed the acquisition of Australia-based fastener and wear monitoring technology provider Davies Wear Plate Systems, extending its wear lining portfolio and capabilities.

The acquired technology includes fasteners with a unique locking mechanism that does not require traditional studs and nuts and thus enables faster and safer maintenance work. Davies Wear Plate Systems' portfolio also includes wear monitoring technology, which provides a real-time forecast of wear and expected liner change-out timing. The monitoring solution can be fitted to any metallic or ceramic liner, independent of attachment systems.

"This acquisition supports our target to offer comprehensive and unique solutions for the entire wear lining value chain. We are eager to introduce these advanced solutions globally to our customers; we now have the market's widest range of optimised wear protection solutions, tools and services. The new technology will increase safety during maintenance and increase uptime. I warmly welcome the new colleagues to become



Metso Outotec offers a wide range of optimised wear protection solutions, tools and services.

part of the Metso Outotec team," says Sami Takaluoma, President of Consumables business area at Metso Outotec.

The acquired technology is already used by major mining companies, such as Rio Tinto, BHP Group and Fortescue Metals Group in Australia.

"We have been improving our product offering for years and we have received good feedback from our customers in Australia. Our products are ready to be rolled out to the global mining market. We are excited that we are now a part of a truly international company," says Brian Davies, founder of Davies Wear Plate Systems.

The parties have agreed not to disclose the value of the transaction. 🌐

New Kathu branch manager for GEM



Melanie Uys is Goscor Earthmoving Equipment's branch manager for Kathu.

Goscor Earthmoving Equipment (GEM) has appointed Melanie Uys as branch manager at Kathu in the Northern Cape, with effect from 1 June. Uys started her career as branch administrator in October 2018 and in June 2019 took over from Rudi Burger as caretaker of the Kathu branch.

Uys has been nurturing the customer base for GEM in this important mining region over the years, from a relatively small number to what she now describes as "bursting out of our seams", and still showing positive growth in the current difficult trading environment due to the COVID-19 crisis.

"Building relationships with our mining customers is important because it allows them to get to know us, and for us to familiarise ourselves thoroughly with their specific requirements," comments Uys. "These long-standing relationships with main customers are key to the ongoing success of the SANY and Bobcat brands in

the Northern Cape."

In addition, Goscor Earthmoving Equipment Kathu has the full support of the Goscor Group. "We are a very strong team nationally that continually strives for excellence in everything we do. It is our unmatched customer service and products and aftermarket support that results in many of our customers becoming life-long proponents of our leading brands," highlights Uys.

She cites her biggest challenge as being a woman in the male-dominated mining industry. However, once customers get to know Uys as the main face of Goscor Earthmoving Equipment in Kathu, it is a relationship of mutual trust and respect.

"I also wish to pay tribute to my team. Although we are quite small in numbers, we have managed to scale significant heights to date due to our combined strengths, and we look forward to even greater achievements in the future," Uys concludes. 🌐

Hytec SA offers tailored hydraulic service and maintenance contracts

Most hydraulic systems are purchased without a service plan. Hytec South Africa, a Bosch Rexroth SA Company, offers a 12-month warranty and tailored service and maintenance contracts for new and existing hydraulic systems.

With custom-designed service and maintenance contracts, clients have the peace-of-mind that their equipment, even if not initially purchased from Hytec SA, will be maintained according to strict operational standards.

The benefits of these service contracts include: best practice maintenance of systems in order to ensure continued performance; safety of systems and people; reduced capital outlay of critical components and consumables; reduced repair and breakdown costs; increased component and hydraulic system life, and ultimately the preservation of assets.

The service contracts are available for all hydraulic systems provided they are operated as designed, and installed, commissioned and maintained by Hytec SA. Hytec SA modifies service contracts according to client needs, including mobile site support; the back-up of engineers; asset management, as well as on site stock and fluid management.

"Some customers require onsite stock and maintenance, others need full-time onsite inspections, and still others require non-site based planned services," says Hytec SA



With custom-designed service and maintenance contracts, clients have the peace-of-mind that their equipment will be maintained according to strict operational standards.

regional manager, Ralph Palphramand. "We cater to all these requirements so that you

can do what you do best: mine, process and manufacture." 🌀

Weba chutes cut dust levels at platinum mines

Using the latest dust measuring technology, Weba Chute Systems has been able to demonstrate to platinum mining customers how its custom-engineered chutes significantly reduce dust at transfer points.

"We conducted dust assessments at mines in South Africa and Zimbabwe," says Izak Potgieter, systems manager at Weba Chute Systems. "The aim was to compare the impact of our designs on material flow and dust levels."

At the site in Zimbabwe, considerable dust levels were created at bunker discharge chutes. Material of up to 500 mm in size was moving through at a rate of 600 tonnes per hour.

"The material flow was the biggest factor generating dust in the conventional chute, as material was not flowing as evenly as it should," says Potgieter. "This created a lot of energy for the dust particles to expand into the surrounding atmosphere."

The installation of the Weba chute – with its engineered design for optimal flow control – reduced the dust levels by about 40%. By

controlling the velocity of material, the design not only cuts dust creation but also reduces impact and wear for increased productivity and less maintenance downtime.

At the South African operation, the tests were done at a transfer point in the milling plant where an average tonnage of 190 tonnes per hour was being moved. Despite the use of water sprays, the existing chute was still creating considerable dust. The installation of the Weba chute was able to reduce dust levels by 15%.

"Dust levels have shown to have a serious impact on human health, especially smaller particle sizes of 0,3 micron," Potgieter says. "Health effects of dust relate mainly to particle size and dust may contain microscopic solids or liquid droplets that are small enough to get into the lungs and cause serious health problems."

Spores and contaminants associated with dust and aero-

sol can also adversely impact human health, causing a range of issues from respiratory infections to toxic exposure. Weba Chute Systems develops bespoke solutions for customers' transfer points, using its experience and years of research and development. When required, discrete element modelling is employed as a verification tool for designs, confirming its suitability before installation.

Engineered Weba chutes ensure zero spillage which is key in reducing dust at transfer points.



Scania breaks ground in Thohoyandou

In line with Scania's global purpose to 'drive the shift towards a sustainable transport system' for business and society at large, Scania South Africa has partnered with the Limpopo Economic Development Agency and Thulamela municipality to develop the R15-million Scania Thohoyandou workshop. "As part of the ethos of Driving the Shift, identifying new opportunities and finding solutions to local challenges is an important part of our mandate," says Fabio Souza, MD Scania Southern Africa.

The new Scania workshop investment supports the revitalisation of the underutilised industrial park owned by the Limpopo Economic Development Agency in Thohoyandou. With spatial challenges isolating rural businesses, the new location of the Scania endorsed Thohoyandou workshop will ensure that the black-owned business partner, Scania Boarder Auto Centre is now closer to its market, while customers will have to travel shorter distances to have their vehicles serviced.

"This is a real-world example of our customer first, philosophy," explains Nomonde Kweyi, GM Marketing & Communications, Scania Southern Africa. "The workshop's improved proximity will allow for improved service efficiencies for our valued customers."

At the sod turning event, on 21 August, attended by Thulamela Mayor Cllr Tshifhango A.S, Souza outlined Scania's commitment



The sod turning event took place on 21 August.

to making a sustainable contribution within the communities it operates in. In conjunction with Scania's donation of building a Maths classroom, Science lab and computer equipment at Ramaua Secondary School in Tshikwarani village Masia, the new workshop will create over 20 job opportunities for local residents.

As part of the partnership Scania will service the buses that transport workers and school children in the greater Vhembe district. The workshop will also offer an approved apprenticeship program, giving many aspiring workshop technicians the chance to train locally. The workshop is slated to be built by 30 April 2020.

"Through this new Scania franchise dealership, which is led by our partners, David Gotore, MD and Isaac Chalumbira, the CEO and chairman of Lionshare Holdings (the investor), Scania is committed to continuous improvement and to ensuring we do our part in continually giving back in a sustainable manner," explains Souza.

"We are grateful for the support from both Thulamela Mayor Cllr Tshifhango A.S and the community of the Vhembe District on the new building project. We look forward to being a part of the journey of growth and development of this thriving community." 🌟

Good news in latest Ctrack Transport & Freight Index

The Ctrack Transport & Freight Index for June shows that South Africa's transport and freight volumes increased 20,6% compared to May across all sectors. The Ctrack headline change however declined with 23,2% for the rolling three month average to June compared to June 2019.

Total freight volumes in June also indicate double-digit growth for the second consecutive month, having recorded a 15,2% increase in May compared to April. However, the depth of the April decline was such that the quarter still reflects a decline.

The data shows that the industry is on the way back, with the bounce back of the whole supply chain. The speed of the bounce is surprising at present and may not stay at double digits.

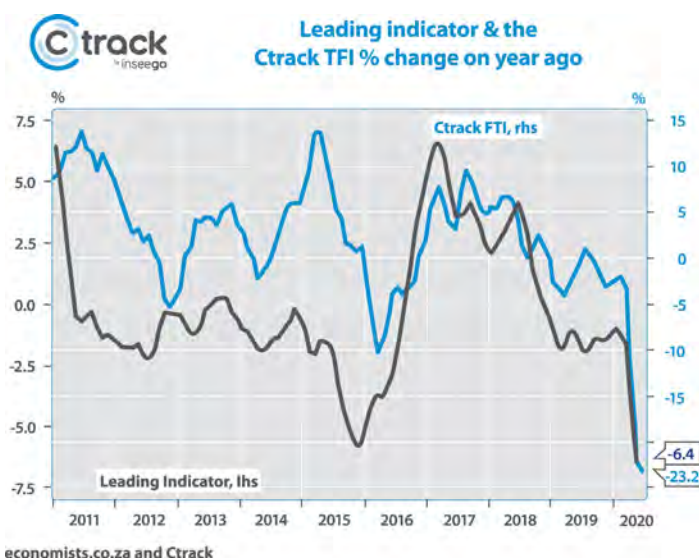
"Every cloud has a silver lining," says Ctrack SA CEO, Hein Jordt. "While we remain cautiously optimistic, the recovery does seem real, even though the industry still faces significant supply chain challenges."

"But clearly, the worst is now behind the transport and logistics industries."

Ctrack's data shows that warehouses are getting fuller and that the country's biggest ports have got going again.

That said, overall transport and logistics volumes are about 13% below the country's January 2018 high point, and are unlikely to be reached again before 2022.

The air freight sector is unlikely to fully recover unless tourism



Total freight volumes in June indicate double-digit growth for the second consecutive month.

picks up dramatically. The same can be said of the pipeline sector.

Unfortunately, the average South African consumer is unlikely to display pre-pandemic levels of buying confidence for at least another year. 🌟

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