

Business News

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7 000th truck



Assembled at Coega plant.

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Big beam bridge



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EWASA tackles e-waste



Gearing up for EPR.

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A sustainable solution to SA's food crisis?

Aquaponics farm success in Gauteng to be replicated in Northern Cape.

THE latest National Income Dynamics Study – Coronavirus Rapid Mobile (NIDS-CRAM) survey demonstrates compelling evidence that the South African food system is not working. Climate change is now regarded as the top risk factor facing farmers, and household food security has become a significant challenge, with 26% of all South Africans routinely experiencing hunger.

There is no doubt that the global pandemic has exacerbated the situation. However, the need to create sustainable and responsible food production has never been more urgent, as is the need for corporates and non-governmental organisations to embrace partnerships and new technologies that can feed the hungry and provide more environmentally friendly produce.

One such viable solution launched last month is the INMED Aquaponics® Social Enterprise (INMED ASE) in Vanderbijlpark, Gauteng. Unathi Sihlahla, Programme Director of INMED South Africa, which is implementing the programme, says the enterprise offers an ideal solution for transforming struggling communities into thriving climate-smart hubs of self-reliance. Launched with seed funding from Mondelez International via its new Sustainable Futures investment platform, it also clearly demonstrates the power of PPE's to help provide new farmers with mentorship and funding to overcome many of the traditional obstacles these subsistence farmers face.

The INMED ASE hub in Vanderbijlpark houses commercial aquaponics systems that will be used for food production and training. It will also serve as a consolidation centre for the growing number of aquaponics farmers to sell their harvests at higher market



Healthy looking spinach growing at the INMED Aquaponics farm.

rates and purchase inputs, such as seedlings and fingerlings, at bulk prices.

“What makes the INMED ASE unique,” says Sihlahla, “is that it is designed to facilitate the entire value chain of technical and business training, access to financing and links to markets to help small-scale farmers and traditionally marginalised populations overcome the barriers to entry, sustainability and scale.

Farmers and emerging agro-entrepreneurs will be trained at the INMED ASE Hub to get hands-on experience and mentoring. Food grown at the Hub also will be sold to a variety of buyers to ensure sustainability of the programme and grow the enterprise.

Since the launch in March, farm manager Karah Mashava has made some excellent progress. “Using adaptive agriculture techniques, we started the traditional garden where we planted about 3 000 spinach plants and we have also started developing a second aquaponics system (Aquaponics system 2). This system has ten growing beds, each bed measuring seven square meters. The system also comprises five fish ponds with a total capacity of twenty thousand litres of water,” he says.

In April, the INMED ASE



Unathi Sihlahla, INMED SA Programme Director explaining how Aquaponics work.

team harvested basil and lettuce from one of the three aquaponics onsite as well as microgreens like beetroot, radish, rocket and mustard, which have all been exceptionally well received by potential buyers around the Johannesburg area. “There has been overwhelmingly positive feedback from our potential buyers, mainly because of the way we grow our crop without the use of synthetic fertilisers and pesticides,” says Mashava.

The INMED ASE extends beyond the work at the farm.

It's unique hub-and-spokes network of physical and virtual training sites, mentor farmers from existing INMED Aquaponics® systems and producers and learning centres in public primary and secondary schools and universities—all supported by a production, consolidation and training centre and satellite farmers—with web- and app-based real-time support and links to markets and financing. Sihlahla says the teams

Continued on P2

New pedestrian bridge for Mitchells Plain



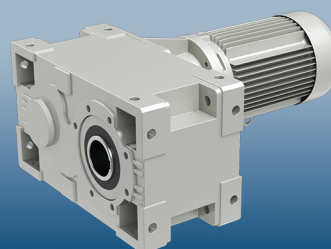
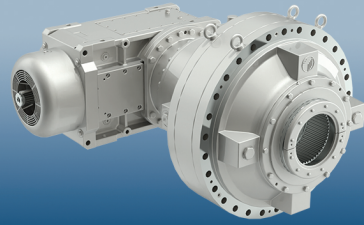
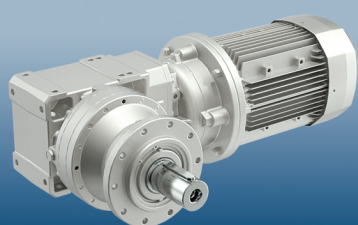
THE City of Cape Town has identified an informal railway crossing in Watergate Estate in Mitchells Plain as a dangerous hotspot for pedestrians. A pedestrian bridge with overhead lighting and CCTV cameras is proposed for this informal crossing. Local residents and interested and affected parties are encouraged to comment on the proposal.

The pedestrian bridge will be constructed south of the R300 and west of AZ Berman Drive in Mitchells Plain. The closest formal streets are Moses Kottler Crescent and Portulaca Street, with many informal footpaths leading to the area where pedestrians are crossing the railway tracks on a daily basis.

“...good overhead lighting and CCTV cameras...”

“Hundreds of pedestrians are using this point as a shortcut to get to and from the areas on the other side of the railway tracks. It is extremely dangerous to do so and this is why the City intends to build a pedestrian bridge that will be universally accessible, with good overhead lighting and CCTV cameras to improve the general safety in the area,” said the City's Mayoral Committee Member for Transport, Alderman Felicity Purchase.

The construction tender will be advertised by the end of this year, and construction should commence in November 2022, if all goes as planned.



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A sustainable solution to SA's food crisis?

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were very excited that work could commence on the first aquaponics system "spoke" connected to the ASE hub at Randvaal Primary School. "Fittingly, Air Products, which sponsored INMED's very first system in Vanderbijlpark--now the site for the INMED ASE--are also the sponsors of the aquaponics system and traditional garden at Randvaal," he says.

"Air Product's additional sponsorship this year has made possible a revamp of the greenhouse and the original aquaponics system, which has not been operational for a while due to theft in the area. The system has been stocked with 2 500 catfish to feed the eight grow beds, each measuring seven square meters. We are planting in the system on the 26th of April 2021," he says.

Air Products have also donated shade netting and drip irrigation systems for the traditional grow beds, which are growing fresh, nutritious produce for the school's feed scheme.

Commenting on the next steps at the INMED ASE, Sihlahla

says the emphasis is definitely on ramping up the production now that the second aquaponics unit is almost ready and expanding the farm's traditional agricultural projects.

He says starting training at the farm will also be a priority in the next quarter. Through a new partnership with Ramizone, INMED is equipping one of its aquaponics beneficiary cooperatives in the Northern Cape to become another satellite for the INMED ASE. The all-female Pella Food Garden will provide localised training and scale INMED Aquaponics® throughout the Northern Cape.

"We understand how difficult it is for farmers to start and grow a business without support programmes in place that can help them not only with production but also with industry-related problems of finding a network of buyers for the produce," says Sihlahla. "We believe the INMED ASE will go a long way in making a significant difference in the lives of these farmers and communities and look forward to continuing our journey."

RFG turns on profit juices

RFG, the Groot Drakenstein-based food and beverages group, started to restore the bulk of its profit ingredients in the six months to end March despite the lingering effects of the Covid-19 disruptions on its key juice and pies businesses.

The outlook for the second half looks more appetising - although executives make it clear that the lingering effects of Covid-19 remain a concern.

RFG produces fresh, frozen and long life convenience meal solutions for consumers across South Africa, sub-Saharan Africa and major global markets. The portfolio of brands includes household names like Rhodes, Bull Brand, Magpie, Squish, Bisto, Hinds and Pakco. The group also provides private label product ranges packed for all major South African retailers and some international customers too.

The solid interim showing seems to have prompted RFG to loosen its purse strings. Capital expenditure of R250 million is planned for the full financial year - most notably the completion of the additional fruit juice line and the bakery upgrade

as well as building of a new warehouse at the fruit juice facility in Wellington.

Perhaps, more importantly, Henderson admitted management continued to evaluate opportunities for strategic, bolt-on acquisitions which are aligned to the group's core product categories.

For the record, RFG's interim turnover declined by 3.4% to R2.8 billion. Turnover in the regional segment (South Africa and the rest of Africa) was 1.7% lower, reflecting the impact of the additional Covid-19 restrictions imposed during the second wave of the pandemic over the festive season.

CEO Bruce Henderson said that after increasing by 3.2% for the first five months of the interim reporting period, long life foods turnover reduced by 0.5% for the six months as volumes declined by 8.7%. He said the slowdown was due to sales for March 2021 declining by 13.4% over March 2020 when sales were driven by strong customer demand and panic buying ahead of the national lockdown.

RFG's dry foods performed well following the successful relaunch



of the Hinds spices range. But Henderson said this growth was offset by the slowdown in fruit juice sales owing to restrictions on entertainment and leisure activities during the summer holidays season as well as the delayed start of the school year in 2021.

Long life foods sales into the rest of Africa grew by a vibrant 11.1%, driven mainly by the dry foods and canned meat categories. But fresh foods sales declined by 3.6%, with price inflation of 2.2% and volume decline of 5.7%.

Henderson said the pie and bakery categories were adversely impacted by the

reduced travel over the festive season, which in turn resulted in a slowdown in convenience and forecourt traffic.

International turnover was 12.6% lower. Henderson said export volumes declined by 20.7% due to global logistical challenges - particularly congestion at the Cape Town harbour, which had a significantly adverse impact on exports in March. However, he indicated that customer demand remains strong and that management was confident that volumes would recover in the second half despite the ongoing port congestion.

The good news, though, was that RFG managed to push up

operating profit almost 15% to R185 million with the all-important profit margin increasing from 5.5% to 6.5%.

Henderson added that the regional SA and sub-Saharan Africa) operating profit crept up to 8.9% (previously 8.3%).

RFG's international segment - which reported a loss of R44 million in the first half of 2020 - recovered to a break even point in the six months to end March 2021.

He expected RFG to increase brand share and maintain the growth momentum in the dry foods category. "However, the rising Covid-19 infection rate in the country, together with the slow pace of the vaccination roll-out programme, increases the potential for a third wave of infections in the weeks and months ahead."

But there are some locked in gains. RFG expects to save up to R26 million of annual savings following the completion of the restructuring and centralisation of its pie operations. What's more the sale of properties is expected to realise around R25 million cash in the second half.

Oceana maintains growth trajectory in tough year

AFRICA's largest fishing company has continued its growth trajectory started three years ago, reporting profit before tax up by 5%, headline earnings per share up 4%, and earnings per share up 13% at the interim stage.

Group CEO, Imraan Soomra said that demand has remained strong right across its product spectrum, and although Covid had disrupted its supply chain of canned fish in the latter half of the six months, the company's close management of inventory and working capital had delivered results.

"I am particularly pleased that we have maintained our growth trajectory in this environment, delivering further earnings

growth after a strong performance last year. Furthermore, we de-gearred our balance sheet, cutting debt in South Africa by 6% and our US debt - in dollars - by 5%. This - together with a more favourable interest rate in South Africa - helped bring our net interest expense down significantly - by 32% to R94 million."

While product demand was strong across the board, this was particularly the case with fresh fish. The company recorded good landings and strong demand for horse mackerel, while hake was affected by Covid-related disruptions to fishing days.

"Canned fish demand remained positive and we grew market share off a high

base in the previous period. As consumers turned increasingly to staples, Lucky Star benefited from its positioning as an affordable protein."

Frozen fish availability was impacted by Covid-related disruptions, including delays at the port in Cape Town, and this resulted in reduced production levels and canned fish inventory. Oceana had built up inventories in the prior period, which mitigated the shortage to some extent.

"Although over the six months we lost 5% in canned pilchard volumes due to supply chain disruptions, we gained back 4% in a price increase - which was well received by consumers despite a very constrained environment.

"All in all, we estimate lost revenue due to Covid-related disruptions at R73 million and a corresponding operating profit reduction of some R34 million."

As expected, group revenue for the period was weighed down by the performance of the fishmeal and fish oil segment in the US on the back of the significantly lower prior season catch, with Daybrook's stock levels 36% down on last year.

However, fishmeal offtake volumes performed better than expected with continued demand from US pet food manufacturers, while overall pricing for both fishmeal and fish oil increased.

All indications for a good season at Daybrook are positive. US operations are well

positioned for strong fleet deployment and plant availability to meet anticipated growth in fishmeal and fish oil demand.

The 2021 FRAP process has commenced with the publishing of draft economic impact assessments and the appointment of service providers. The DFFE Ministry has committed itself to a transparent and accountable process that concludes by December 2021.

The second Oceana Empowerment Trust, with a R530 million transaction value, is significantly larger than the R220 million transaction value of the first Oceana Empowerment Trust, and will be open to all employees irrespective of race, grade or years of service.



OUR PARTNERS



Kaap Agri ploughs up profits

AGRICULTURAL services conglomerate Kaap Agri - which owns the well-known Agrimark retail brand - has reaped a bountiful interim profit harvest.

In the half year to end March, Kaap Agri increased revenue almost 16% to R5.7 billion on the back of an 8.6% increase in transactions. The group also felt confident enough in its immediate prospects to resume the interim dividend payout - which was set at a decent 40c / share.

The performance was helped by positive fruit and vegetable production - although Kaap Agri did note that significant expansions and infrastructural spend have slowed due to Covid-19 related cash

flow curtailment. The group said the main focus at farm level was on replacement infrastructure spend.

Kaap Agri CEO Sean Walsh said the execution of strategic initiatives over a number of years had culminated in exciting improvements in various parts of the business. "Our ongoing diversification strategy and resilience continue to yield strong revenue growth despite the current tough trading conditions."

Revenue growth from the trade division - which is underpinned by Agrimark - accounted for 47.9% of total revenue growth, driven by a 15.4% increase in retail business and a 6.7% increase in agri business. Walsh noted

that the recovery in the non-agri retail was "quicker, sooner and better than expected, and above pre-Covid-levels."

There was even encouraging news in the fuel business, which has earned its share of detractors in recent years. Group fuel volumes in The Fuel Company (TFC) increased by 11.9% - although Walsh admitted forecourt convenience and quick service restaurant performance lagged fuel volume growth in like-for-like sites due to Covid-related restrictions.

Perhaps the most encouraging news was that Walsh confirmed significant distribution centre throughput growth has been achieved by Kaap Agri during the interim

period. "Retailers with good supply chain systems have prevailed better than others during Covid. Our healthy retail sales growth and resilience in non-agri trade have been underpinned by robust distribution centre supply abilities."

Grain Services subsidiary, Wesgraan, benefitted from an improved wheat harvest and earlier realisation of income. Walsh said Wesgraan continued to experience the positive impact of the 2020/21 wheat season, and added that conditions for the upcoming wheat season looked positive, albeit always weather dependant.

Looking at second half prospects, Walsh reminded that Kaap Agri's first half trading traditionally contrib-

uted more to annual profits than the second half. But he was positive about the performance of the business during the second half and was still committed to achieving strategic medium-term growth targets.

He pointed out that consumer confidence, although low, has seen an improvement in the past few months. "Retail sales have rebounded, especially building materials, and general agricultural conditions remain positive in the areas in which the group operates which bodes well for the second half of the financial year."

As regards the fuel business, Walsh said the fuel industry had experienced significant fuel volume pressures throughout the vari-



ous Covid lockdown levels. But he added that retail fuel sales had improved as Covid-related restrictions eased. "Fuel price

inflation will weigh on trading margins. No new retail fuel sites are planned for the remainder of the financial year."

Cape Harvest... what's next?

FISHING company Sea Harvest - which for generations has profited from mainly its large hake business - took a massive plunge when it acquired the Ladismith Cheese business for R527 million in 2018.

Some observers contended seafood and dairy would not mix into a tasty profit recipe. They have, so far, been proved wrong.

And judging from the latest annual statements from Sea Harvest, further diversification into non-seafood niches are a distinct possibility.

The report reiterates that the acquisition of Ladismith Cheese, a value-added dairy operation, was a further step in the execution of the Group's stated investment strategy of growing through acquisitions in complementary sectors of the South African food and agricultural industry which exhibit strong fundamentals and growth, and where the group is able to leverage its core competencies and strengths.

While it's almost impossible to predict where Sea Harvest might hunt for

new acquisitions, it is heartening to know that Ladismith - which initially attracted some scepticism in the investment community, is doing swimmingly.

In Sea Harvest's recent report to end December 2020, the Cape Harvest Foods segment - which houses Ladismith as well as Sea Harvest's factory shops - fared well thanks to increased in-home consumption during the Covid-19 lockdowns.

Revenue for the segment was up 3% to R1.02 billion with operating profit down to 2% to R94 mil-

lion (but this was after accounting for R2 million of Covid-19-related expenses).

After tax profit from Cape Harvest Foods came in at R68 million - which is roughly the same as the previous year's figure. Considering that around R136 million in bottom line profits has been generated by Cape Harvest Foods, the price tag of R527 million for Ladismith is starting to look like a bargain deal.

Hopefully the next tilt away from the seafood core is equally fruitful for Sea Harvest.

COVID related conduct – grounds for dismissal

EMPLOYERS can discipline employees who flout COVID-19 regulations outside of work, which could even result in dismissals says Justin Hattingh, Senior Legal Advisor at Strata-g Labour Solutions.

"While employers are obligated under the Occupational Health and Safety (OSH) Act to provide a safe and healthy working environment, staff members must also comply to those regulations and ensure that they assist the employer in keeping everyone at the workplace safe and healthy," explains Hattingh.

He says where employers can prove that someone has been reckless after hours and exposed other employees at work, there could be a basis to act against them as that kind of conduct materially impacts on the employment relationship and the duties and responsibilities of both parties.

As for staff members who are considering using the invasion of privacy argument to conceal their positive COVID-19 status, Hattingh says employees have a right to not

share their medical condition with their employers. However, should it come to light that an employee knowingly placed other staff members at risk of contracting the virus, that deception can amount to a criminal offence.

"The possibility of disciplining staff for providing false or misleading information also exists. Employees need to be reasonable, and they need to understand that their conduct not only affects themselves, but it can affect everyone else," says Hattingh.

However, employers can only exercise these liberties if they have policies in place or even health and safety-related misconduct offences in their employment document. Employers cannot simply assume that employees will act by the law without being aware of what amounts to misconduct. Employers who dismiss employees on the grounds of flouting COVID-19 protocols, without the necessary policies in place, could possibly be found to have done so unfairly.

Most employers do

not have any sort of occupational health and safety-related offences in their codes of conduct. These codes do not need to be specific to COVID-19 but need to explicitly state that any breach of occupational health and safety is not tolerated. Labour policies need to follow the relevant code of good practice in the Labour Relations Act and ensure substantive fairness by educating employees regarding the rules present in the workplace.

"Short of disciplining employees, employers must explain to their staff that if they don't comply with regulations and they then become ill, they won't be able to work and could potentially be placed on unpaid leave. That would affect them from an economic point of view. Employers therefore, need to appeal to their employees' humanity by reminding them that reckless behaviour could lead to a super-spreader event in the workplace, affecting everyone's livelihoods and even placing their families at risk," concludes Hattingh.

Pick n pill prescription stopped

SUPERMARKET giant Pick n Pay has sold its retail pharmacy business to health and beauty retailer Clicks for an undisclosed sum.

The deal will include 25 in-store pharmacies that will be re-branded to Clicks.

Pick n Pay battled for traction in its pharmacy business, and it's probably prudent for the supermarket giant to maintain its focus on its core retailing

strengths.

Clicks is the largest retail pharmacy network in the country, and the acquisition will increase its national presence to 632 pharmacies. Dis-Chem is the other large player in the pharmacy space in South Africa with Shoprite/Checkers also holding a pharmacy segment.

The deal will see Clicks acquire the pharmacy licences

and ethical drug stock, while all staff employed in the pharmacies will transfer from Pick n Pay to Clicks.

Vikesh Ramsunder, the CEO of Clicks, said the acquisition accelerated the group's strategy of extending the convenience and accessibility of the Clicks pharmacy network. "Currently 50% of the country's population live within six kilometres of a Clicks phar-

macy and we aim to improve this over time as we get closer to customers."

Pick n Pay COO Adrian Naude stressed Pick n Pay had only held a relatively small number of pharmacies over the years. "We have recently set out our key strategic objectives in terms of future growth, and these do not include the development of a large pharmacy division."

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THE BEE IN MY BONNET COLUMN

There's a right, a wrong and then there's the truth

YOU know when your heart is really set on something and then someone or something pulls the rug out from under your feet leaving you on your backside with an embarrassing face?

That's now it is with this optimist, perhaps naive optimist, when I thought that LNG (Liquefied Natural Gas) could be our saviour in the energy crisis.

I waxed lyrical, quoting US examples about transforming Eskom's coal burning dinosaurs to clean burning LNG supplied from our cousins in Mozambique via the jointly developed Sasol pipeline – simply tee off to supply the aging coal fired power stations in Mpumalanga – job

done! Modernize the power grid and drastically reduce environmental pollution at a stroke!

And LNG supplies to the now non-existent depot in Saldanha by ship could supply the greedy overpriced diesel powered standby Eskom generators in Atlantis. LNG I'd read, could supply new generation capacity in Cape Town via a viable pipeline running down the West Coast, supplying businesses along the way – Oh the vision!

Now the reality.

LNG is front and center of issues which are not concerned with abundant and cheap, non-polluting supplies from the northern Mozambique gas fields.

Yes, the gas finds in that region are amongst if not the biggest reserves yet discovered but and there's that three letter word that haunts every project feasibility – BUT.

“...heroin has been Mozambique's biggest single export for two decades...”

Amongst much hand wringing by the African Energy Chamber, Total has pulled out of the development of the Cabo Delgado gas fields, claiming “force majeure” as their interests and personnel couldn't be protected by the Mozambique military from radical Islamic insurgents terrorizing and overrunning the area. It seems

that even with the help of South African and Russian mercenaries, Mozambique couldn't contain the insurgents who have gained a vital foothold in this energy rich region.

SADC, European and the US offered help – military assistance - to reclaim this important area, but were rebuffed by the Mozambique President Felipe Nyusi. With such massive resources this development project could have transformed this poor country and its people and the whole SADC region into an indus-

trial powerhouse.

It's the naïve dreamer talking again.

Well, this is where that ugly word, corruption and the equally repugnant word, drugs enter the narrative.

Inviting international agencies into Mozambique to counter and eradicate the Islamic insurgents would draw unwelcomed attention to the very lucrative drugs trade that uses deep water harbours and dhows to tranship heroin.

As journalist RW Johnson writes in an opinion piece in Politicsweb;

“The major point to grasp is that heroin has been Mozambique's biggest single export for two decades and that the trade is increasing. The heroin

comes from Afghanistan, Pakistan and Yemen, arrives off the northern Mozambique coast by dhow, where it is off-loaded onto smaller boats, warehoused in Cabo Delgado and then transported to Johannesburg by road.

“If it is in a container it goes to City Deep Container Terminal, if not, it goes through O.R. Tambo airport – both destinations being notoriously corrupt – and is then trans-shipped to Europe (a certain amount of dagga and mandrax (methaqualone) also finds its way into the South African market).”

These drugs also find their way to Australia and New Zealand where authori-

ties are dealing with a substantial, seldom reported drug problem. In fact anywhere where there is an affluent population is a target for drug cartels and tightening enforcement in the US and elsewhere has made Mozambique's largely un-policed northern regions a perfect spot to distribute their filthy wares, with of course, the collaboration of a corrupt government.

Despite Sasol's huge but now under controlled debt problem, its sell off of its interest in the gas pipeline were no doubt influenced in part by the instability in the region and the overlying drug transit operation.

Oh, what could have been. *Eish.*

Maintenance and repair opportunities abound in power sector

MANY utility power plants are approaching the end of their design life, with engineers conducting life extension studies for boilers and related auxiliary equipment. In order to accommodate a changing operating environment, redesigning components and equipment to replace those which have reached the end of their useful life is increasingly common practice, says engineering, manufacturing, construction and maintenance service provider Steinmüller Africa.

Its process engineer Keyur Patel says heat exchangers, which form part of the auxiliary equipment that heats

the feed water entering the boiler, are vital components that need to be maintained to ensure optimal functioning of the power station. “If the temperature of the feed water going into the boiler is lower than the design condition, the overall efficiency of the plant will decrease.” Therefore, it is desirable to maintain the performance of high-pressure (HP) heaters and replace them when required to not only improve cycle efficiency but also prevent abnormal operating conditions for the boiler and thermal shock in the boiler thick-walled components.

Patel notes that

the company started the HP heater design development process in 2009. The ongoing development initiative entailed training a team of engineers from the process, mechanical and drafting departments so that they can produce a high-quality design in a short time. The team comprises six technical specialists – two engineers each from the process and mechanical departments, and two 3D draughtsmen from the drafting department. The focus of development for the technical team was on specifying outcome requirements for the HP heaters, listing and familiarising them-

selves with the design codes to be used, generating process flow diagrams, allocating responsibilities to team members and closing information divides between departments.

The development initiative also included a long term skills transfer programme from an experienced German engineer, who was previously involved in the design of the majority of the HP heaters currently in operation at 10 local power stations. Patel comments that an important aspect was to ensure that the design complemented Steinmüller Africa's internal manufacturing capabilities without excessive additional

capital expenditure. Consequently, the company, which is involved in the manufacture and maintenance of utility-scale pulverised coal steam generators, now offers turnkey solutions for header-type, tube sheet-type, shell and tube heat exchangers.

“The header-type heat exchanger consists essentially of two thick-walled headers inside a pressure vessel shell, distributing feed water through numerous ‘snake tubes’ connecting the two headers to absorb heat from the bled steam on the shell side of the heater,” explains Steinmüller Africa boiler process group leader Warwick

Ham. He notes that the headers are very similar to those used in HP water-tube boilers, components in which the company has extensive experience. Further, Steinmüller Africa is also experienced in modelling dynamic heat and mass transfer, component sizing, mechanical design and vessel manufacturing. Ham notes that, based on the company's current capabilities and its level of power sector exposure, it is a natural fit for Steinmüller Africa to provide the design, manufacturing and supply of the complete range of HP heaters and also low-pressure heaters in future.

Steinmüller Africa recently supplied five HP heaters of the tube sheet-type to Arnot Power station in Mpumalanga. Further, the company is also looking forward to receiving new work from the renewable energy sector, especially concentrated solar plants (CSP). The CSP plants use the HP heat exchangers extensively to transfer the heat between the molten salt and the steam plant.

Written by: Nadine James, Reporter, with contributions from Warwick Ham, Process Group Leader and Keyur Patel, Process Engineer.

In need of car repairs? Get the best quote, not the cheapest

AFTER any kind of vehicle accident, securing a comprehensive repair estimate from a trustworthy repairer should be the first step to getting your car back on the road.

Richard Green, National Director of SAMBRA (the South African Motor Body Repairers' Association), an association of the Retail Motor Industry Organisation (RMI) representing over 900 motor body repair businesses across South Africa, says when deciding

which quote to proceed with, bear in mind the cheapest estimate is rarely the best option.

“Ensure the motor body repair facility is qualified and thorough enough to find and assess all the damage. While you can send in photographs of the damage or have a consultation over the phone, it remains important to take your car in for a proper inspection and comprehensive repair assessment.”

SAMBRA-accredited motor body repair-

ers all employ highly trained and experienced accident-damage estimators who will conduct a visual inspection of the vehicle to assess the level of damage, including the internal damage and assess which parts need to be replaced.

“Most accredited motor body repair service centres use internationally accredited estimating programmes to create estimates and will forward these to your insurance company,” he says.

And, as most insur-

ance policies have excesses on vehicle repair claims, consumers should also understand their policy beforehand and what portion of the total cost of repair is for their cost.

“The primary reason for an excess is to ensure motorists do not feel tempted to claim for every small loss.”

Green advises that in order for your vehicle to be released by the repairer following the repair work, you will need to pay the excess, even if you are unhappy with the amount, and

then dispute it with your insurance company.

“If you don't pay the excess you could, for example, end up having to pay storage costs to the repairer while you dispute the excess with your insurer. It is, therefore, always advisable to first resolve a dispute over excess with your insurer before commencing with a claim.

“If you are still not happy, then your next step is to contact the office of the Ombudsman for short-term insurance.”

In summary, Green says when seeking a repair estimate, firstly, take your car to a reliable, SAMBRA accredited motor body repair shop and, secondly, ensure you are 100% sure of what your excess on the claim will be.

“Remember too, when it comes to insurance claims, it is the depreciated value of your vehicle that will be considered. The older your car, the smaller the insured value will be and the greater the chance



Richard Green.

that your insurer will choose to declare the vehicle uneconomical to repair and write it off, depending on the amount of damage and cost of repair.

7 000th unit assembled at FAW Trucks' Coega plant



FAW Trucks ended the month of April on a high note when the 7 000th locally assembled vehicle rolled out of its Coega manufacturing plant. This marked another significant milestone for the Chinese brand that took the top spot in the Heavy Commercial Vehicle (HCV) segment of the local market for the first time in the first quarter of this year and to date maintains this achievement by outselling various well-known and established brands.

pricing, low running costs and excellent aftersales service.”

Funded by the China FAW Group Corporation and the China-Africa Development Fund, the first vehicle rolled off the Coega assembly line in July 2014. The facility was

built at a cost of R600 million and spans some 30 000m². This includes a state-of-the-art training facility, a body shop and a paint shop. It provides employment for 148 staff members.

All units arrive in South Africa in semi

knocked-down form and are then assembled at Coega.

Currently the Coega facility has a production capacity of 3 000 units per annum, but this is scalable to 5 000 in order to be able to meet growing demand for FAW Trucks models.

“This is an understandably proud moment for us. It reaffirms our commitment to the local market...”

The unit in question was a JH6 28.500FT model, which has since been delivered to a well-established strategic fleet customer.

The largest of the truck tractors from FAW Trucks, the JH6 28.500FT features a full floating extended-roof cab with an innovative flat floor design for optimal comfort and interior space. Its 13-litre, six-cylinder common-rail turbo-charged and inter-cooled diesel engine produces 370 kW at 1 800 r/min, has 2 300 Nm of peak torque on tap at 1 400 r/min. It is mated to a ZF 12-speed TraXon AMT transmission, with parabolic spring suspension front and rear to address vehicle weight requirements. A full air dual circuit WABCO braking system with ABS enhances the long hauler's safety features.

Says Jianyu Hao, CEO of FAW South Africa: “This is an understandably proud moment for us. It reaffirms our commitment to the local market and is just reward for what is one of the largest investments made by a Chinese entity in this country.

“Since first entering the South African market 27 years ago, we have gone from strength to strength, providing local buyers with products of high quality that are not only well suited to local conditions, but also boast high levels of safety, convenience and comfort. We have managed to combine this with competitive

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Highlights of the 2021 Budget Review

By Joon Chong, Wesley Grimm & Jess Fung from Webber Wentzel.

In the 2021 Budget, there are proposals to halt abuse of employment tax incentives and expand the scope of what constitutes a long-service award

THE 2021 Budget Review contained several proposals in relation to individuals, employment tax and associated benefits and incentives.

While some of these proposals are rather unclear, certain other proposals are noteworthy.

Curbing abuse in the ETI space

The ETI initiative was established in terms of the Employment Tax Incentive Act, 2013 (ETI Act) and applied from 1 January 2014. The aim of the ETI Act was to promote increased employment in South Africa.

ETI entitles a reg-

istered employer to reduce its pay-as-you-earn (PAYE) tax payments to SARS for the first two years in which they employ qualifying employees (currently between the ages of 18 and 29) who earn a monthly income within a particular threshold (currently between ZAR 2 000 and ZAR 6 500).

SARS and National Treasury have observed that there are certain abusive schemes using training institutions which seek to benefit employers using the ETI claims. These employers make an ETI claim for students in these training institutions, which undermines the spirit of the ETI initiative.

To counter this abuse, the 2021 Budget Review proposes that the definition of "employee" in the ETI Act be amended with a new requirement, namely that work performed by a qualifying employee in terms of the ETI must be performed under an employment contract that complies

with the record-keeping provisions of the Basic Conditions of Employment Act, 1997. The amended definition of "employee" is proposed to be effective from 1 March 2021.

Employers claiming ETI should confirm with their preferred tax adviser whether they comply with the proposed amendment to the ETI Act to prevent the risk of additional assessments from SARS disallowing the ETI claimed.

Reviewing the nature of long-service awards for fringe benefit purposes

In terms of the Seventh Schedule to the Income Tax Act, employers may grant a long-service award to employees. Long-service awards which are not subject to PAYE are restricted to employees who have been employed for an uninterrupted period of at least 15 years, and in intervals of 10 years after that.

A long-service award

will be recognised as a no-value fringe benefit only if the value of the award does not exceed ZAR 5 000. The amount of any award over ZAR 5 000 shall be taxed at an employee's marginal rate.

2021 Budget Review

The 2021 Budget Review proposes that paragraph 5(2)(b) of the Seventh Schedule to the Income Tax Act be expanded to consider the range of long-service non-cash benefits awarded by employers to long-service employees. The proposed expanded scope would still not be subject to PAYE if the value of non-cash benefits is within the ZAR 5 000 limit.

While we welcome the move to expand the scope of what qualifies as a long-service award, in our view this may also have been an opportune time to significantly increase the ZAR 5 000 threshold, which has been in place since 2009.

Epiroc opens new distribution center in Kathu



EPIROC South Africa, a global productivity partner for the mining and infrastructure industries, has opened a new Local Distribution Centre (LDC) in Kathu in the Northern Cape to bring equipment, consumables, spares and services closer to customers.

Phillip Hanekom, who heads up Epiroc's Regional Distribution Centre, says, "Our decision to create an LDC in the Northern Cape perfectly aligns with Epiroc's regionalisation strategy. Our former facility in

Kuruman was simply too small to adequately cater to our vision of growth for this territory."

The new 700 sqm facility which was officially opened on 14th April 2021, stores consumables and spare parts based on the type of equipment customers are operating in the Northern Cape and will be replenished from Epiroc's RDC in Johannesburg.

"Our Kathu LDC puts us in the favourable position of being able to increase our stock holding and

assortment which adds tremendous value for our customers and end-users," affirms Hanekom. "In addition to substantially reducing lead-times, we are now also able to support our customers from a regional as well as from a local point with more stocked items."

The LDC operations are outsourced to a 3PL partner. Newly appointed Site Manager, Gavin Bond, will report to Bernhard Schiller in his capacity as Regional RDC/LDC Operations Manager.

Supplying the Industry for 75 years

The British Allied Manufacturers Representatives (BAMR) came into being on 22nd May 1946 and on this day in 2021, celebrated its 75th Anniversary – no mean feat when today, small companies with potential are often eaten up by competitors, conglomerates, or fail to survive beyond their fifth birthday.

As the lyrics of the song go – When the going gets tough, the tough get going – and global conditions just one year after the end of WWII, were indeed tough, but that didn't deter Fred Duk from spotting an opportunity and tying up an agency agreement with UK firm Elcometer, a Manchester based company that had developed its first Elcometer gauge used for the thickness measurement of different types of coatings on ferrous substrates.

These could be galvanised, anodised or painted, or any type of surface finish whether decorative or for corrosion protection, or both.

The relationship between BAMR and Elcometer has endured since the UK company first developed the model 101 in 1947. Its product range is now extensive covering surface preparation, moisture measuring, hardness testing, metal detection, adhesion, non-destructive testing (NDT) and climate condition testing, and many more sophisticated inspection instruments that today feature digital and ultrasonic hand held and probe type instruments for a variety of ferrous, non-ferrous metals, plastics and modern composites.

"The range of Elcometer products is quite amazing," said current CEO Graham Duk, grandson of founder Fred whose father Frank took over the business in 1961. Graham joined BAMR in 1998 after completing his accounting degree at UCT and slaking his travel wanderlust, to continue the tradition in this family owned and orientated business.

"As the Elcometer business has grown and become more sophisticated, so has our representation of the brand on the African continent" explained Graham.

"Although a CapeTown based business, we have key account managers in Johannesburg and in KZN and our footprint extends throughout Anglophone and sub Saharan Africa."

BAMR's key markets are extensive – anywhere where corrosion protective or decorative coatings are applied and that means from appliances and white goods found in the kitchen – to protective coatings found on oil and gas facilities and pipelines.

"At each stage of the value chain manufacturers, contractors and customers require an accurate, easy to use instrument to determine the quality and standard of surface coating is as specified and fit for purpose. All our instruments conform to relevant national and international standards. Elcometer instruments and equipment are manufactured to ISO quality certifications 9001 and ISO 14001 Environmental certifications and comply with virtually every country's quality standards including automotive, munitions and armed forces standards" he said.



The BAMR Team: L to R back row: Catherine Gates, Melissa Mitchell, Beatrice Mpetha, Glennise Pretorius, Ange Mugwaneza. Front row, holding the Elcometer NDT Gold Distributor award - BAMR are the first distributors worldwide to achieve this - are Graham and Helena Duk. Inset left Anoesjka Grundel and right, Mark Terblanche.

"While working from home is a relatively new concept due to the COVID-19 pandemic, we have been doing it with a dedicated team since 1967 when we abandoned our city based address and created a comfortable, less stressed work from home environment" said Graham. "We are able to store most popular instruments on site as they are compact and occupy little space.

"BAMR is very much a family business and one where surface treatment runs in the veins – one of my brothers was involved in the business until recently and upon his departure my wife Helena has got more actively involved. She has been instrumental in implementing on-line sales, the new website and other marketing related roles".

It is perhaps fitting that Graham as an active member of the Corrosion Institute is destined to become the Institute's next president and the first to be nominated outside of Gauteng. His aims are to promote transparency and inclusivity in the role and to continue with the well-established programmes of courses that highlight and identify the problems of corrosion which it is estimated have a cost impact of 3% of worldwide GDP.

"BAMR and Elcometer sponsor instrumentation for the NACE courses that are run by the Corrosion Institute with our key accounts manager in KZN being one of the lecturers who conducts these specialised courses around the country.

"Elcometer sponsored training and new equipment courses are regularly staged to interested parties around the country and we usually try & make this a yearly event although with current scenarios this will be a challenge."

"Sadly the impact of and technology required to combat corrosion are not taught as university engineering subjects, so the Institute's educational programmes have a vital role to fill this important gap" he concluded.

For more information about BAMR please feel free to visit our website www.bamr.co.za or contact us by phone or email 021-683-2100 / sales@bamr.co.za

IZA campaigns to grow local zinc industry

Lack of government planning, commitment and obscure tariff protection for the steel producer has had major consequences.

THE promised R100 billion Infrastructure Fund announced by President Cyril Ramaphosa in his State of the Nation Address will hopefully lead to an increase in the demand for galvanized steel.

This news is a Curates Egg moment for the Africa Desk of the International Zinc Association (IZA) under Simon Norton, who is tasked to address the decline of the zinc industry in the country and on the continent.

Internationally, the IZA represents global mining companies and zinc refiners.

While South Africa has 20% of the world's zinc deposits, it no longer refines any zinc, following the closure of the Zincor refinery in Springs by mining company Exxaro at the end of 2011. Up to that point, the country



produced 110 000 t/y of refined zinc worth about R4.3 billion. From 2014 to 2019, South Africa imported R15 billion worth of refined zinc.

However, the uptake of refined zinc has declined rapidly from 86 000 t in 2015 to 47 000 t in 2020. This represents a major challenge, and therefore the IZA's short-term goal is to gradually boost zinc uptake to

a new high of 60 000 t/y, ultimately peaking at 90 000 t/y in three years' time. "Zinc is one of the major global commodities, along with the likes of iron ore," comments Norton.

The majority of refined zinc is used for corrosion protection of steel. However, its varied applications range from being an essential ingredient in fertiliser for the agricultural

industry, to being an important nutrient and health supplement. Zinc is also a major constituent in the die-casting of metal automotive components and zinc oxide aids in vulcanising rubber tyres.

The IZA plans to reignite the debate of re-establishing a zinc refinery in the country, ideally in the Saldanha Bay Industrial Development Zone (IDZ).

This will not only lessen its dependence on costly imports, but also make the refined end product more readily available locally and therefore able to be specified and consumed in greater quantities.

"The debate around building a new zinc refinery is linked to the issue of the future development of our rail sector to promote such wide-ranging industrial

and economic development. For example, locating such a refinery in the Saldanha IDZ is ideal, as it means that the Sishen-Saldanha rail link can be used to convey zinc concentrate. In addition, we can build new rail linkages from Gamsberg and Prieska, which are massive infrastructure projects by themselves that stand to generate thousands of much-needed jobs," highlights Norton.

Blow to local steel industry as Mozambican LNG projects falter

The recent decision by French oil company Total to declare force majeure on its Mozambique LNG project at the end of April due to an attack by Islamic State-linked militants the previous month, is a major blow to the South African steel

fabrication industry. The nearby Rovuma project has also been put on hold due to the worsening security situation.

These two projects in Northern Mozambique were expected to buy huge quantities of South Africa steel, as well as other goods and services. The total in-plant steel structure tonnage was estimated to be about 70 000 tons for Rovuma alone.

"We anticipated this tonnage to have been divided between three to five fabricators, of which at least one or two were hoped to be South African," commented Norton. A galvanizing facility had also been on the cards to be built in Mozambique.

For more background on the Mozambique situation, read the Bee in my Bonnet column in this issue. Ed.

SANY unveil world's first hydrogen fuel cell construction vehicle



Unveiled, SANY's hydrogen fuel cell powered mixer truck.

SANY Heavy Industry - China's largest and the world's fifth largest engineering machinery manufacturer - have rolled out two examples of construction vehicles; a dump truck and a mixer truck, both of which are equipped with hydrogen fuel cell technology. The latter is the first hydrogen-powered mixer truck in the world.

According to the R&D engineer of this project, hydrogen fuel cell construction vehicles have five important advantages. Among them, the realization of "zero pollution" with only water and heat being discharged is a leap toward the green future of the industry.

China is focused on carbon neutrality by 2060. This goal requires concrete steps to be taken, especially by manufacturers.

Apart from "zero pollution", the new fuel cell-powered construction

vehicles also outperform traditional counterparts in these additional four areas:

1. Long battery life: A set of hydrogen cylinders with a combined capacity of 1 680 litres ensures a driving distance of more than 500 km, saving drivers from "mileage anxiety".
2. More power: With a large torque drive motor and an AMT gearbox, the high-power fuel cell stack features an energy conversion rate of over 50%. The vehicle demonstrates enhanced acceleration rate and climbing capacity.
3. Enhanced weather adaptability: The integrated heat management system performs automatic heating and cooling in hot and cold weather conditions to maintain optimal performance.

4. Extra safety considerations: Functions such as high-heat protection, overcurrent protection, a low pressure alarm, and leakage detection and control in the hydrogen supply system guarantee a worry-free driving experience.

Li Tanbo, Deputy General Manager of SANY's Crane Business Unit, addressed in the rollout ceremony that SANY has entered a new phase in which the development of construction machinery is trending towards the application of green energy and green, intelligent equipment technologies. SANY plans to become the largest comprehensive hydrogen fuel solution provider and the number one electric construction vehicle manufacturer in China within five years.

Tradehold adapts to a changed environment

AN agile mindset and a resourceful response to the constraints imposed by the pandemic meant Tradehold could end the 12 months to February 2021, in remarkably resilient shape, believes Friedrich Esterhuysen, its joint group CEO.

Although the group reported a net loss of £39.7m, £44.5m of this was due to non-cash investment property devaluations resulting from the Covid-19 pandemic, of which £33m relates to its United Kingdom properties. A further non-cash loss of £10.7m was incurred as a result of the partial restructuring of the debt of Collins Group. This has contributed to

a reduction in interest costs from an average of 11.3% to 8.4% and resulted in a saving of about R80m a year, with 75% of total debt still fixed.

The South African business, Collins Group, not only exceeded its pre-pandemic budget income but reported a net operating profit before tax and once-off items of R297m.

It collected 97% of all rent due (including remissions of R30m) while managing to limit vacancies to just 2.3%. Its portfolio is dominated by large industrial and distribution centres with the weighted average expiry date of con-

tracts maintained at 6.5 years.

Collins is in the fortunate position that 78% of its revenue is derived from large national and/or listed companies.

Just before the end of the reporting period Collins concluded its first acquisition outside Africa. It bought six retail warehouse properties in Austria for €33.2m, all six of which are underpinned by 10-year leases signed by OBI, Europe's biggest DIY retailer. These properties were bought at a 7% net operating income yield.

"The company plans to pursue other offshore investments in

established markets to enhance the composition of the portfolio, while spreading its currency and geographic risk. In upgrading the quality of the portfolio, it is on the brink of finalising the sale of the last of the properties considered non-core.

"In the UK, where the economy endured three lockdowns and suffered a record 10% decline, we have accelerated our shift away from traditional retail that currently accounts for 37% of our total portfolio value (2020: 54%). This reduction is part due to repurposing spaces but also a reduction in value" Esterhuysen said.

Bypass level indicators – always on the level

INSTROTECH offers Kobold's NBK level indicators for continuous measurement, display and monitoring of liquid levels in above- or below-ground tanks.

According to the law of communicating tubes the level in the bypass tube equals the level in the vessel. The bypass tube is attached onto the side wall of the vessel. A float, with embedded circular magnets in the bypass tube follows the liquid level and transfers it, without contact, to a display fitted outside the tube or to a



KOBOLD NBK bypass level indicator.

monitoring device. In addition, reed contacts can be installed on the bypass to evaluate limit

values or to control the filling level.

Users can choose from clearly visible magnetic roller or ball displays as well as from a range of measuring transducers enabling remote transmission or level values.

- Kobold NBK features:
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tion DIN flange DN15 ...DN50 & ANSI-flange 1/2" ... 2"

Kobold NBK finds application in tanks (shipping, storage and water) and agitator vessels.

Options available for the Kobold NBK are 4 -20 mA transmitter, reed contacts, and HART®, Profibus® PA, and Fieldbus®.

Contact INSTROTECH for more information on 010 595 1831 or sales@instrotech.co.za

Solutions for driver management

CTRACK's driver management suite can eliminate the guesswork of vehicle management and ensure optimal running of a fleet.

Good drivers support a positive reputation while drivers who breach road regulations not only risk their own safety but that of others. They also cause additional costs for the business such as fuel, maintenance and insurance.

Crack offers a range of solutions to support business with driver performance and management across multiple drivers groups and

vehicles. These solutions include a driver behaviour indicator that detects harsh acceleration, braking and cornering while driver fatigue is managed with the help of front, rear and in-cab cameras.

Improving the driver behaviour can result in lower fuel bills, enhanced driver safety and reduced accident rates as well as less fleet administration and vehicle maintenance costs.

Crack driver management tools provide multiple solutions ensuring effective, efficient and safe oper-

ations by allowing fleet operators to remotely manage drivers, asset access, and driver behaviour across multiple vehicles.

Data leads to change

The data harvested from these systems makes it possible to upskill operators and ensure the safety of both workforce and assets. Fleet managers can provide direct operator behaviour feedback to their staff using indicators through Crack software applications, visible on mobile devices, as well as vehicle in-

cab peripherals or electronic data sets.

Innovative driver management solutions

Integration with peripherals such as breathalysers prevent access to vehicles from intoxicated drivers, and safety requirements such as the failure to wear seatbelts can also be reported.

Drivers can be identified through various mechanisms such as the Dallas iButton, RF ID Cards, and even virtual driver pins. Driving behaviour monitoring ensures that the correct per-

son is behind the wheel and that a vehicle is being driven in a satisfactory manner with parameters that keep an eye on factors such as speed, harsh braking, irregular stops and many more.

The "In-cab" driver display unit aids the driver with critical information such as job dispatching, navigation and messaging, allowing the driver to focus on the task at hand, which is driving the vehicle safely, while having access to all the information needed to do their job in an efficient manner.

Various camera

options, further allow live video and replays of incidents on the road, that could support and reduce insurance claims, including supporting possible litigation against the company and the driver involved in such cases.

Engine performance monitoring ensures that the vehicle is driven efficiently by monitoring engine speed and provide an alert when excessive periods of idling are detected.

The Driver Mobi application allows drivers to view their driver behaviour

scores as well as complete their logbook by marking journeys as business or private and also conduct vehicle checks before startups, via their smartphones.

Crack have one-stop shop industry solutions to track a variety of assets including cars, trucks, trailers, containers, generators, packages and confidential deliveries.

For an in depth analysis of your business requirements please contact Crack at 0860 333 444 or visit their website www.crack.co.za

Rethinking your data governance principles: It's not just about POPI compliance

By Adiel Kader and Uthmaan Hendricks, of Enterprise Solutions 365

SOUTH African businesses have been increasingly concerned about their data governance practices since the first whispers about the Protection of Personal Information Act (POPIA), also known as the POPI Act, of 2013. This was followed closely by Europe's General Data Protection Regulation (GDPR) in 2016.

Data storage and management practices continue to be in the spotlight as companies scramble to get a view of what data they have, where it is housed, who can access it, and how secure it is. Whenever business speaks about data, the concern is

with compliance, but there are other data principles that should also be fostered by every organisation, i.e., data as an enterprise strategic asset.

While legislative and regulatory compliance is certainly a good reason to reassess your business operations, proactively using data analytics to obtain deep insights and reliable predictions into organisational operations and customer behaviour is where an untapped wealth of value lies in enabling evidence-based business decisions. The saying goes, "data is the new oil". While it has become somewhat cliché, it is nevertheless true. Data has become an unrivalled asset for business decision making, but without proper data governance, the



Uthmaan Hendricks - Technical Director (left) and Adiel Kader - Managing Director (right).

quality of the data could render it useless.

Your company's data strategy needs to be decided early on in a business lifecycle, and will be informed by the wider enterprise strategy. Once you fully understand your business goals and objectives, you will be

able to plan your data requirements. Will you need to collect data about the services you offer? About the quality of service? About the way your services are used? In ten years from now, what historical information will you need about your clients? People tend

to think about data as what they have at present, rather than what they could have in the future.

Of course, business objectives change and data is time sensitive. In our experience, if you want to know anything about your business, you should have

at least 12 to 18 month's worth of data. This bank of information could be used to derive trends and insights that will allow you to make a confident business decision. Our recommendation is to use your long-term business strategy to determine the questions that you will need answers to in the future, then collect as much data as is relevant as soon as possible.

However, it is no use storing years and years of unclassified data that is not catalogued so that people can find it. It is vital to classify your data for security and legislation, but beyond that, you need to have a data catalogue. Businesses, which remained calm when the POPI Act was announced, are those with a comprehensive

catalogue detailing meta data, classification, who owns the data, where it is physically housed, how it is protected etc. Properly classified data is a valuable asset to your business; it is a differentiator. In a world where products are harder to differentiate, customer service and solid business decisions are what sees a business to success.

Data is a powerful tool. That's why legislation and regulations had to be put in place. And it's why you need to think harder about your data governance principles. If you don't know where to start, partner with an appropriate enterprise solutions provider who will help you leverage one of your biggest assets and sharpen your cutting edge.

Tips for water softener selection

ALL boilers need a softener, as well as cooling towers, as boilers help to prevent scale on heat transfer surfaces.

JP Thyse, Senior Technician at Allmech, local manufacturer of boilers and supplier of water treatment components, explains that water is treated for several reasons: to protect plant and equipment, to prevent scale and corrosion, to increase boiler efficiency, to reduce downtime and to reduce maintenance costs.

"Scale causes poor heat transfer, hot spots and tube failure, under deposit corrosion and reduced boiler efficiency, and process contamination," says Thyse. "You get different types of scale

deposits, such as hardness deposits of calcium carbonate and magnesium carbonate, as well as phosphate, silica, and iron deposits. Aside from scale, water treatment can also help to prevent corrosion issues."

He notes that it is important to choose the correct water treatment solution for your particular requirements, as there's no one-size-fits-all option that will work in the long term. "Before you can consider a solution, you need to test your water to see what you're dealing with."

A trustworthy supplier can then help you to choose the right softener and system, taking into account your hours of operation, maximum demand (e.g.



Electrode boiler head with excessive scale.

some boiler applications have peaks and troughs, such as in a mine change-house), your flow rate and your water hardness. "An experienced water treatment technician can also help to solve

specific problems related to your water supply. For example, by softening the raw water and using scale inhibitors you can address hardness deposits. Silica deposits can be dealt with by maintain-

ing boiler water alkalinity at a 3x silica level, or using a demineralisation plant."

"Our softeners are based on salt regenerated ion exchange resin technology," says Thyse. "Basically, the

"...there's no one-size-fits-all option that will work in the long term."

resin is a polymer that removes calcium and replaces it with water soluble sodium. But, if your sodium content is too high, it affects the resin's ability to regenerate. Instead of regenerating in cycles, it does so constantly, and will become ineffective. The resin requires saturated brine to regenerate and the salt needs 8 hours in water to dissolve to saturation level."

"In a properly specced system that's working as it's meant to, the resin in a softener can run up to 10 years, depending on site conditions," Thyse says. "If you're

changing your resin more regularly you know you have a problem. That's why we suggest monthly water treatment services to all our customers where we test softener equipment and water sources."

He adds that borehole and spring water quality may be affected by rainfall or other factors, so it's important to regularly test it and adjust your system as required. Softeners can regenerate from between every eight hours or once a month – depending on the interval required, which is determined by water quality and size.

Training for the future of EV's

JAGUAR Land Rover has partnered with the Automobile Association (AA) to prepare for a future of electric mobility in South Africa by training a group of Line Managers on EV-specific roadside assistance and vehicle recovery.

Jaguar Land Rover's Training Academy in Pretoria opened its doors to the AA to share its technical expertise on a range of electrified vehicles, and while the practical lessons involved Jaguar's all-electric I-PACE, plug-in hybrid Range Rovers and mild-hybrid Land Rovers, most of the procedures taught are applicable to EV products from any manufacturer.

Roadside assistance and recovery of electrified vehicles is, for the most part, not dissimilar to practices the AA has performed in South Africa for more than 90 years, but EV-specific guidance was offered on safety-critical aspects and common issues experienced by customers historically.

Of specific interest to the group of Line Managers was the procedure of jump-starting a fully electric vehicle. In an instance where an EV's small 12-volt battery (similar to those in any car) runs flat due to prolonged standstill, it's possible to boost this small battery in order for the more powerful high-voltage battery to begin recharging the low-voltage system. The 12-volt battery in an EV is responsible for simple features such as infotainment, power windows and electrically-assisted steering, but it's also needed to 'start' the car - just like with any internal combustion vehicle.

The group was put to a practical test of safely entering and jump-starting an unresponsive vehicle which relies on electricity to unlock doors, release bonnet latches and disable security systems. Instructions were also given on how to manually override drive selectors and electronic handbrakes in order to pull an EV onto a flat-

Richard Gouverneur, Managing Director, Jaguar Land Rover South Africa, said: "As the South African car parc rapidly evolves, and more electrified vehicle offerings from various manufacturers come to the fore, it's vital that all industry stakeholders are kept up to speed with the changing environment. The role the AA plays in the motor industry is critical on many levels, and we are happy to share our expert knowledge of EVs and the way they work with such a respected organisation."

Willem Groenewald, AA CEO, said: "EVs are the future of mobility and it's critical for the AA to stay on the cutting-edge of this technology to service the needs of all our customers. Jaguar Land Rover's training provided useful practical knowledge for our staff; we are always learning and improving our skills - all with the customer in mind - so this training was timely and important for us."

bed tow truck in neutral.

Though procedures for changing flat tyres is much the same as with any vehicle, the AA was trained on the importance of safe lifting points with consideration that many EV high-voltage batteries are located low in the floor where jacks could damage them.

General information on the importance of colour-labelling, such as bright orange high-

voltage cables and any components tagged with yellow warnings was relayed, along with basic lessons in recharging procedures. These included tips on the various messages a vehicle sends via coloured lights near its charging port, the differences between AC and DC cables, and the fact that EVs should never be charged with extension cords or multi-adapters.

The 7th Automechanika Jhb scheduled for March 2022



SOUTH Africa's international trade fair for the automotive service industry targeting trade visitors from the Sub-Saharan Region is set to return to the Johannesburg Expo Centre, Nasrec, from 15-18 March 2022.

Automechanika Johannesburg is collocated with Futuroad Expo, sub-Saharan Africa's professional event for the truck, bus, and commercial vehicle industry as well as Scalex Johannesburg, a platform for digital integrated solutions in supply chains and logistics.

"Due to the global pandemic and lockdown restrictions in

South Africa, we are unable to host the seventh edition of Automechanika Johannesburg in 2021. The new dates give us sufficient time to prepare for the show. We know that the industry is ready and waiting for the next automotive event," says Joshua Low, Managing Director of Messe Frankfurt South Africa. "Automechanika is the shop window for innovations in the automotive aftermarket across the entire value chain, and is the ideal meeting place for all involved in the industry," adds Low.

The 2019 event proved to be the meet-

ing place for the automotive after market welcoming attendees and visitors from African countries, and featured 23 international exhibiting countries, 140 B2B meetings and 18 422 m2 of exhibition space, making it the largest event of its kind hosted in South Africa and remains the largest automotive aftermarket show on the continent.

Exhibition and Sponsorship packages are now open. Contact Portfolio Director, Tracy Gounden on Tracy.Gounden@za.messefrankfurt.com for more information.

New control technology brings speed and efficiency to Cape factory

AUTOMATION has long been hailed as the 'silver bullet' solution to increasing process efficiency and improving revenue. In the age of COVID-19 when fewer people on site means safer operations, automation has become even more important as it holds the key to maintaining productivity with fewer staff. However, it is important for plant and factory managers to understand that automation is not something you simply implement in your facility once and then reap the rewards indefinitely.

"When you implement automation and control solutions in your plant - or any technology for that matter - it is important to factor in breakdowns, maintenance, repair and eventual replacement of the technology you use," explains Bruce Grobler, Vice President for Middle East and Africa, Nidec Control Techniques. "In the fast-paced fac-



ories of today, even the highest quality control technology will need your attention at some point down the line."

Nidec Control Techniques is a supplier of high-performance drives, servo motors, and other control technology to various industries. Most recently, three of their flagship Unidrive M701 high-speed drives were installed

at a food processing facility in Kraaifontein in the Western Cape. The drives, along with servo motors also supplied by Nidec, were used to upgrade a slicing machine.

"The facility needed this upgrade urgently as some of their hardware had broken down. Unfortunately, the hardware they were using became almost impossible for them to replace, with spare parts costing a fortune and with a long lead time from suppliers," explains Grobler. Thanks to the work of Nidec and its partners in the Cape, the machine now slices up to 1 200 slices a minute, producing slices of regular thickness which are neatly stacked and presented ready for packaging. "This was important to the facility that is dedicated to providing the highest quality packaged sliced meat to local supermarkets."

The facility will no longer face the same spare-parts challenge they had experienced,

because Nidec Control Techniques takes great care to ensure a prominent and reliable supply of spares and replacements in-country. This means a spare part is, at most, hours away - rather than days and weeks you can expect when shipping a part from overseas. The company also has field application engineers always at the ready, so if a part does need repair or replacement, someone is onsite within 24 hours to ensure minimum disruption to production.

The facility is now up and running, enjoying improved efficiency, dedicated after-sales support, and a custom-built machine interface that is easy to use. "With the right technology partners, plant managers don't have to be left alone to plan and manage the technology in their production lines. This client now has the right solution which is entirely supported by a local Cape Town team," concludes Grobler.

Topcon-accredited service centre opens



The service centre employs modern calibration test equipment in a full electrostatic discharge (ESD) and thermostatically controlled facility.

WORLDVIEW recently opened its state-of-the-art service and repair centre in Sandton, Johannesburg; the only Topcon-accredited service centre in South Africa. WorldsView Service Centre is now certified to carry out services, repairs and refurbishments to OEM standards on Topcon equipment.

This accreditation is welcomed by those in the surveying and build industries, as Topcon's service and repair capabilities had previously been underrepresented in South Africa.

In addition to the Topcon range of equipment, the Service Centre can service total

stations, GNSS receivers and other ge positioning equipment from brands across southern Africa, including GeoLaser and geo-FENNEL, among others. Employing modern calibration test equipment in a full electrostatic discharge (ESD) and thermostatically controlled facility, the service centre's workshop also manufactures a variety of surveying brands total station instruments, GPS communication software and power cables.

"All technicians authorised to carry out Topcon service and repairs are fully trained and evaluated at the OEMs headquarters in the Nether-

lands," explains Carel Rootman, WorldsView Vice President: Technical Department. "Should it ever be necessary to gain insight from the OEM, there is a knowledge-sharing platform enabling WorldsView technicians to tap into the knowledge from Topcon's technical team."

Componentry and workmanship on all serviced and repaired equipment are warranted for three months, with the standard 'equipment abuse' exclusion applicable.

For additional information email Carel Rootman on carel.rootman@worldsview.com or +27 (0)11 844 1000.

100 year heritage in sewerage and water systems engineering

WITH a country in constant development, be it new commercial or residential projects or the maintenance or upgrading of existing roads, pipes and stormwater systems, a crucial factor is the application of water and sewerage systems and related products that offer developers and local municipalities the longevity and high quality required.

With a history spanning over 100 years, Rocla, has been a leader in the manufacture and supply of sewerage and water systems and has worked with local municipalities and civil contractors throughout South Africa. The technical expertise and assistance that Rocla offers in the water and sewerage sectors in particular, puts them in an enviable position of assistance on projects from inception to completion.

One of the flagship products from Rocla is their reinforced concrete pipes with HDPE lining, which offers sewerage projects the same advantages as a conventional concrete pipe or a plastic pipe in that it maintains its shape under load and is resistant to acid attack. Exposed concrete in the joints of a pipeline need to be protected against corrosive gasses, and Rocla has designed a HDPE capping strip

which is welded over the joint of the pipe after installation. It is generally 200mm wide and the same thickness as the lining used in the pipe. This unique HDPE lined pipe was recently commissioned for the Polokwane Waste Water Project, and 19kms of HDPE piping was supplied.

Rocla also manufactures reinforced concrete pipes with sacrificial layers. The host pipe may be manufactured from Dolomitic aggregate and ordinary Portland cement or Siliceous aggregate and ordinary Portland cement. The sacrificial layer may be from Dolomitic aggregate and ordinary Portland cement or Dolomitic aggregate and calcium aluminate cement.

Projects such as the Nellmapius Ext 22 low cost housing contract near Mamelodi commissioned nearly 3,000 precast steel-mesh reinforced concrete storm water pipes of various nominal diameters from Rocla, for the six-kilometre storm water pipeline being constructed.

Rocla was selected to manufacture and supply all the stormwater (spigot and socket) and interlocking pipes for Waterkloof Quarry, an old 58-hectare landmark, situated on the border of Waterkloof Ridge and Monument Park near Pretoria

which was developed into an upmarket retirement estate. It was Rocla's manufacturing capability that enabled them to meet the tight deadline associated with the quarry development.

Reinforced concrete pipes with Xypex Bio-San C500 are supplied for 300mm to 600mm pipes. Xypex Bio-San C500 is a uniquely designed admixture for integral, long-term protection of concrete in harsh sewerage conditions which have high levels of H₂S that cause microbial induced corrosion in pipelines. The protection is for the full wall of the pipe and eliminates extra joint sealing.

For the recent Diepkloof sewer upgrades 2,715 piping product and associated supplies comprising RJ pipes, rubber rings, man holes, cover slabs and concrete lids for this were sourced from Rocla due to the quality of its manufacturing processes and final product.

Accessories for sewerage and water projects also include pipes with access holes, bends – Rocla can supply custom made bends of up to 30 degrees – spigot and socket pipe systems, manhole chambers with HDPE lining and reducer and cover slabs.

The Rocla design, engineering and technical

team is available for pre-site design, and on-site application advice when required. This way, Rocla ensures that the correct solution is selected and installed correctly, giving the client a maximum return on their investment.

Rocla is part of the ISG which also includes Technicrete.



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SOE rents over 170 accommodation units

KWIKSPACE has successfully supplied more than 170 parkhomes to one of South Africa's largest state-owned companies in a 24-month rental contract. The state owned company required temporary, parkhomes and dependable structures that suited its various operational requirements at sites nationwide. Following a thorough regional tender process, Kwikspace was awarded the contract to supply specified buildings to all of the customer's regions countrywide, barring one.

A range of 100 parkhomes three metres wide with varying lengths of 3, 6, 9 and 12 metres, 7m x 7m and 2.4m x 6m are being delivered to sites on a pre-planned sequential basis, which includes site assessment and levelling where necessary. Final delivery is expected to take place in late November, with buildings fulfilling requirements for secu-

rity and conventional offices, boardrooms, training centres, control centres, kitchen units and ablution / shower combination blocks. The 100 units are in addition to 75 parkhomes from a pre-existing Kwikspace rental contract, which was renewed only subsequent to the acceptance of the new tender.

"The fact that we could guarantee the number of buildings required was pivotal in winning this tender," says Claude Naidoo, Rental Sales Manager, Kwikspace. "Not only do we keep a specified number of units in stock to cater for high demand, we also conduct extensive market research across the various sectors and structure our capacity accordingly. This means that Kwikspace is always in a position to provide units that meet the exact specifications of our current and future customers' requirements. That,

and the service we provide, is what makes us the market leaders in parkhomes."

The sites for the new buildings are based in Gauteng (Pretoria) North West Province (Brits), Limpopo Province (Thabazimbi and Lephalale), Rustenburg (North West), KZN (Richards Bay) and Northern Cape (Postmasburg). The renewed contractual buildings are placed on sites in Mpumalanga (Ermelo, Witbank, Middelburg and Ogies), Limpopo Province (Phalaborwa), Free State (Bloemfontein) and the Northern Cape (Warrenton).

Kwikspace's fleet of rental buildings can be installed in multiple layouts. From a single modular unit for storage or office space, to complete accommodation camps incorporating kitchens, dining halls, laundry rooms and entertainment facilities, among others.

Water conservation should remain top of mind for building owners

WHILE the dam levels in the Western Cape have improved slightly in recent weeks, currently standing at approximately 70%, Cape residents and indeed the wider South African population should not forget that South Africa is a water scarce country.

This is the view of Chris Campbell, CEO of Consulting Engineers South Africa (CESA). “The severe drought of 2018, where dam levels were at 30% at best is still a recent memory, and something that our people should continue to keep in mind,” com-

ments Campbell. He says that the City of Cape Town has exhibited excellent water saving behaviour, and that other South African cities should be encouraged to follow suit.

In efforts to save water, building owners have been increasingly adopting rainwater harvesting (RWH) systems. This has become a common feature for residential buildings. Further, there has been increased interest in grey water recycling. Grey water recycling can help reclaim water used from baths, showers, handwash basins,

and laundry water. Depending on the size of the system and the filtration applied, the recycled water can be used for irrigation, flushing toilets, and topping up swimming pools.

However, Campbell warns that if these systems are not properly designed and maintained, things can become extremely unpleasant, with fowl smelling water and costly system failures. He explains: “As the demand for water-saving systems has increased in recent years, many companies have popped up

claiming to be experts in applying these systems to homes, offices and hotels. People considering implementing these solutions in their buildings should keep in mind that the design and construction of these systems must comply with the National Building Regulations (NBR) SANS 10400.” The NBR fall under the National Building Regulations and Building Standards Act (Act 103 of 1977), which governs all building and construction work in South Africa.

“CESA is proud to have many member organisations who are

well-versed in these regulations and can deliver world-class water-saving systems for buildings of all sizes,” adds Campbell. “Consumers need to ensure they do their research when deciding which company to work with, and not just hire the first company promoting their services.”

“Consulting engineers play an important role in helping buildings achieve a Green Star Rating, as developed by the Green Building Council South Africa,” explains Campbell. The rating provides an objective measurement

for green buildings in South Africa, with a strong focus on water use. ‘Africa’s Greenest Hotel’ can be found in Cape Town, having achieved its six-star rating in 2019. It makes use of a comprehensive grey water recycling system.

“Buildings and developments currently in planning phases should place emphasis on water-saving solutions, regardless of current dam levels. Water saving should be a national priority, and the construction sector has a prominent role to play in this,” concludes Campbell.

Moving towards the vision of economic recovery

Following robust discussions held recently online during the two-day Western Cape Property Development’s “Vision for Growth” annual conference (20 to 21 May), a number of key points have emerged that will be critical to the future of the property development and construction industries as it recovers not only from a number of difficult years, but from the Covid-19 pandemic.

SAID Deon van Zyl, chairperson of the Western Cape Property Development Forum (WCPDF): “We must find a way around the stalemates and standoffs that currently exist between these two sectors and find best-practice examples of public-private partnerships to learn from and move forward as quickly as possible.

“Otherwise, we will find not only our

industry but the roll out of our country’s infrastructure past the point of return.”

Reflecting back on the conference, Van Zyl pinpointed four factors that would be key to both economic recovery and the establishment of a united vision.

Get the “town” to talk

Sharing from his own experience following a period spent in Seattle in the USA, Professor Nick Binedell of the University of Pretoria’s Gordon Institute of Business Science, and a keynote speaker at the conference, had spoken about the importance of “town talk”. This referred to the crucial engagement between citizens, city officials and in particular politicians in “round table” discussions during which all levels of engagement could begin to under-

stand the challenges of creating a vision from all angles.

“The success of something like a ‘town talk’ lies in the fact that politicians do not join the discussion to talk; they join to listen, noted Van Zyl. “Something we have yet to get right in South Africa.”

Bringing it into an African context, Van Zyl observed that this is what Rwanda set out to do in 2000 when it established its own – to date, very successful – Vision 2020, the purpose of which defined and relatively simple deliverables.

Eradicate siloism

A second theme that came through strongly during the two-day event was the culture of what Van Zyl termed as “siloism” – or the tendency for most government departments across all tiers to work in isolation and the

urgent need for this is stop, having been identified as among the greatest barriers to approval of developments – even within the public sector itself.

However, there were instances where the walls had been broken down, not least of which was demonstrated during the conference by Lekha Allopi, Project Executive – Development Planning, eThekweni Municipality.

Give government officials a voice

Complementary to the idea of a “town talk”, Van Zyl also felt it was import to create environments where executive government officials were also given an opportunity to speak their mind.

“We seem to have created a culture, certainly in the Western Cape, where only politicians – be that

at Provincial or Local Authority level – are allowed to express an opinion. I think it’s time to allow the technocrats to tell you their bit, and thereby become accountable to the people who pay their salaries.”

His one criticism of the two-day event, noted Van Zyl, revolved around this very point, with delegates from the public sector making up only 17% of all attendees and politicians 1%. “At least a third of the audience should, in fact, be politicians – here to listen.”

Continue to unite and bring labour to the table

The WCPDF, for example had been a founding member of the Construction Alliance South Africa (CASA), which united 33 industry bodies into a single voice under the leader-

ship of John Mathews, immediate past President of Master Builders South Africa and currently the CEO of Western Cape-based Garden Cities.

“Building relationships and friendships in industry are now priorities to get industry’s voice heard,” stressed Van Zyl. “We can no longer only depend on government-created platforms to be the voice of industry.”

“Creating a vision for our industry means creating jobs for some of the poorest members of our communities,” noted Van Zyl. “And I am reminded of the rallying cry of many groupings over the decades: ‘Nothing about us, without us’.

“No policy should be decided without the full representation from all members of an industry, and that includes the property development and construction industry.”

Operators won’t break a sweat

POWERFUL, lightweight, and ergonomic RTEX and TEX pneumatic breaker ranges from Atlas Copco can be operated for longer while using less air, presenting the perfect balance between high performance, efficiency and comfort.

This hand-held tool owes its breaking efficiency to a number of cutting-edge design features that include: A patented Constant Pressure Control principle, encompassing a Constant Pressure Chamber, which improves energy transfer, providing up to 40% more energy output than conventional units; a longer piston design compared to conventional breakers which increases the

interaction time with each blow. The resultant efficient stroke mechanism also radically lowers energy consumption.

Subsequently, the RTEX, weighing only 25kg, can perform the same job equally well as bigger machines that are 5kg to 10kg heavier. The RTEX can also operate for longer while using only half as much compressed air. “A 50% reduction in compressed air consumption for the same breaking capacity means that a compressor only half the size is needed or alternatively, two breakers can be used on one compressor,” notes David Stanford, Business Line Manager, Portable Products, at Atlas



Copco Power Technique. “What customers must also keep in mind is that a smaller compressor requires a smaller investment, uses less fuel, has lower emissions and is easier to transport, subsequently delivering an excellent return on investment.”

Productivity, low operational costs and operator comfort and safety are cen-

tral to the design of the RTEX and TEX breakers. A low centre of gravity and perfect balance, thanks to the ingenious Solid or Single Body (SB) design, make these one-piece machines extremely easy to handle. Fewer parts, and thus less moving components that can wear, improve reliability, extend life-cycle and reduce maintenance. Tool wear is

further minimised by the integrated lubricator which holds enough lubricant for a complete standard work shift. These multiple features boost productivity while keeping operational costs to an absolute minimum.

The hand-held breaker’s innovative two-step SOFT-TART™ trigger puts operators in full control by ensuring that the first cut is surgically precise with no chisel slippage or misfiring, even under extremely tough conditions.

To counter high vibration and noise levels which can result in operator fatigue, compromising safety and productivity, these pneumatic breakers are HAPS™ (Hand

and Arm Protection Systems) enabled: The Constant Pressure Chamber and efficient stroke mechanism keep vibration levels below 5 m/s², enhancing operator comfort to such an extent that working hours can be extended up to six-fold. The tool’s piston switches on air-cushions on both ends of the cylinder, almost fully eliminating metal-to-metal contact when working off-load, further shrinking vibration and wear. The pneumatic breakers are also fitted with a wear-resistant polyurethane silencer that diminishes noise levels by up to a remarkable 75% compared to a machine without a silencer.

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Empowerment through education at PPC's technical training programmes

Investment into inclusivity and skills development in the construction sector presents an opportunity for practical application of training that brings South Africa closer to meeting its National Development Plan 2030 targets. Driven by education that is informed by PPC's training solutions, a renewed era of growth, entrepreneurship and skills development is on the horizon.

The permanency of PPC's training solutions in infrastructure projects is informed by a devoted path that is sustainable to enable decent employment through inclusive economic growth. In recognition of the fact that education remains a catalyst and equalizer in empowering communities to experience a better quality of life, the business' innovative training solutions bring the country closer to realizing a competent, skilled and capable workforce to support South Africa's inclusive growth path.

"We are optimistic about the efficient, competitive and responsive economic infrastructure network the government is committed to developing as part of the National Development Plan 2030. These individuals and the SMMEs will become the backbone of our growing economy," explains Johan Vorster, Head of Coastal Business Unit at PPC. "The pandemic has only served to deepen our confidence in this fact. As a 100% local business that has invested 129 years into providing 100% quality products into the country, we remain invested in using the opportunity to share our knowledge with local communities, small businesses and aspiring young people in the construction sector to move South Africa forward."

PPC's training solutions leverage the business' national footprint, community investment and technical expertise to create a shared market value for all in the sector. Adaptive to the macro and micro economic factors that are unique to each regional construction project, PPC's training solutions include brickmaking workshops, SMME development programs, PPC Training Academy, Technical Workshops with Students and Factory Tours. The success of this initiative can be seen through the work at Freeway Recovery Centre at Lakeview Community Church in Retreat, Zonke Bonke Hardware & Steel in Khayelitsha, and Sisters Bricks and Blocks Construction in Gqeberha. This competitive solution is enabled by the principles of the fourth industrial revolution – thereby creating a better educated and skilled work force.

"I would like to thank PPC for doing the brickmaking workshop with us, the workshops are a knowledgeable platform and we have learned a lot in building; and also building a future as an entrepreneur in the construction sector. The expertise and the level of education in the skill force are amazing and I hope the other beneficiaries have learned as much as I've learned in the workshops," said Gregory Craig, Founder & Executive Director at Freeway Recovery Centre



PPC training sessions are designed by PPC sales specialists and PPC's technical team. Everyone is invested in the success of the community they serve, ensuring knowledge shared is fit for purpose while ensuring a commitment to the use of 100% local and 100% quality products – either as a brickmaker or as an entrepreneur. Ongoing mentoring and support to complement the expertise that is transferred at the training sessions remains available as they realize their employment and/or entrepreneurial dreams.

"It is our mission to empower the community to experience a better quality of life. For this reason, we have developed a sustainable way to give communities, SMMEs and young people a purpose while encouraging them to play an active part in all development efforts.

This purpose is focused on demonstrating how everyone can create a quality product that is supported by a business that is a Proudly South African member. This locally manufactured product is scientifically formulated for South Africa's unique and changing construction needs. With these tools and knowledge provided, each individual leaves our training sessions better placed to enter the local economy with a new skill and renewed confidence", concludes Vorster. ■

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ABOUT PPC LTD

PPC is an iconic material and solutions provider of quality and consistent cement, aggregates, metallurgical-grade lime, burnt dolomite, limestone, ready-mix and fly ash. We also provide technical support to our customers. PPC's story stretches back over 129 years to where we were first incorporated on the outskirts of Pretoria in 1892. As the first cement plant in South Africa, we have established ourselves as a resilient organisation by adapting to ever-changing economic, operating and political environments. This Sub-Saharan brand continues to grow beyond South African borders into Botswana, Zimbabwe, Democratic Republic of Congo and Rwanda where our footprint extends. We are proud to be a leading provider of quality building materials and solutions to empower people to experience a better quality of life.

Ceramic Industries invests in world-leading tile tech

INSTALLATION of one of the world's most advanced tile production facilities has begun in Hammanskraal, Gauteng. Ceramic Industries' new SAMCA+ plant will feature Italian-made SACMI tile pressing equipment, along with a new 241m-long, energy-efficient kiln.

"As an innovative business with a long-term view on our investments, we decided to get ahead of the game and invest in world-leading technology and machinery," said SAMCA+ Factory Manager Jaco Snyman. The investment totals R274 million, and includes the installation of energy efficient, Italian-made SACMI Continuous equipment, production lines and kiln.

What makes SAMCA+ different?

Conventional tile pressing is achieved



by filling a cavity with clay, then pressing it between two punches. The bisque emerges as rectangular or square shapes to a size determined by the amount of clay in the cavity and the size of the die box. By contrast, the new machinery uses technology that's able to form the clay between two large rollers in a

continuous feed. The clay is cut to size thereafter. This ensures maximum flexibility for tile dimensions, allowing unlimited lengths, widths of up to 1800mm and thicknesses of between 3mm and 30mm.

"This is a first for our Group and a first in southern Africa. Few manufacturers in the

world have the ability to produce a red-body tile with high-quality textures and unrivalled surfaces," said Snyman.

New tech, new tiles, new sizes

SAMCA+ will be producing large-format floor tiles, responding to a strong preference

in the market for the near-seamless look that can be attained with these sizes.

The initial production will include sizes up to 900 x 900mm in square tiles and up to 600 x 1 200mm in rectangular tiles. Production trials on slabs up to 1 800 x 3 000mm in size are planned, and when these are production-ready, they'll be the only South African-made slabs on the market.

An in-line rectification plant forms part of the manufacturing process, producing perfectly square edges that allow for grouting gaps as small as 1mm, ideal for attaining an uninterrupted design effect. Initial production will commence in September 2021, and from early 2022 SAMCA+ will also manufacture a select range of shiny tiles. State-of-the-art printing equipment will allow for special effects and printed profiled finishes.

Environmental leadership

"We have ambitious plans to become a producer with zero carbon emissions, so the environmental credentials of any new plant equipment is crucial," said Snyman. By the company's current estimations, the new equipment will result in a 17% saving on electricity and a 21% saving on gas. Part of the efficiency is won from heat recovery, with hot air directed from the kiln's cooling chimney to the drier.

The continuous production method also reduces clay wastage from 12% to just 3%. However, the aim is to achieve zero waste on clay, and the new machinery allows for 100% recovery for reuse in the milling process.

Preparing for demand

Installation begins this month, with pro-

duction commencing in September 2021. A team of 14 Italian technicians will oversee the process in collaboration with the local SAMCA+ team. "Our team members are in a unique position, as they have the opportunity to re-build and install state-of-the-art equipment that they will ultimately be working with," said Snyman. "We'll be learning new skills from the SACMI team, enabling us to become the most technologically advanced tile producer in South Africa".

Snyman emphasised the company's track record of successfully reading international design trends and the needs of the local market.

"We're confident South Africans are going to love these new, high-quality, large-format tiles – made with ecologically responsible methods by a proudly South African company," he said.



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100 million bricks a year from automated factory



Kwastina is fully automated, from raw materials mixing to the end product.

FROM humble beginnings in 1902, Corobrik's new Kwastina ('Home of the Brick') factory has begun delivering product and both kilns will be in full production by November. An official launch of the R800 million facilities is planned for the end of the year.

Honouring commitments made by Corobrik at the South African Investment Conference at Sandton in 2019, this is the first new investment made by the proudly South African company since 1984. "Our new factory in Driefontein is creating exciting possibilities for sustainability, efficiency and productivity," comments CEO Nick Booth.

Kwastina represents a significant change in the level of technology being introduced by Corobrik. It is fully automated, from mixing the raw materials

to the end product. A major advantage is that it will easily be able to meet larger-volume orders, especially for the major construction and infrastructure projects anticipated in the government's R100 billion Infrastructure Fund.

"...it will slash brick-manufacturing costs by 50%..."

Believed to be the most technologically-advanced and environmentally-friendly brick-manufacturing plant in Africa, it will slash brick-manufacturing costs by 50%, making the product more cost-effective for end users. New design technology reduces gas consumption by 70% which combined with automation, will enable Kwastina to produce 100 million bricks a year.



Ethics in business begins with YOU

**“ There is no such thing as ‘business ethics’. People either have ethics or they don’t. If they do not have personal ethics, they will definitely not have ethics in business and if they have personal ethics, they will definitely have it in business too.”
Dr John C. Maxwell American author, speaker, and pastor.**

The rot from one apple will spread to all apples in the crate, unless timeously removed. This is irrespective of any crisis, man made or brought on by nature. An ancient Chinese proverb says that a crisis also presents opportunities. That may be true, as long as the opportunists don’t gain the upper hand. Currently we come across them in great numbers, in the form of politicians who collude with “tenderpreneurs”, clients or main contractors who resort to sluggish payment based on spurious reasons, people who choose public emotions as a lifestyle or their opposites who find it expedient to cut off communication altogether.

In 2014, when South Africa still had a Public Protector worth the title, Advocate Thuli Madonsela addressed the South African Institute of Civil Engineers (SAICE) and was encouraged by the Code of Ethics that was formulated by these professionals. Among the provisions in the code, she specifically mentioned:

1. Act with integrity and fairness.
2. Have regard for the public interest.
3. Maintain and broaden competence and assist others to do so.
4. Exercise appropriate skill and judgement.
5. Avoid conflict of interest.
6. Treat people with dignity.
7. Do not misrepresent your area of experience and responsibility.

Today – listening to the voices of the general population of South Africa and the world – the demand for ethical leadership has undeniably grown even more.

Ever since its founding in 1979, the Terraforce management team has been driven by one primary concern, namely, to build an authentic, sustainable company that could survive – and thrive – without exploiting resources or trampling on the interests of others.

This resolute commitment to quality, integrity and innovation paid off. Terraforce, a local and international licensor for a range of unique precast earth retaining and erosion control products, grew into a household name in the precast industry, and naturally, this came with a healthy dose of robust competition. Holger Rust, Founder and Member of Terraforce, has never perceived this as a threat, rather advocating that most people in business understand that competition is good for business AND for the consumer.

Over time however, a string of imitators, operating in many locations, kept popping up, often leaving behind an inevitable trail of on-site disasters and unhappy clients. Says Rust: “lacking a sense of ethics and values, most of them are strangers to terms such as statutory requirements, surcharge loadings, potential failure planes, interface shear capacity, pull-out and crushing

resistance, lateral earth pressure or progressive backfill erosion. In the early days, the then lack of any SABS/SANS standards made the situation even worse. For obvious reasons, most of these “free loaders” do not last very long.”

Rust adds: “some of these companies – that seem to purposefully copy products developed by others or commit blatant tender fraud. Surprisingly a ‘leading corporate citizen’ can be found among the producers of pirated goods. These “reverse engineers” are troublesome to some extent, especially when they make ambiguous claims that their actions are ‘for the benefit of the community at large’ and that their actions ‘promote competition,’ when in reality they just want to forgo the troublesome process of being innovative and efficient. The owners and managers undoubtedly fail to measure up to ex Deputy Finance Minister, Nhlanhla Nene’s call for more honesty and integrity in business: “You have a huge responsibility, to demonstrate that morals and values still form the foundation of our society. Without honesty and integrity, free markets will run amok.” (Cape Times 11 November 2009)

And indeed, there have been incidents where sectors of the free market ran amok, as the Competition Tribunal saga in 2009 clearly showed. During that time, David Lewis, then Competition Tribunal Chairman, is quoted as saying that: “It is an incontrovertible fact that the level of cartel activity is unusually high in South Africa.” (Cape Times, 19 July 2009)”

And it does not seem to help that huge fines were dished out to the culprits says Rust: “after billions of Rands in fines were paid by the largest players in the building industry in late 2011 and after a lot of what appears to have been cosmetic surgery and dishing up of ‘platitudes of corporate parlance’, unscrupulous business practices continue to this day. In the precast industry the trend of producing cheap imitations that mislead the end-user into believing they are dealing with an authentic product and withholding/delaying contractor payment is still a big issue for anyone wanting to make an honest living amongst the sharks.”

The bottom line, says Rust, is that low profit margins in South Africa can lead to scant regard for intellectual property rights, which tends to hold back the quest for better quality products.

In closing, Rust firmly stands by his own choice of never veering off an ethical and authentic path when it comes to running his personal life and business ventures: “To be innovative and ethically sustainable has always be a huge priority in how I started up and run this business. And this will never change. This strategy – over the past 40 years has paid off well. In the current crisis, some of our licensees have even managed to increase their turnover, demonstrating that running a business with integrity is indeed possible!”



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Seating arrangements



Stairs and rock-face retaining



Stairs and plantable retaining

108 Albert Rd, Woodstock gets new steel heart



THE existing 3 storey building on the site has been re-engineered into a 5 storey structure,

using heavy structural steel and precast concrete floors. It was decided that light steel

framing would be used for all façade walls, due to its low mass, insulation, speed of

construction and the ability to install LSF without impacting on other concurrent building activities.

Castle Properties is the owner / developer, and Capitalgro Property Management the principal agent. iBuild SA was appointed to carry out the wet trades. Having started concrete work in September 2020, it is planned to complete the building by October 2021.

Portland was appointed to supply the precast floor slabs, and Ekcon Engineers and By Design (LSF) as the structural designers. LRJ supplied the hot

rolled steelwork, and Futurecon the light steel framing.

The light steel frame walls consist of LSF wall panels, supplied by LSF Co and delivered assembled to the site. Internal lining of the wall panels consists of fire rated gypsum board (15mm thickness). Rockwool insulation (100mm) is installed in the wall cavities to provide thermal and acoustical insulation. It was decided to use Tyvek vapour permeable membrane, with OSB and CaSi board fixed to the external face of the LSF, with profiled 0.53mm pre-painted galvanised

sheet (Chromadek) serving as weather resistant and durable external cladding.

The LSF wall frames were manufactured to fit in the openings between floor and soffit – which were measured accurately using a 3-D scanner. The frames were anchored to the floor slabs using chemical anchors, and fixed to the soffits using Rawl bolts.

Standard drywalling is being used for internal walls, to allow for flexibility in floor layout to suit future tenants.

While the building process was underway, it was decided to add a sixth floor to the build-

ing! Due to its low mass, structural rigidity and ease of handling, it was decided to use LSF wall panels for the extra floor. LSF roof trusses will be used to support the saw tooth roof structure.

The addition of a floor to the top of the building using LSF illustrates a huge potential market for developers! There are thousands of buildings where LSF can be used to add a top floor, or two, to create office or residential space.

Information supplied by J Barnard, Director SA Light Steel Frame Building Association. Tel: 083 468 1410

Bridge with largest precast beams in Western Cape

A range of CHRYSO products contributed to the success of a bridge project near the historic city of Paarl in South Africa, involving the largest precast beams cast to date in the Western Cape.

Weighing 64 t each, the 18 pre-stressed beams for the Val de Vie Berg River bridge project

measured over 35 m long and two metres high. The large volume and tight spacing of the reinforcing steel, coupled with the presence of stressing cables, meant conventional concrete would not suffice and the local CHRYSO Southern Africa team worked in conjunction with the precast contrac-

tor to design, test and submit a self-compacting concrete mix.

CHRYSO's CHRYSO® Premia 310 superplasticiser and CHRYSO® Dem Bio 10 environmentally-friendly release agent formed part of the solution for the successful casting of these beams, and were also used in

the project's large facing panels, coping and culverts.

Once all the beam strands were evenly stressed, readymix concrete was placed and a combination of external and poker vibration was used for compaction. This provided a good surface finish with minimal blow holes. After

pouring, a tarpaulin was placed over the mould and steam was injected under the cover to accelerate hydration. Using this method, a strength of 40 MPa was achieved in 20 hours, enabling the production of one beam a day. The final strength required was 60 MPa, and this was achieved within 28 days.

Before the casting process, CHRYSO® Retarder paste was applied at the end of each beam shutter and the concrete washed off with water the following day after the shutter was removed. This created a rough exposed aggregate finish that provided a good bonding surface for the assembly of the

bridge.

The facing panels were also steam-cured, and were cast with a glass-smooth finish. They were attached using 'fingers', eliminating the use of visual fixing on the front face. Some panels were curved, such as those used for cladding the central viewing cove.

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Putting South African Industry first should be our main priority in these challenges we currently experience. Our economy cannot achieve our goals if we import most of the products we use. A thriving manufacturing industry creates jobs and business opportunities, enables skills development and improves our competitiveness in global markets.

This includes the standardisation in the field of manufacturing, conversion and testing of building and construction, including all aspects of their effects on man, the environment relating to activities in the following fields: **civil and construction for example steel and concrete works, and the building industry for example bricks, paving blocks, roof tiles, cement & concrete products.**

SANS 10400 - The application of the National Building Regulations. Development in the building industry is a continuous process. With the passage of time, new materials become available, design methods are refined, and innovative building systems are introduced. Political change also results in the development of new policies and approaches to various aspects of building and construction that might impact on regulatory requirements. It is therefore obvious that building regulations and the interpretation thereof cannot remain static if they are to accommodate such policy changes and allow for the early use of innovation in construction.

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The South African Bureau of Standards (SABS) has been training individuals in organisations on various management systems for decades. Our accredited training modules include an overview of the relevant standards, creating overall organisational awareness and implementation of management systems such as: **SANS 10400, SANS/ISO 9001, SANS/ISO 14001, SANS/ISO 45001, FSSC, SANS/ISO 22000, and many more.**

The Academy is accredited with the **Southern African Auditor and Training Certification Authority (SAATCA)** for Lead auditor courses in Quality Management Systems, Environmental Management Systems, Occupational Health and Safety and Food Safety. As the national body responsible for the development and maintenance of South African National Standards (SANS), our facilitators are exposed to the latest state of the art information regarding standards. Our specialist trainers are industry experts with more than 30 years of collective training experience and knowledge.



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Concrete industrial floors need special skills

INDUSTRIAL concrete floors are essential for South Africa's industrial growth but also poses more problems for the construction industry than most other concrete projects, says John Roxburgh, senior lecturer at The Concrete Institute's School of Concrete Technology.

Roxburgh says without a well-designed, fit-for-purpose and low maintenance concrete industrial floor, factories, warehouses, storage and retail areas or other hard standing areas cannot operate at optimum efficiency. He believes the importance of a sound concrete industrial floor is often overlooked but should be the main priority for minimising long-term operational costs.

"Industrial floors

on the ground typically appear simple in their design and construction but in reality they can become nightmares for the unskilled. The Concrete Institute can testify to that because when it comes to the various concrete elements in a building, the industrial floor is by far the most problematic in meeting specifications and performance requirements, and attracts the highest volumes of calls for advice and help to TCI."

Although a concrete floor is constructed on the ground - with minimal reinforcement - it is required to possess stringent and diverse qualities, including:

- The correct thickness.
- Level, flat and at the right height construction.



- Hard-wearing dust free surface.
- Capacity to carry large imposed loads over its entire surface - including across its joints and at its corners and sides.

- To be aesthetically pleasing with minimal surface defects and cracking.

"The concrete used for the industrial floors needs certain plastic and hardened properties to perform and

so the mix designs for these concretes are more constrained and require greater attention to detail. Concrete floors are also often constructed under adverse conditions. The large surface to volume ratio of

a floor makes its construction very vulnerable to hot, windy and dry conditions.

"The most common problems in industrial floors are cracking, joint failure, curling, dusting, scaling, surface wear, sealant failure and excessive lateral movement of forklifts and pallet jacks.

An underperforming floor will result in slowing down of forklifts, pallet jacks and reach trucks. This causes maintenance costs on all packing, stacking and lifting machinery to soar along with more frequent and costly repairs of the floor resulting in more downtime and the need for spare machinery - all resulting in a less efficient operation," Roxburgh contends.

"The good news is

that good floors can be constructed. To help educate those involved with concrete floors, The Concrete Institute offers a one day course, 'Industrial floors on the ground' lectured by MD Bryan Perrie, an internationally recognised expert on concrete floors, in which all the design principles and concrete practice needed to produce a good floor are covered. The course also includes floor repair and maintenance. All engineers, contractors, concrete specialists, floor coating applicators, managers of warehouses and clients involved with industrial floor will benefit greatly by attending the course which is planned for Midrand, Cape Town and Durban later this year," Roxburgh adds.

PowerOptimal and Electrolux SA partner solar photovoltaic water heating solutions

Partnership brings low-cost sustainable water heating into homes

POWEROPTIMAL, a frontrunner in innovative sustainable energy and demand management solutions, has partnered with the South African subsidiary of Swedish global appliance giant Electrolux, to bring cost-effective, sustainable solar photovoltaic (PV) water heating solutions to the South African market.

This exclusive partnership will see the PowerOptimal's Elon

solar PV water heating technology sold alongside Electrolux's well established Kwikot Superline electric water heaters (geysers). With deployment of the PowerOptimal Elon range, a customer can add solar capability to most standard electric geysers, without the need for an inverter or battery. It is the most straightforward and most convenient means to take advantage of solar and

traditional power in an existing solution.

"We are very pleased to announce our partnership with PowerOptimal. The company's sustainable energy solutions align perfectly with our global commitment to sustainability, which is to shape living for the better", states Mark Moyce, National Sales & Marketing Director at Electrolux South Africa. "By including the Elon into our range of water heating solutions, we are offering developers, builders and all users of geysers a means to take advantage of the abundant solar resource we have in this country at a fraction of the cost."

According to both parties the partnership makes perfect sense, as the organisations are an excellent cultural fit, the technologies integrate seamlessly, and the technical excellence from both are providing a superior technology solu-

tion designed to support and grow mass adoption of sustainable energy.

The innovative PowerOptimal Elon range enables direct connection of solar PV panels to standard electric geysers. It requires no inverter and no batteries, is cost-effective, offers a long lifespan and requires almost no maintenance, making it one of the lowest cost per unit of energy (kWh) solutions for water heating available on the market today.

"We are honoured to partner with Electrolux. The company's market coverage, quality standards, and market-leading customer service make them the perfect partner for our Elon solution," states Richard Fearon, CEO at PowerOptimal. "Through this exclusive partnership, all PowerOptimal water heating solutions will be recommended and exclusively sold by Electrolux in South

Africa. Together we are looking forward to leveraging the technical capabilities of both companies to bring sustainable energy to a larger market of people, previously inhibited by the sheer cost of solar PV technology."

PowerOptimal's Elon range solution

can run entirely off the grid, or with grid AC power as backup. In addition, it can be used by property developers for conformance to SANS 10400-XA's Regulation XA2, which requires that at least 50% of the annual water heating requirement for all new build-

ings shall be from a source other than grid electricity.

Further information is available from: Paul Rawsthorne, Branch Manager Western Cape - Electrolux SA. Tel: +27 21 690 2701 or E-mail: paul.rawsthorne@electrolux.com

About PowerOptimal

PowerOptimal designs, develops and builds sustainable energy solutions that redefine the future of energy. Headquartered in South Africa and founded in 2014, PowerOptimal's team draws from their collective engineering and commercial expertise to enable global organisations and consumers to reduce energy cost whilst achieving the sustainability goal of net zero carbon. The company's innovative and patented energy demand management and solar photovoltaic water heating systems are designed to reduce consumption, demand and cost by leveraging the abundant solar resource.

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New housing development will incorporate 'synthetic sand' building blocks

RESIN8 – the panacea to the plastic pollution problem?

ALTHOUGH many grades of plastic are recyclable, only 9% ends up being recycled – which has resulted in a worldwide disposal problem that causes environmental degradation, litter and river and ocean pollution on a massive scale.

None more so in developing countries such as ours where the majority of hitherto unusable plastic waste is simply dumped into the environment, incinerated or finds its way into landfills which are rapidly reaching capacity.

The perception that plastic waste has little

or no value is the crux of the problem, but that is about to change with the local introduction of RESIN8, a breakthrough concrete modifier made from mixed plastic waste of all types.

RESIN8 is a high value concrete modifier that perfectly simulates construction sand and aggregates – materials that are themselves in short supply globally. By improving the mechanical and chemical bond to cement, the product improves the structural thermal and environmental properties of concrete products; structural or

non-structural, such as concrete blocks and pavers, pre-cast elements or poured in place concrete.

Benefits include:

- Decreased weight – lighter to transport, or more blocks per truckload
 - Greater structural strength
 - Up to 20% more thermally efficient – meaningful energy savings over the life of house
 - Maintains appearance – indistinguishable from conventional blocks.
- The product has been developed by

CRDC (The Centre for Regenerative Design and Collaboration) and successfully used in housing development projects in Latin America.

In South Africa, the product is undergoing trials and testing at the Cape Concrete Works in Blackheath where a pilot plant has been established with the intention of scaling up the plant to produce 1 000 tons/month of RESIN8, which will translate into thousands of tons of end-concrete products. The first local project utilising RESIN8 entails construction of a 5 000

social housing project, commencing this year under the management of construction company Martin & East.

CRDC's South African CEO, Brett Jordaan explains that this project will incorporate RESIN8 into building blocks and other elements such as pavers and drainage pipes.

"In addition to the pilot plant at Cape Concrete Works, 12 different companies have shown an interest in the product and projections indicate that up to 21 large scale RESIN8 manufacturing facilities could soon be established

each with a processing capacity of 14 000 tons of plastic waste p.a."

"This can make a huge dent in the discarded plastic problem the country faces (estimated at 250 000 tons pa) while creating jobs for collectors and waste pickers who will be incentivized to collect what is now seen as a valuable commodity".

"We see the introduction of RESIN8 as a vital component of the forthcoming introduction of the EPR (Extended Producer Responsibility) legislation which makes producers, brand owners and suppliers of plastic



Brett Jordaan.

packaging materials and e-waste accountable for their responsible disposal. Recyclable plastics can go to the recyclers, the rest can be turned into RESIN8!" he said.

Trust, respect, support underpins success at Msikaba

THE breath-taking Msikaba bridge in the Eastern Cape demands not just an excellent result, but also a collaborative process that engages local communities and small, medium-sized and micro enterprises (SMMEs). It is being constructed by Concor Infrastructure in a joint venture with Mota Engil Construction (MECSA).

According to Lebo-gang Matlala, Concor site agent at the Msikaba project, the project is proceeding well on the strength of positive contributions by local subcontractors. The Msikaba bridge – being built near Lusikisiki over the Msikaba River – will be the longest cable-stayed bridge in Africa, with a tower-to-tower length of 580 metres.

It is a vital part of the new 410 km N2 Wild Coast Road (N2WCR) between East London and Port Edward being constructed by the South African National Roads Agency (SANRAL). The N2WCR is part of government's

Strategic Integrated Projects initiative, which aims to catalyse economic growth in the Eastern Cape and KwaZulu-Natal.

"Our aim is not just to build an iconic bridge structure to the highest quality," says Matlala. "We are also here to create a positive impact locally and to help change lives."

He emphasises that this approach begins by recognising that the company is a temporary guest in the community, and therefore shows the necessary respect in how it operates. This has meant constant communication about the procurement process and construction plans more generally.

"For instance, it was important for us to understand the technical capacity of the local market, so that we could engage the right skills, resources and services from the area," he says. "We have also invested considerable resources in training, guidance, coaching and mentorship for SMMEs that



Readymix is being provided on the project by local SMME, Jayile Concrete. The aggregate stone is supplied and transported to site by local SMMEs sourced from a locally owned quarry.

we engage."

To affect SANRAL's requirements to utilise and nurture small businesses from the project area a dedicated SMME department has been created by the JV on the project to work with local SMMEs and assist in various ways. It prepares businesses for possible opportunities through the expression-of-interest (EOI)

process, as well as by theoretical and on-job training opportunities. These support services are vital for the long term success of local SMMEs, as they can develop their expertise and experience to grow their businesses into markets further afield, he says.

"Our project's SMME department includes an accredited training practitioner

and assessor, and a social facilitator," says Matlala. "Our site engineers also work closely with subcontractors in terms of safety preparation, method statements, invoicing, documentation and their technical work on site."

With this level of support, local SMMEs supply a range of important services and products to the

Msikaba bridge project. These include the supplying of bulk fuel, transporting of labour, and providing plant for earthworks. They also carry out fencing works, drainage, plumbing, minor civils works, electrical work, security services, steel-fixing on the bridge itself and supply ready-mix concrete.

"We have found that the most successful SMMEs are those who are eager to learn and develop, with a willingness to participate fairly in our procurement processes," he says. "They also have integrity, a good track record, and the determination to take on the challenges of running an independent business."

Matlala acknowledges that a central challenge in conducting a sophisticated engineering project in a rural area is that there are seldom enough local SMMEs with the necessary skills and experience. Nonetheless, he highlights that Concor has seen considerable posi-

tive development in the local business landscape since the project began.

"It has been very rewarding for us to see the positive impact to date, and the changes in local perceptions, where many SMMEs want to work more with us in the future," he says. "Through our approach and support, we would like to see SMMEs develop their self-reliance and to find other business opportunities to become more sustainable and create jobs."

He highlights that Concor's emphasis is always on technical excellence, even as they support some subcontractors. Enterprise development cannot be a tick-box exercise, he emphasises, as the quality of work can never be compromised. "This approach ensures that we help develop SMMEs to a level where they perform to high standards, which is critical to their future contribution to both their customers and their communities," says Matlala.

Game-changer for vibrating equipment industry



Kim Schoepflin, CEO of Kwatani.

SANDVIK Rock Processing Solutions and Kwatani have confirmed that an agreement has been signed for the multi-national Sandvik Group to acquire the shares of this OEM of custom-engineered vibrating equipment. The transaction is expected to be finalised around the fourth quarter of 2021, subject to regulatory approvals and other customary conditions.

Kim Schoepflin, CEO of Kwatani, says

not only is this a complete game-changer for the vibrating equipment industry, but customers will benefit enormously from the combined resources of Sandvik and Kwatani. Both companies are technology leaders in their own rights with Kwatani having operated its world class production facility in Johannesburg, for more than 45 years.

"What is most significant and exciting for the South African

economy is that our facility is set to become the global engineering and manufacturing base for vibrating screens and feeders for both local and international customers," Schoepflin says.

This collaboration is not only a major milestone for the South African engineering industry; it is also in line with the South African government's industrialization strategy. Schoepflin is also quick to point out that

Kwatani will continue with its commitment to transformation and compliance with the South African Mining Charter.

Commenting further, Schoepflin says that the internationally recognised Kwatani brand will remain unchanged. "Known for our brand promise of being engineered for tonnage, we will continue to use the Kwatani brand across Africa and products sold internationally

will be sold through the Sandvik sales channels under the Kwatani product name."

Sandvik will further develop the Kwatani vibrating equipment brand globally with increased access to the product through its global distribution network. Schoepflin explains that customers will benefit further by having access to a vastly increased customer service network. Schoepflin says that Sandvik, through

its global technology resources, will provide access to monitoring and automation processes as well as access to its extensive R&D facilities which include simulators.

"This will provide opportunities for driving efficiency arising from the advance of artificial intelligence in the Fourth Industrial Revolution and will significantly empower the process of cost effective customisation," she says.

High quality simple to use HVAC transmitters and hygrometers

ENSURING an environmentally friendly workplace, cleanroom operation or storage space for specialised products, that meet the most stringent parameters of humidity and temperature measurement can be achieved with the newly launched HVAC40 Thermo-Hygro Transmitter from Delta OHM.

The HVAC40 has a unique design which gives high accuracy, greater connectivity, stability and operational simplicity. Managing Director of GHM Messtechnik South Africa, Jan Grobler says "The compact design of the HVAC40 makes the instrument a low maintenance device, whilst giving enhanced stability, a factor that is critical to the optimal performance of HVAC and building automation systems".

"The well-designed LED display on the HVAC40 makes it easy for technicians to note the health state of the HVAC system and immediately address any alarm activations. Versions with 4-digit LCD display (option



L) are available, which allow the measured parameters to be displayed" said Grobler.

"In the versions with LCD, two LED indicators indicate the presence of the power supply and of an eventual alarm condition: exceeding of the set measurements thresholds, in the versions with relay switch output; measurement detected outside the measuring range, in the versions with analog or digital output.

The instruments are factory calibrated and ready for immediate use" he said.

Three models of the Delta OHM HVAC40

can be supplied as a temperature version only or as temperature/humidity/Dewpoint versions. All are available with or without display functions. The models include a wall mounted option with simple integral sensors for room or cabinet measurements; a Monoblock design for electronics and probe combination for duct measurement or an electronic and probe connected by a two-meter cable for duct and remote measurement.

The HVAC40 series can perform in any environment due to its stainless steel filter that protects the sensor against dust and

particles. The main areas of application include HVAC, building automation, cleanrooms, agriculture and humidifiers.

Available outputs are: RS485 Modbus-RTU digital output (HVAC40S17); 0-10V voltage analogue output (HVAC40V17); 0-20mA/4-20 mA analogue output (HVAC40I17); two wire loop 4-20mA analogue output (HVAC40A17) and a on/off relay switch (HVAC40R17).

Grobler concluded "The HVAC40 series are versatile instruments that activate alarms for temperature spikes, and other operational malfunctions, cleanroom environmental measurement, as well as building automation HVAC stability". "It is the best instrument for the job giving the customer a long-term reliability with minimal maintenance at a cost-effective price".

Further information is available from: Jan Grobler, Managing Director, Messtechnik South Africa. Tel: 011 902 0158 email: info@ghm-sa.co.za

New range of HF drives

EMERSON has announced the introduction of a family of Copeland variable frequency drives for commercial and industrial refrigeration applications.

Emerson says its Copeland VFDs are designed with contractor ease of installation and use as a top priority, with many features such as quick-start menus included to streamline commissioning and service. In addition, they are said to integrate seamlessly with Emerson's legacy E2 supervisory control, new Lumity E3 supervisory control, and Dixell refrigeration controllers.

One VFD model can be applied to multiple

compressors as well as general purpose motors, greatly reducing the need to stock many SKUs to apply toward a wide range of applications.

Two ranges are available – the EVM and the EVH series. Copeland EVM VFDs cover from 0,7 – 22 kW, have single and three-phase input options, and are simple to use with Bluetooth onboard connectivity. EVM VFDs are said to be well-suited for chillers, medical refrigeration, display cases, walk-ins, reach-ins and other applications where less control functionality is needed.

Copeland EVH VFDs cover from 0,7 to 186 kW and

all standard three-phase options, including 575V. They have expanded control to handle applications requiring more functionality, such as centralised rack applications, CO2 booster systems, advanced chillers and industrial refrigeration.

Copeland EVM and EVH software has been optimised for Copeland compressor compatibility, but also offers the same functionalities commonly found in other industrial drives of competitive offerings. The VFD platform covers all Copeland compressors, including scroll, semi-hermetic and screw compression technologies.

First natural refrigerant unit

WITH sustainability a key issue in logistics, The CRS Group have procured a new range of cold storage refrigeration components to mitigate the growing need for sustainable storage solutions which are efficient in the supply chain.

Developed by Carrier, NaturaLINE is the world's first natural refrigerant unit for container refrigeration. It bypasses the need to use synthetic refrigerants to keep cold storage cool and instead incorporates CO2 to deliver an alternative cold storage range that is environmentally sus-

tainable and ecologically friendly.

With many companies now adapting their CSR policies to reflect a sustainable approach to logistics, particularly in national and international strategies, opting for refrigeration with NaturaLINE components can help improve the impact of the supply chain on the environment.

Having a GWP (Global Warming Potential) of 1, the range is currently the most environmentally sustainable on the market and is readily available to order from CRS on its Megas, Blast-

freezers and Grade A and B models.

Capable of reaching -40°C, opting to incorporate a NaturaLINE unit will not only improve your carbon footprint, but it will not require you to adjust your cold chain process. Key Features:

- Highly energy-efficient
- CO2 refrigerant with ultra-low GWP of 1
- Capable of reaching -40°C
- Industry-leading airflow and tight temperature control
- Quiet operation
- 95% recyclability rate

Analytics target cold chain logistics

CONNECTED sensors can make a big difference in solving global challenges, helping safely deliver temperature-sensitive COVID vaccines, analyse crop data to deliver higher-quality food, improve energy forecasting to reduce utility bills, and protect people and property from dangerous flooding. SAS and its IoT ecosystem partners apply advanced IoT analytics so organisations can face these challenges with precision and confidence.

According to a 2019 study by IQVIA Institute for Human Data Science, failures in temperature-controlled logistics – like those required for storing and transporting the COVID vaccine – result in \$35 billion in annual biopharma losses. IQVIA anticipates cold chain logistics will account for nearly a quarter of pharmaceutical companies' R&D budgets in 2021 and beyond. Analysts studying agriculture technol-

ogy trends in an IDC FutureScape: World-wide Agriculture 2021 Predictions1 report anticipate that by 2026, 75% of livestock farmers will use wearables to provide real-time information about animal health and activity levels. This will improve profits and operational efficiency. The experts also expect 35% of farmers will use drones to monitor and manage field crops and animals to reduce labour costs and manage acreage.

Jason Mann, Vice President of IoT at SAS, said IoT analytics help companies harness the complex system of cold chain logistics for biologics – including high-value pharmaceuticals, vaccines and gene therapy products. It helps companies maximise efficiency, align demand, and minimise waste and fraud. "We work with key partners including Microsoft Azure and Stress Engineering to apply customisable SAS analytics to cold chain

logistics integrity challenges. SAS uses data and analytics in the cloud to help protect the efficacy of temperature-sensitive medications while simultaneously addressing security and regulatory mandates.

"And applying SAS to the complexities of precision agriculture helps field crop and livestock farming organisations enhance quality and maximise yield so the world's food supply is safe and abundant." Mann points to SAS' rich IoT partner ecosystem for bringing these solutions to the marketplace. "The involvement of partners like Ernst & Young, Semtech (LoRa®), DunavNET and a host of universities and colleges makes it all possible."

SAS IoT analytics address energy and utility, smart city challenges

In addition to cold chain integrity and precision agriculture

applications, this portfolio of IoT analytics also addresses:

Energy forecasting and building energy management. For energy companies, utilities and smart cities challenged with brownouts, blackouts and the integration of distributed energy resources such as wind and solar, SAS applies its analytics to smart grid data.

This helps utilities make effective decisions at all levels with a broad range of automation, scalability, statistical sophistication and transparency. SAS also helps utilities communicate better with consumers about improving energy efficiency and reducing bills.

Flood prediction and preparedness. For cities and municipalities like the Town of Cary (NC), working to better predict and alert citizens about dangerous flood waters, SAS helps by analysing data streaming from connected sensors on creek banks, streets and bridges.



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Danfoss extends A2L refrigeration portfolio

THE release of new Optyma condensing units and MTZ/NTZ compressors has expanded Danfoss' portfolio of refrigeration solutions for use with A2L refrigerants R1234yf, R454C and

R455A.

First previewed at last year's Euroshop, the new Danfoss Optyma Slim Pack and Optyma Plus multi-refrigerant condensing units feature a future-proof design compat-

ible with both A1 and A2L refrigerants – all in a single unit.

Featuring a high energy-performance ratio, the updated Optyma condensing units are said to offer higher energy efficien-

cies while reducing energy consumption and indirect emissions.

"A2L refrigerants are environmentally-friendly solutions that meet increasingly tough restrictions—but do require specific safety testing and design due to their mild flammability," said Rogerio Salhab Federici, head of system solutions at Danfoss Climate Solutions. "The new Optyma condensing units have been ignition-proof tested in independent laboratories and designed with risk-mitigation precautions, such as a sealed electrical box, holes, and louvres to ensure the refrigerant's dilution, giving installers peace of mind."

Li-ion battery pioneers beat the big freeze



WIDELY regarded as the pioneers of using lithium ion batteries in materials handling lift trucks, Jungheinrich, have overcome the problems associated with using Li-ion powered lift trucks in cold stores, at temperatures of -25°C and South Africa can expect this state of the art technology to arrive in Q4 2021.

The company began the introduction of li-ion batteries across its product range in 2010 amid much derision from competitors wedded to lead acid batteries. The much improved performance and advantages of li-ion powered machines soon had competitors developing their own lithium-ion powered machines, or retrofitting their own units with outsourced li-ion batteries

While all types of batteries show performance declines in cold temperature situations, Li-ion batteries capacity only declines by 10% at 0°C compared with 50% for the lead acid equivalent. Furthermore, lower temperatures experienced in typical cold stores can cause the electrolyte in lead acid batteries to freeze and crack the battery casing in prolonged usage in cold store environment.

This means that all trucks in this range whether manual, semi-automatic or fully automatic machines can perform successfully in low temperatures, in all racking configurations.

Jungheinrich engineers have been perfecting the technology since its inception and have overcome low temperature battery issues allowing its new EKX range of VNA (very narrow aisle) machines to perform at temperatures as low as -28°C – which covers virtually all cold store applications.

Low temperature operation machines include specially designed features including special steel construction, anti-stick-slip additives, low viscosity oils and purpose designed pumps, tanks and hydraulic equipment to cater for the environment. Operators are not forgotten either with cabin heaters and windscreen and window de-misters.

Multi-refrigerant, A2L-ready compressors

Complementing the new condensing units, the company's MTZ and NTZ commercial reciprocating compressors – for mid and low-temperature applications respectively – are now qualified for use with R454C and R455A refrigerants and come in a multi-refrigerant setup.

Waste Reduction

REDUCING waste is something that all companies should be striving to achieve and yet, more than 50% of global food loss and waste is comprised of commodities that can benefit from refrigeration. CRS has developed temperature monitoring systems that enable the end-user to be made aware of any breaches in temperature and subsequently determine a course of action that will prevent spoilage.

Only around 10% of perishable foods are refrigerated worldwide, yet refrigeration is the best technology, with no associated risks, to ensure food safety and prolong the shelf life of such goods. With access to a wide range of low-temperature refrigerated solutions, the shelf life of a wide range of products can be improved, assisting with the continuous problem retailers are facing regarding expiry dates and in-store waste.

Energy Efficiency

Many of our cold storage solutions have multiple cooling units and each of which is individually controlled.



The advantages of li-ion over lead acid batteries in lift truck applications, is well documented and includes:

- Lower mass
- Greater energy density provides extended shift times
- Lower charging times – typically 80 minutes from almost flat – full
- No electrolyte therefore no leakage problems, no dangerous gassing or freezing.
- Longer working life – Jungheinrich guarantee its batteries for five years suggesting replacement only after eight.

These advantages contribute to increased productivity, factory space saving as no battery bays are required as battery swapping is obsolete – li-ion powered trucks can complete up to three shifts with only 15 minutes charge intervals, from anywhere in the plant. In sub-zero conditions Jungheinrich's two shifts one charge battery operated forklift is ideal for longer shift hours. Flexible charging options are the key to productive cold store operations, whether changing takes place inside an ambient environment or outside.

Compared with conventional reach trucks the EKX machines are much narrower between 1 750mm and 2 100mm compared to 3m for a reach truck allowing greater storage density especially if specified with a 12,5m Stack and Retrieval capability

The new EKX Cold Store stacker when paired with optional warehouse navigation technology delivers the added benefit of sub-zero temperature protection when operating in cold storage facilities. Once integrated with Jungheinrich's RFID transponder technology, the EKX Cold Store navigates a storage facility with enhanced efficiency, directing the stacker to individual pallet locations with pinpoint accuracy. The management system relays all transport and picking orders directly to the truck terminal via radio data. This allows the truck to identify new target locations based on X, Y and Z coordinates and then helps it navigate to the new rack locations semi-automatically. Once the driver confirms the operation, the cabin's display indicates travel and lift directions as the truck approaches the correct position automatically, with millimetre precision.

For more information, contact Jungheinrich Tel: 010 596 8460 | www.jungheinrich.co.za or Email: Chad Short, National Sales Manager, chad.short@jungheinrich.co.za

Proportional valves and controller solutions

“A thorough understanding of the latest fluid power technologies is critical for the design of efficient and cost-effective hydraulic systems. Coupled with technical expertise, is the need for the selection of high-performance valves and controllers, which must be installed and supported by a team of hands-on specialists,” says Ryno Landman, Product Manager, Hydraulics, Fluid Technology High Pressure division, BMG. “BMG supplies a wide range of HydraForce electro-proportional valves which is suitable for use in many appli-

cations in agriculture, construction, materials handling, fluid conveyance, mining and quarrying.

“Hydraforce hydraulic cartridge valves and controls are subjected to rigorous field testing and are proven for dependable operation in heavy-duty conditions. Efficiency, response times and signal integrity are optimised using Pulse Width Modulation (PWM) digital signal logic.

“PWM works by pulsating DC current and varying the amount of time that each pulse stays ‘on’ to control the amount of current



Manifold block assemblies for proportionally controlled applications.

that flows to a device. PWM is digital, which means that it has two states - on and off. The main advantage of PWM is that power loss in the switching devices is negligible. When a switch is off,

there is virtually no current and when it is on and power is being transferred to the load, there is a minimal voltage drop across the switch.”

According to BMG Fluid Technology spe-

cialists - unlike directional control valves, which allows full flow when energised - proportional control directional valves control flow proportional to an electrical input signal. In pressure regulating/limiting valves this signal corresponds to a pressure setting.

Proportional valves provide a change in output pressure or flow in the same ratio as the change in the input signal. For example, a 4 – 20 mA input signal may correspond to a 50 – 200 bar pressure setting. If the input signal is 4 mA, then the output pressure setting will be

50bar. As it gradually increases to 20 mA, so too does the pressure setting increase to 200 bar. This feature offers machine cycles, which are safely operated at greater speeds, with controlled start and stop characteristics. Regulated acceleration and deceleration results in improved overall machine cycle times and enhanced production rates.

Hydraforce has compiled a quick-reference electronics guide, designed to assist with the selection of the best controller for every application. The easy-to-use configurator platform, HF-Impulse

is available from the HydraForce electronics portal (http://hydraforce.com/Literature/BUL_Electronic%20Products_10-2018.pdf).

User-defined parameters, which vary depending on the controller, include input type, bias for PWM or frequency inputs, signal errors, reverse mode triggers and reverse sequence parameters, as well as output scale breakpoints and output ramp up/down rates.

After setting operating parameters, users are able to easily monitor performance and for trouble shooting, there is a CAN interface.

Local expertise in crucial Nigerian pump repair project

BOSCH Rexroth Ghana recently completed repairs to contaminated HPU double pumps on the Framo Crude Oil Pumping System belonging to Shell Oil and Exploration in Nigeria. The hydraulically driven submerged cargo pumps are used to provide safe, efficient and flexible cargo handling of liquid cargo. This project was completed ahead of deadline and also provided a unique opportunity for Shell Nigeria to reduce its total cost of ownership, as well as improve maintenance turnaround times.

In January 2020, Shell Nigeria sought out repairs for nine of its HPU double pumps. They turned to Bosch Rexroth Ghana to carry out the repairs. In establishing a repair plan, the Bosch Rexroth Ghana team drew on the technical expertise of Bosch Rexroth South Africa, headed up by Repairs Manager, Ian Kidson, supported by workshop technicians Ronald Seller, Eugene Roos and Allan Page. The team proposed a total hydraulic investigation and inspection, which found that all of the pumps were contaminated.

Shell granted the order for repairs in July 2020, in the midst of South Africa’s lockdown. However, due to lockdown restrictions, the factories were not able to produce the required spare parts immediately. The Bosch Rexroth repair teams opted to carry out the repairs in stages, as spare parts became available, allowing them to complete the repairs within the stipulated project timelines.

In the interim, Shell continued its operations, using its two spare pump units. However, the required repairs were critical, as the pumps

were part of an asset which pumps crude oil from the oil production platform into floating vessels – essential to Shell’s operations. Bosch Rexroth prioritised the repair plan, to ensure that Shell’s operations would not be hampered.

Under the guidance of Kidson, the team also directed the repair work, which included de-assembly of the double pumps A4VSO; stripping and analysis; identification of faulty components and the compilation of a detailed inspection report. “Repairs were completed on the first four pump units in December, which was

sufficient in preventing any downtime to Shell’s operations,” explains Booth.

The remaining five pumps were repaired and re-certified in January 2021, with the project concluding on 28 January 2021 (30 days earlier than the expected completion date of 5 March). All commissioning was carried out by Bosch Rexroth SA personnel and Shell resumed its activities successfully, following the completion of the repairs.

The repair project is a huge success for the Bosch Rexroth West Africa team. “We are pleased to report that the pumps were

repaired and tested to OEM standard, ahead of the project deadline,” says Alex Booth, Bosch Rexroth Regional Manager: West Africa.

The repairs to the pumps carry a six-month warranty and are further supported by a proposed agreement between both parties – Shell and Bosch Rexroth – to continue working together.

For Bosch Rexroth Ghana’s workshop team, this project also proved a very successful training project. “We provided hands-on training on the stripping, quoting and rebuild process as well as the testing of the pumps,” says Booth.



Bosch Rexroth Ghana collaborated with the Bosch Rexroth South Africa repairs team, to carry out pump repairs for Shell Nigeria.



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New range of air compressors claims world leadership

THE new range of RVXi (Rotary Vane Xtreme) inverter-controlled compressors from Ing. Enea Mattei Spa claim efficiencies yet to be seen in the variable-speed compressed air industry.

Inverter adjusts speed according to usage.

Built specifically to meet the evolving demands of medium to large businesses in the industrial sector, the new range utilises the new Maestro XC controller, with a 10" touchscreen interface, remote control functions, internet connectivity; linking to company networks or using its built-in modem and real-time notifications via email in case of failure or malfunction: these are just some of the features unique to the new RVXi series.

"The new Xtreme Communications Technology is in-step with the times and increasingly focused towards Industry 4.0 and Cloud connectivity requirements" says Andrea Capoferri, Industrialisation Manager at Mattei and Project Manager for the RVXi range. "We have carefully analysed the needs of the market to deliver an effective and long-lasting response to the demands of industry." The first prototype of the new compressors was presented more than 12 months ago at the Hannover trade fair, but in recent months the company based in Vimodrone (Milan), carried out pre-production field testing. Capoferri explains: "We tested the machine on a production site in northern Italy to be sure of its effectiveness in

real-use conditions. We received excellent feedback right from the outset. After almost 12 months of data collection, we were able to further refine its functionality and now production has started".

Alongside the technological developments, Mattei has also focused research into sustainability and energy-savings, which has always been one of the founding principles of the Milanese company's philosophy. "Our compressors work with oil injection but, unlike our competitors, we use innovative patented 'Xtreme Injection Technology', to nebulise the oil allowing it to be injected more intelligently, bringing about significant energy savings" he said. An innovation Mattei pioneered has now taken another step forward with this lat-

est development: "We have added an inverter to the Xtreme technology" confirms Capoferri, "It adjusts the compressor rotation speed according to the actual usage, avoiding unnecessary energy waste to make our machines even more efficient across the 40% to 70% capacity range where inverter based control technology is universally deployed by compressor manufacturers".

"Also incorporated is an innovative, smart temperature regulation system called Xtreme Thermal Management Technology; to increase the efficiency of the compression process an oversized cooling system has been designed, managed by our Industry 4.0 ready Maestro XC controller, an electronic thermostatic valve and a variable speed fan, which work

symbiotically on the basis of actual oil temperatures, to optimise consumption and operating temperature".

Other improvements for the RVXi are the durability of the materials used and ease of maintenance, thanks to the presence of flange piping and fittings without the use of sealants, combining ease of maintenance and high reliability.

Another important focus was to be able to monitor compressor parameters in real-time, both via the Maestro XC touchscreen controller, as well as remotely via Mattei Cloud. This data can be used to plan advanced maintenance operations, reducing risk of failures while being comparable with Industry 4.0 trends.

For more information, contact www.rotorvane.co.za.

Mineral water packager saves energy with high pressure compressor

GERMAN mineral water packaging company, Schwarzwald-Sprudel, produces and uses its compressed air in a particularly efficient manner thanks to the compact Atlas Copco oil-free medium pressure compressor and high pressure piston booster combination (ZD high pressure compressor) with energy-saving VSD option.

The compressed air supply is based on three Atlas Copco ZR screw compressors, two of which are equipped with speed regulation (VSD - Variable Speed Drive), as well as two speed-regulated high-pressure oil-free air boosters. These components supply the two bottling lines with compressed

air. The scale of the system is illustrated by the fact that there is almost 1,000 kW of installed power even if the machines never all run at the same time.

An ES 130 energy-saving system controls the entire compressed air system in such a way that the compressors run as closely as possible to their optimum operating point, in particular the speed-regulated compressors.

Heat recovery forms part of a sustainable energy management strategy. The general idea is that the power absorbed by the compressor during compression is converted into heat. This heat can be almost entirely recovered and used for heating water.

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One stop shop for farmers

“THROUGH its Boer Slim/Smart Farming initiative, which was launched approximately eight years ago, BMG offers farming sustainability solutions that focus on effective food production, the correct use of suitable equipment for the specific task and the efficient application of advanced technologies,” explains Carlo Beukes, agricultural manager, BMG.

“BMG’s extensive range of engineering components, which conforms to all relevant quality assurance and specification certifications, is carefully selected for local farmers, to ensure optimum performance - even in tough operating conditions.”

A recent success in agricultural engineering for one of BMG’s key suppliers - Tsubaki - was solving the chain breakage problems on harvesters, as a result of excessive shock-loads in the field.

Tsubaki’s solution was to develop a heavy-duty reinforced roller chain to meet the high-volume capacity of agricultural machinery in tough operating conditions, with no risk of breakage during operation. The robust Tsubaki RS100HT chain for balers has a 25% higher maximum tensile strength, improved anti-shock performance and greater fatigue strength, when compared to chain manufactured by other companies.



BMG’s Tsubaki RS100HT chain for balers has a 25% higher maximum tensile strength, improved anti-shock performance and greater fatigue strength, when compared to other chain.

Almost 70% of global OEM baler manufacturers now choose the Tsubaki heavy-duty chain series as standard for installation in the main drive system. A further benefit is that heavy-duty Tsubaki chain can also prepare perfect bales, as these chains are suited to the high pre-tension settings required to allow easy storage and shaping of hay.

BMG’s new reinforced Fenner Triflex couplings are also new to the range. These durable couplings are designed to compensate for axial, radial and angular misalignment, even in arduous conditions. The high-quality elastomer elements, with reinforced cord inlays, provide effective dampening for torque peaks and shock loads, also absorbing start-up impacts. Rubber components, which provide additional support and protection, also reduce noise levels during operation.

Typical agricultural applications for this

range include pump systems, hydraulic drives, conveyor drivelines and wood cutting machines and shredder applications.

An important focus for BMG in agricultural technological advancements, is on the selection, installation and operation of the latest electromechanical systems - including Motoline solar inverters and electronic variable speed drives (VSDs), which are designed to improve efficiencies, reduce energy consumption and minimise maintenance requirements.

Other recently launched agricultural equipment includes slogging hammers and wheel sloggers, which are used to loosen and tighten bolts and nuts quickly and easily; BTC gearboxes, which have been specifically designed for packhouses.

Dual direction multi-purpose gearboxes, PTO clutches and components and specially designed heavy-duty coupler bearings are also new to the range.

Intelligent wash-and-clean solutions

INDUSTRIES in South Africa today need more than just a robust and powerful washing and cleaning solution; they need one which will support companies’ efforts to conserve energy and water while protecting the environment.

This is where Grundfos iSOLUTIONS can help ensure reliable, efficient and safe operations, according to Grant Cannon, sales engineer in industry water treatment at Grundfos South Africa. The conditions in which washing and cleaning pumps operate are often harsh, and can include humidity and high ambient temperatures. Many facilities also demand a compact physical design so that the pump and motor can be fitted into a cabinet or be mounted onto a cart to be moved

around the site to where it is needed.

“This means that the pump design must be small enough to fit into a confined space or allow easy mobility,” says Cannon. “We achieve this by using an oversize motor which runs at 6 000 r/min, allowing use of a smaller pump size.”

He highlights that if a similar pressure had to be required from a conventional pump, the pump itself would be about 1,2m in height. In Grundfos’s design, the pump height can be reduced to less than 400mm.

“In addition to delivering high pressure reliably and efficiently, our solutions are also intelligent so they can be easily integrated into an existing SCADA system,” he says. “The system is closely monitored, intelligently adapting



A Grundfos three pump booster set with cascade function; when flow varies across the plant the booster set can maintain constant pressure with varying flows depending on the wash and clean demand.

to changing production demands and reducing excessive energy use.”

This monitoring and optimising of performance saves energy, water and chemicals, while also generating the required operational data for the customer’s purposes.

The pump solutions are fully assembled and tested before delivery, so no on-site wir-

ing or programming is required. All that is needed is for the water and electricity supply to be connected, and the system is ready for action.

“The result is a compact and robust system that is customised to the application, saving the customer considerable installation and engineering time,” he says.

Networked beer tanks delight both landlords and breweries

IOT - The Internet of Things starts with a sensor



Application Keller Beer Tanks.

The Internet of Things (IoT) offers “smart” solutions that help make life easier and more convenient, improve and streamline processes, and receive information in good time that was previously unavailable or difficult to acquire. Smart solutions are highly personalised but always begin with an

object and a sensor. A level measurement with a remote transmitter is not just highly practical for detecting hazards but also for other level and fill level applications. Take pubs, for instance, where an emptying beer tank could be equally dangerous. In this application, two pressure sensors work at

the heart of the solution to measure the level of liquid in the tank and to send a warning message to the brewery by e-mail via the GSM-2* remote transmitter, the mobile phone network, and the Internet. The brewery sends an automatic order proposal to the landlord, who simply has to confirm the order.

This automated, “smart” M2M (machine-to-machine) solution reduces stress for landlords and saves brewery drivers from profitless emergency weekend deliveries. Inaccurate order entries are now a thing of the past, shipping can be optimised and landlords have a continuous supply of fresh beer. Crisis averted.



Accurate down to the smallest grain.

Radar for reliable levels in bulk solids applications

From simple to challenging: With radar technology that is highly robust, flexible and economical all at the same time, VEGA is putting things on track to ensure more reliable and efficient production processes involving bulk solids.

Due to our decades of experience we understand the requirements of the industry quite well. That’s why VEGAPULS level sensors are able to deliver exact measured values even when conditions get extreme because of dust, noise or buildup. And why they are also ideal for simple applications where efficiency, and economy in particular, are required.

Drillers see positive signs in rig markets

MARKET prospects continue to improve for Maersk Drilling's rig fleet, according to the company's latest results statement.

Market prospects continue to improve for Maersk Drilling's rig fleet, according to the company's latest results statement.

During 1Q 2021, there was increased activity in the North Sea jackup sector, with average demand for 23 rigs, up from 20 in 4Q 2020. The average marketed supply remained unchanged at 37 rigs.

At the end of 1Q, the one-year forward contract coverage for North Sea jackups had risen to 43%, up from 34% in 4Q 2020, suggesting that an increasing share of the available jackup capacity in the North Sea is contracted for the



The drillship West Tellus. Photo courtesy of Seadrill.

next 12 months.

In the Norwegian sub-segment, however, demand looks set to remain relatively flat

in 2021, with few tendered opportunities for commencement in 2022. But the long-term outlook for the

Norwegian jackup market remains stable with a substantial pipeline of subsea development projects in prospect in

shallow waters.

As for the global floating rig market, average demand rose in 1Q to 105 rigs, while the aver-

age marketed supply fell slightly to 166 rigs, an average marketed utilization of 63%.

Demand for floaters should rise further toward 2022, but still with excess capacity holding back the pace of the recovery. And although some floaters were scrapped in 1Q 2021, more rationalizations will be needed to achieve a more favourable market balance, the company concluded.

Seadrill also issued an update on the status of its global rig fleet.

The drillship West Tellus is contracted for two wells, intervention work plus two optional wells with Shell Brazil in direct continuation of the rig's contract with Petrobras.

In Norway, Equinor exercised options for the semisubmers-

ible West Hercules, and the same company awarded the drillship West Saturn a four-year firm contract, with four one-year options, for a program off Brazil that is due to start in April 2022.

The drillship West Neptune has started a one-well contract with Talos, and the same rig will then transfer to Kosmos Energy for another well.

Seadrill claims that its total backlog of work, at \$2.1 billion, is one of the highest in the drilling market, with rigs contracted to work across all the world's major oil and gas basins, and 13 rigs in operation globally, including in the Middle East, Americas, and Norway.

Reprinted from <https://www.offshore-mag.com/rigs-vessels/>

Mozambique has a new challenge – terrorism

By Jineane Le Roux
from Nikham Offshore

MOZAMBIQUE is no stranger to political instability. The three-year insurgency in Cabo Delgado province has to date killed more than 2,600 people and displaced an estimated 670,000. These are the sobering statistics released by the UN. The attacks are espe-

cially directed at disrupting the investments in oil and gas projects in Mozambique and terrorising the population. The attack on Palma was specifically aimed at undermining the \$23bn game changing Mozambique LNG project led by Total.

As the largest Foreign Direct Investment on the African continent, the Mozambique LNG project

positions Mozambique to become the third largest gas exporter globally by 2045. It is expected to double Mozambique's GDP by 2035, underscoring the transformational impact of this project on the country, its citizens and neighbouring states. It will fundamentally recast the fortunes of Mozambique from one of the poorest countries in the world

to possibly a middle-income country.

Uncertainty maybe a long-term problem

Sasol announced that it would proceed with plans to supply gas to a 450-megawatt (MW) power plant in Mozambique, along with a liquid natural gas plant, with surplus feedstock being exported to South Africa. The project is

expected to cost \$760 million and commence supplies in 2024. This will enable South Africa to wean itself off coal as a source of power and will contribute to reducing the country's carbon footprint.

However, with the latest terror attacks, project delays and security concerns will add to costs. Few companies are going to send staff back into areas that have suffered such intense casualties.

The areas have already attracted more than \$50 billion worth of investment commitments from consortia led by major international oil companies such as Total, Italy's Eni, and US-based ExxonMobil. Total and its partners have already invested heavily in an onshore base and liquefied natural gas (LNG) plant on the Afungi Peninsula.

The government has pledged to work with



Total to establish a safe zone around the gas complex on the Afungi Peninsula. However, the fact that the attacks on Palma occurred inside the perimeter of the designated zone suggests far more will have to be done to cord off the area.

Bigger plans in jeopardy

The Mozambican gas complex, which is just

a few kilometres from Palma, will support upstream development work at the offshore block known as Area 1.

If the project is prevented from being completed, Total will have a hard time proceeding with its \$20 billion Mozambique LNG project — and Eni and ExxonMobil will have a hard time following suit with their own South Coral LNG and Rovuma LNG projects.

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Total produces first oil from Zinia 2 tieback offshore Angola

Total has started production from the Zinia Phase 2 short-cycle project in block 17 offshore Angola.

TOTAL has started production from the Zinia Phase 2 short-cycle project in block 17 offshore Angola.

The development included drilling of nine wells for tieback to the FPSO Pazflor, and should deliver 40,000 b/d of oil by mid-2022.

Facilities are in water depths ranging from 600-1,200 m, 150 km offshore. Total estimates recoverable Zinia Phase 2 resources at 65 MMbbl.

Development was completed within the schedule, despite issues associated with the

pandemic, with final capex more than 10% below budget.

Other partners in the block are Equinor, ExxonMobil, bp, and Sonangol P&P.

Reprinted from *Offshore magazine*: www.offshore-mag.com

Maersk Drilling divesting jack-ups

MAERSK Drilling has sold the jack-up rig Maersk Guardian (now named Guardian) to New Fortress Energy, and the parties have further entered into an agreement about the sale of the jack-up rig Mærsk Gallant with anticipated closing in June 2021. The total sales price for the two rigs is USD 31m in all-cash transactions.

The new owner will use the rigs for non-drilling purposes as

part of their planned Fast LNG project.

“These transactions will contribute to the necessary rationalisation of the global drilling rig fleet and they are further in line with Maersk Drilling’s strategic priority of maintaining a fleet of modern, high-quality assets. We’re also pleased that the rigs will be re-purposed and deployed by New Fortress Energy for a project which focuses on providing

low-carbon affordable energy,” says CEO Jørn Madsen of Maersk Drilling.

Guardian is an ultra-harsh environment jack-up rig which has previously been converted into an accommodation unit. It was delivered in 1986 and has been warm-stacked in Esbjerg, Denmark after ending its latest contract offshore Denmark in 2020.

Mærsk Gallant is an ultra-harsh environ-

ment jack-up rig that was delivered in 1993. It is currently cold-stacked in Dundee, UK after ending its latest contract offshore the UK in 2017.

After both transactions are closed, Maersk Drilling’s fleet will count 12 jack-up rigs, of which 11 are suited for operations in harsh environments, and eight floaters.

The transactions do not change Maersk Drilling’s financial guidance for 2021.



The quick lifting ring – QL.DSR

THE QLR (Quick Lift Ring) or QL.DSR is a double swivel ring that allows particularly fast anchoring. At the push of a button, it can be fixed in the threaded hole in a matter of seconds. Its double swivel ensures a perfect alignment with the sling.

The QL.DSR saves up to 80 % of the user’s time compared

to screwing in a conventional lifting ring. The system works purely mechanically and thus requires no complex maintenance.

This swivel lifting ring is made of GRADUP steel, which ensures better quality raw materials used in the manufacturing process. The QL.DSR has higher lifting capacities than standard eye bolts



and has a safety factor of 5:1, which means that its breaking load is five

times greater than the capacity indicated in the technical data sheet.

“CODIPRO’s design office is constantly working on

the development of new, customized lifting rings,” explains Nick Raubenheimer, Johannesburg Branch Manager.

“This is how the Quick Lift ring with all its advantages, was developed and this ensures Anchor is able to provide customers with the latest products

to suit their exacting requirements.”

CODIPRO is ISO 14001, ISO 9001 and ISO 27001 certified in order to comply with the most important safety standards and Anchor Industries is ISO 9001 QMS certified, a registered LME and a Level 1 BBBEE company.

Transocean deploys patented HaloGuardSM drill floor technology

TRANSOCEAN Ltd. has announced the successful deployment of HaloGuardSM, the offshore drilling industry’s first safety system that integrates a wearable locating device with drill floor equipment and machine stoppage controls.

The HaloGuardSM system combines a wearable alarm and a real time location transmitter together with a machine vision system that is designed to track the position of personnel on the drill floor and key drill floor equipment while operating. When a crew member comes within certain proximity of moving equipment, he or she is notified by an alarm through the wearable device. In the event the crew member remains in close proximity of the moving equipment, the system will stop the equipment from moving until the crew member returns to a safer, more distant position. By enabling machines with the technology to track, sense and, if needed, stop operations, HaloGuardSM provides an advanced layer of individual protection on

the drill floor.

“We are extremely proud of our efforts to provide our crews with additional tools and resources to complement our industry-leading training and safety programs,” said Transocean President and CEO Jeremy Thigpen. “This deployment once again showcases Transocean’s ability to develop and advance innovation within offshore drilling. We believe HaloGuardSM will be a differentiating safety system that others will want to utilize within our industry and potentially within other industries as well.”

Transocean’s patented HaloGuardSM methodology and technology were developed with the assistance of Houston Mechatronics Inc. and Salunda Limited, and incorporate Salunda’s patented CrewHawk® real-time location technology. The HaloGuardSM system is now operational on the *Deepwater Conqueror*, which is working in the Gulf of Mexico. Transocean plans to deploy the technology on six additional rigs by the end of 2021.

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EPR is here. Have you joined a producer responsibility organisation yet?

AS of 5 May 2021, extended producer responsibility (EPR) is now compulsory for all producers and importers of identified products. The recently promulgated and amended regulations under Section 18 of the National Environmental Man-

agement: Waste Act requires companies to take practical and financial responsibility for the end-of-life of any product they put on to the South African market.

The purpose behind these regulations is three-fold:

- to provide the framework for the development, implementation, monitoring and evaluation of extended producer responsibility schemes by producers in terms of section 18 of the Act;
- to ensure the effective and efficient management of the identified product at the end of its life; and
- to encourage and enable the implementation of the circular economy initiatives.

“EPR will therefore change how producers,

brand owners, retailers and importers design, make, sell and keep their products in the recycling loop as far as practically possible,” says Francois Marais, general manager of Fibre Circle, the producer responsibility organisation (PRO) for the paper and paper

packaging sector.

The paper products included in the new regulations are newspapers, magazines, office papers, corrugated cases and kraft paper, liquid board packaging (beverage cartons and cups), label backing paper

and paper sacks. Each of these categories has been set yearly collection and recycling targets for the next five years.

“For many years, the recovery and recycling of paper and paper packaging has been voluntary and largely industry-driven, through strategic recovery initiatives, school recycling programmes and awareness campaigns,” says Marais, adding that South Africa has averaged an annual paper recovery rate of 71% over the past four years.

Any South African company or brand that makes or imports paper, packaging and some single use products for distribution is required to pay an EPR fee per sales ton of product.

The regulations also make the producer or group of producers responsible for the establishment of an EPR scheme, the development and implementation of an EPR plan and compliance against each product’s targets for recovery and recycling.

Marais adds that while the new EPR legislation allows for producers to establish their own EPR scheme, it is more sensible to join an existing scheme that has been established by a recognised and registered producer responsibility organisation. “We advise companies and brand owners against going it alone as this could become more onerous and costly.”

“By joining an EPR scheme under a PRO such as Fibre Circle, your interests can be collectively represented, while helping member companies in similar product classes to identify shared constraints and opportunities for collaboration and optimisation among member companies, municipalities, other PROs and the informal sector.”

“EPR will see an investment in collection infrastructure, not only providing consumers with more convenient recycling facilities, but also a concerted recovery effort at the pre-consumer or post-industrial phase. Intensive consumer awareness campaigns will also help to drive behaviour change,” he adds.

Since early 2019, the majority of paper and paper packaging manufacturers have paid voluntary EPR fees to Fibre Circle. “We are making our circle bigger to reduce the burden on the environment, take responsibility for our products and support a thriving circular economy,” Marais concludes.



Make the circle bigger...

Effective Extended Producer Responsibility requires collective thinking and collaborative effort.

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Fibre Circle is the producer responsibility organisation for the paper and paper packaging sector.

EWASA tackles e-waste problem

IMPENDING, but far from complete EPR (Extended Producer Responsibility) legislation is due to be implemented with compulsory registration of affected parties by 04 November this year, and that includes the electronics sector.

More complete details of how the legislation is expected to work and the registration procedures were covered in the April edition of CBN but this article focuses on the electronics sector with input from EWASA CEO, Keith Anderson.

“EWASA has been in existence since in 2008 to manage the establishment of a sustainable environmentally sound e-waste management system for the country.

Since then, the non-profit organisation has been working with manufacturers, vendors and distributors of electronic and electrical goods and e-waste handlers (including refurbishers, dismantlers and recyclers) to manage e-waste effectively.

With support from the Global Knowledge Partnerships in e-Waste Recycling programme, initiated by the Swiss State Secretariat for Economic Affairs (SECO) and implemented by the Federal Laboratories for Materials Testing and Research (EMPA), several projects were initiated successfully in three South African provinces (KwaZulu-Natal, Western Cape and Gauteng) as early as 2004” explained Anderson.

He conservatively estimates that there are between 4 000 – 6 000 producers that need to register and comply with the new legislation. His best guess is that SA imports around 350 000 tons of all types of electronic goods each year, most with a life expectancy of between 3 – 5 years and only between 6 – 12% is currently recycled, the rest ends up in the landfill, and that he said, will be illegal after the November deadline.

“You can see the magnitude of the prob-

lem and why the legislation is needed. Another estimate – each person in SA contributes 6 kg of electronic waste to the waste stream, every year, and it’s growing rapidly as smart phones get smarter and more and more devices and appliances incorporate electronic components.

“EPR legislation is present in many countries around the world as it’s a given that the disposal problem is universal, but it is not the silver bullet. Most countries with this legislation have experienced complex problems with its interpretation and implementation, even those who established regulation decades ago are still modifying and updating to meet society’s goals.

“What we can hope for is that the implementing agency, the Department of Forestry and Fisheries & Environment, (DFFE), don’t try to reinvent the wheel, rather cherry pick the best and most practical tried and tested elements of other coun-

tries efforts and modify them to suit our local conditions.

“The issues are complex enough as they stand. For example, small electronic devices – smartphones for example, are pre-packaged in the country of origin, and our legislation requires the amounts of different types of packaging materials to be stated by the local vendor or brand owner in order to comply with regulations. That could mean identifying quantities of cardboard, polystyrene, PVC or low-density polyethylene in each packaged device! We don’t want to be swamped in red tape and I’m sure the experts in the DFFE don’t either.”

On a more practical level, EWASA has identified more than 1 000 collection points around the country where the public can take their defunct electronic devices to be recycled and valuable materials extracted and on-sold to specialist companies. Negotiations are currently



Picture credit Tehran Times

underway with municipalities and SALGA (South African Local Government Association) as to the role local government can play in establishing collection points, probably at landfill sites, where SMME’s can be involved in the recycling chain.

Quoting the old adage that a chain is only as strong as its weakest link, Anderson foresees a lengthy period of public education to create the necessary awareness not

only to ensure the public are responsible and responsive to the legal aspects of safe disposal but also the opportunities that can be created for small and medium enterprises in the recycling chain.

“We are already seeing moves by major retailers to offer defunct TV’s phones, computers, large appliances, batteries etc. at selected stores. It may be that these majors will form their

own PRO – Producer Responsibility Organisation or join others to minimise the level of administration relating to the paperwork and fees that have to be submitted to the DFFE and Treasury.

“EWASA currently has approximately 200 members across the value chain and is encouraging more to join the association to become aware of the ‘big picture’ through regular newsletters and targeted communications” he concluded.

Deriving energy from waste

OVERVIEWING innovations in the waste-to-energy space, Kate Stubbs, Marketing Director at Interwaste explains the many unutilised opportunities for alternative energy creation – the easiest lying in our ability to reuse and repurpose mounting waste to help with the much-needed energy supply. “Many businesses are already moving towards a zero waste to landfill target and examining ways in which they can effectively repurpose through the development of some of the most advanced technology to ensure waste-to-energy can be realised.”

Refuse Derived Fuel (RDF) was pioneered by Interwaste locally. “We have been successful in taking a solid fuel source, which is recovered through the shredding and bailing of certain pre-sorted dry industrial non-recyclable waste – and creating a fuel source that is similar to A-grade coal. This represents a strong alternative to fossil fuel use. This alternative fuel can be used within sole/co-feeding plants and even replace conventional fuels such as coal in production plants for power, steam and heat generation or



any other suitable combustion installations,” says Stubbs.

She explains that the ‘Circular Economy’ model offers opportunities to deliver sustainable and inclusive economic growth, combining job opportunities with positive environmental practices. “By stripping out all unnecessary waste materials, reducing the consumption of energy and raw materials and allowing these materials, energy, and resources to be ‘fed’ back into the cycle, I believe there is an opportunity here for companies to optimise their own waste streams for use in other industries.”

Fully aligned with addressing the energy

crisis is the journey by KFC South Africa to eliminate non-recoverable or non-reusable plastic-based packaging by 2025.

Siya Ngcukana, Chief Supply Chain Officer at KFC Africa says that the brand is fully conscious of its impact on the environment and remains committed to ensuring that all-natural resources are managed responsibly throughout the end-to-end supply chain. Our recent switch from plastic straws & stirrers to paper straws and wooden stirrers, resulted in a reduction of approximately 70 tons of non-degradable plastic annually – about 65 million straws and 4 million stirrers.

“Together with supply

partners in our distribution, we are exploring converting used cooking oil from our restaurants into biodiesel to enable partial fuel replacement. This would reduce our demand for normal diesel and the associated carbon foot-print.”

“The industry is focused on the next generation of supply chains resulting from opportunities presented by new energy-efficient technologies and heightened customer requirements.”

“A key supply chain innovation in which the QSR industry can further reduce energy consumption and carbon emissions is by being Proudly South African – where majority of suppliers they make use of are local businesses. This can have a beneficial impact on energy consumption and transport-derived carbon emissions. To this end, a large portion of our consumer facing packaging portfolio makes use of a local recycled board, which is key in our sustainability efforts,” adds Ngcukana.

As technology and innovation increases, many more opportunities will undoubtedly be unlocked to combat the energy challenges faced in South Africa.

Plastic waste - a benefit for developing countries?

FOR decades, wealthy nations have transported plastic trash, and the environmental problems that go with it, to poorer countries, but researchers have found a potential bright side to this seemingly unequal trade: plastic waste may provide an economic boon for the lower-income countries.

In a study published in the Journal of World Systems Research, Yikang Bai of Washington State University and Jennifer Givens of Utah State University analysed 11 years of data on the global plastics trade against economic measures for 85 countries.

“Our study offers a nuanced understanding of the global trade in plastic waste,” said Bai, a recent WSU Ph.D. graduate and lead author on the study. “Media coverage often has a narrative that developed countries shift environmental harms to less developed countries. There’s another layer of the story: plastic waste could be used as a resource first, even though ultimately it could still add to the environmental burdens of less-developed countries.”

This study only indi-

cates that some plastic waste is being purchased and repurposed before being thrown away.

For the study, Bai and Givens analysed data from the United Nations and the World Bank looking at several economic variables as well as trade information on common plastic wastes such as polyethylene and polystyrene, also known as #1 and #2 plastics respectively. They analysed data on 45 high-income countries mostly found in the Global North, including European countries and the United States -- and 40 lower income countries which are mostly found in the Global South such as Botswana, El Salvador and Vietnam.

The data ranged from 2003 to 2013, allowing the researchers to conduct a longitudinal analysis -- showing change over time -- which can reveal a strong connection among the measures. While they found an association between economic benefits and plastic waste imports in the lower income countries, for the high-income countries there was no association

between importing waste and economic growth.

While the study did not assess exactly how the plastic waste was being used in the developing countries, the authors note that it is likely they are recycling some of the plastic for use in industry and manufacturing. There was also some evidence that the lower-income countries were trading the plastic waste among themselves regionally.

“Most plastic doesn’t get recycled -- that’s important to keep in mind,” said Givens, a USU assistant professor of sociology. “A lot of plastic waste ends up in landfills or in the environment, so maybe it’s a silver-lining that importing plastic waste is associated with economic development in developing countries. At least they are recycling some of it and not using virgin materials because plastics are made from fossil fuel chemicals.”

Story Source: Washington State University. Original written by Sara Zaskie. Note: Content has been edited for length.

Banking giant opens Aladdin's Cave for all

ADVANCES in AI, internet technology and the rise of the smartphone are having a fundamental effect on business and how we conduct and interact with these businesses.

There are virtually (!) no traditional businesses left and non-more so than in the banking sector, where the widespread adoption of 'tech' has led banks to exploit their traditional data – i.e. customer demographics, geographical positioning, spread of commercial activities – by offering through in-house expertise and technology partners, a wide range of convenient services to their client base and beyond.

SA's banking sector is internationally recognised as being innovative and many could argue that it places our banking sector ahead, some say, way ahead of banks in Europe and North America.

At his recent presentation at the AfriTech



Bradwin Roper.

Week webinar, FNB Connect CEO Bradwin Roper detailed this transition and trends both internationally and in the FNB environment.

"An in-house technical competence and partnerships with telco's and other tech

firms has allowed us to develop multiple 'platforms' that have not only revolutionised the banking experience with a basket of innovative products, but has allowed expansion into the areas of lifestyle, gaming, entertainment and even through digiti-

sation, integrating with government databases such as Home Affairs, providing the consumer with easy access to these portals from a single source.

Opening the Aladdin's Cave of interactive platforms, relies on four fundamentals – access to the internet, affordability – mobile tariffs and handset price, consumer readiness and content and services.

"In many ways our Connect service is an on-line retail store where vouchers can be purchased and are redeemable across a wide range of retailers in food, transportation, gaming and other entertainment allowing flexible payment options for the purchase of say, airtime.

"In line with FirstRand's group philosophy of shared value, Connect services aim to make life better, regarding internet connectivity, which aligns to the United Nations Sustainability goals have taken

steps to address affordability and devise availability to the majority of South Africans.

"In our region of sub-Saharan Africa the cost of 1GB of data measured by the percentage of monthly GDP per capita, is the highest in the world at around 4,2% (2019) compared with say Europe at 0,8%. The UN's Sustainable Development Goals (SDGs) in September 2015, set an affordability target of 2% and during 2020, FirstRand via a mobile virtual network operator (MVNO) agreement with CellC were able to slash data costs to R59/1GB which at 1,41% is even lower than the UN's SDG making our tariff more affordable to more people.

"In order to address handset affordability, we currently have a variety of affordable device offers running over 24 months and will be launching exciting new offers before the end of 2021" he concluded.

US politicization of tech supply chains is both risky and costly

IN 2019, the Trump administration unleashed its "tech war" on China, with the goal of blocking China's development in high tech sectors by preventing targeted companies from procuring components manufactured in the United States.

As the White House ramped up its hostility toward Beijing, it intensified its measures. The most notable target was the Chinese telecommunications firm Huawei, which was first placed on the commerce department's "entity list" putting it under export controls. Later, it was also subjected to the "foreign direct product rule," which unilaterally banned overseas companies who use U.S. patents in their own semiconductor production from supplying the company.

Even though President Joe Biden has since taken office, he has yet to reverse these decisions. Instead, he has pressed on in the mould of an "America First" policy when it comes to semiconductors with the goal of consolidating a U.S. monopoly of the industry and controlling "technologies of the future."

What have been the consequences of these decisions? In fact, they have had adverse effects for America and the world at large.

The aggressive politicization of the semiconductor sector against the world's second largest economy is disrupting a global supply chain, reversing globalization and creating an effect of "localization."

China has massively boosted its investment in semiconductor capabilities on a whole-of-society scale, while America has created political risks for tech firms who rely on their supplies. On an organizational level, firms have been bulk buying semiconductor and lithography manufacturing equipment from the Netherlands, Japan and South Korea, as well as panic buying semiconductors to hedge against potential future restrictions. Companies are losing confidence in traditional suppliers.

This uncertainty has created a global shortage in semiconductors, which is causing risks to the global economy. The shortage has created delays in the manufacturing and supply of electronic consumer goods and automobiles, which has forced many factories around the world to postpone production and furlough workers. For example, Nissan's

Sunderland factory in the U.K. was forced to slow production for three weeks due to a lack of semiconductors. Another consequence has been growing inflation, which undoubtedly contributed to the unexpected surge in the U.S. consumer price index, which jittered global markets last week.

These adverse outcomes show that weaponizing technology supply chains against China will not make America better off. Localized supply chains are more expensive and will cost the U.S. considerable market share as Beijing develops its own industry. This year, China will commence production of 7-nanometer nodes and quickly cede dependency on lower nodes, with Semiconductor Manufacturing International Corporation (SMIC) investing in a \$2.35 billion chip foundry in Shenzhen set to produce 28-nm integrated circuits. This has allowed companies such as Huawei to continue developing their 5G networks despite U.S. sanctions.

In China, government investment in the sector has already amounted to \$150 billion, while earmarked investment for the 14th Five-Year Plan period (2021-25) extends to \$1 trillion. While this is seen as a political necessity, few disagree that an open-ended global industry remains preferential. Leading foreign semiconductor companies still seek to compete within the Chinese semiconductor market due to its growing economy and surging demand, showing the dangers of upheaving this market.

In this case, it is worth noting that one thing is certain when it comes to current U.S. policy: Weaponizing semiconductors creates a "lose-lose" situation, carving up a global industry into localized spheres, creating a fractured market and raising prices. That being said, it will still not block China's technological advances.

For all involved, it is a costly and unpredictable path with knock on effects all the way down to the ordinary consumer.

By Tom Fowdy, a British political and international relations analyst and a graduate of Durham and Oxford universities. He writes on topics pertaining to China, the DPRK, Britain and the U.S. For more information please visit: <http://www.china.org.cn/opinion/TomFowdy.htm>

The requisite for Africa's growth: digital connectivity

As part of its Connectivity Series, TechAfrica News founder, Akim Benamara, speaks about the importance of Digital Connectivity for Africa's Growth.



AFRICA has been at somewhat of a disadvantage when it comes to digital development and connectivity. According to a report by the International Financial Corporation, only 22% of the continent has access to a basic internet connection. With a population of almost 1.8 billion people, the rarity of digital communication and the internet is cause for alarm.

This particular lack of digital connectivity is taking away much more intrinsic services than Netflix and Social Media. This disconnect includes the inability to access essential services such as e-commerce, digital education (e-learning), etc. What the rest of the world seems to be

taking for granted, parts of the African population struggle for it.

Connectivity thus is one of the most important aspects in helping the underserved African population get the essential services that they have been missing out on.

Even after the presence of several companies offering their services that can help bridge the technological divide, regions in Africa are yet to reap the benefits of digital connectivity. And the primary reason for that is 'cost.' While there is sufficient demand for internet services in urban areas, it becomes feasible to establish setups for internet connections vis-a-vis fibre optic cables; the prob-

lem is a lack of demand for internet services in rural areas. According to the latest data provided by the World Bank, 59% of the sub-Saharan population is still rural; thus, there is no demand for the internet and digital connectivity. This severe lack of demand has led to a stark increase in the prices of internet services in Africa since the cost per user increases dramatically. According to a report by Alliance for Affordable Internet, Africans pay an average of 8.8% of their monthly income for 1GB of internet access. This is a relatively higher percentage since the population in Latin America pays 3.6%, and Asians pay 1.5% of their monthly income for 1GB of data.

The situation becomes even direr when we see South Africa, wherein some regions people are paying as high as 20% of their monthly income for 1GB of data. This statistic makes South Africa the region which pays the highest for digital and internet connectivity in the five largest African economies.

This situation highlights two immediate concerns: how to get stable connectivity to the semi-urban and rural populations and how to make it affordable and efficient.

This is to ensure that the underserved population is not devoid of general connectivity with the world when it comes to information and news. Along with that, the pandemic eventually made us realize the need for digital means of education and the importance of e-commerce. Thus, the availability of stable and affordable internet is an urgent requirement for the disadvantaged African population. This is a matter that needs to be dealt with utmost importance and urgency.

Connectivity Series:

The Key to Growth in Africa

In an attempt to foster digital connectivity and bring key changes to the lives of the African population with more affordable internet and bringing a tangible change by enabling connectivity through better management, fixed lines, especially in the semi-urban and the rural areas, TechAfrica News is bringing in the "Connectivity – The Key For Growth in Africa". This Connectivity Series will entail a series of specialized talks, virtual panels, video interviews, articles, and opinion pieces. They will essentially highlight the connectivity challenges that foster innovation, creativity, and opportunities related to a lack of digital connectivity and basic internet access in Africa. The series will aim to foster and enable better opportunities for growth through digital connectivity throughout the underserved regions of the continent.

Reprinted from Tech Africa News bulletin 18 May 2021. Visit www.techafricannews.com

How technology is driving farmer profits in the right direction

By Antois van der Westhuizen, Managing Director at John Deere Financial.

“THE natural thought process would be to produce more to earn more,” says Antois van der Westhuizen, Managing Director at John Deere Financial. “Unfortunately, this is not a statement that can be made lightly, as most farmers are very dependent on weather and rain.

Technology however, like the new John Deere See and Spray™ Select utilises technology to only spray directly on weeds, reducing the amount of spray used. “If only 25% of herbicide is used, costs will be cut but still result in

the same yield,” says Antois. “Suddenly, the price squeeze for farmers decreases. They’re getting the same outputs, at a much lower cost, and increasing their margins.”

Technology can be utilised to assist in weather forecasting, and more accurately determine when best to apply fertiliser and chemicals, further improving Rands per plant profitability.

Product quality can also be enhanced by using technology - for example, the picking and packaging process is essential for A-grade products destined for export markets. Using the right technology allows farmers to manage the process, minimising potential damage and ensuring only



the best quality product reaches the market that will fetch better prices.

Sustainable farming might have an ecological cost to consider as well, but keeping the

soil in a good condition should form part of a farmer’s long-term strategy. Technology can assist with lowering use of fertilisers and pesticides, resulting in a better qual-

ity product, better soil conditions and a greener brand.

Furthermore, technology is shaping the way we can help farmers manage the way they apply for finance

better. “Financing today allows farmers to determine which cash flow cycle they are in,” says Antois, “which is then linked to the repayment plan. Today’s financing products are much more adaptive to the needs of the farmer.”

The way credit scoring has evolved has also been driven by technological advancements. “With credit bureaus now providing credit scores and credit histories, we are able to provide finance a lot faster than in the past,” says Antois. “The advantage of this is quicker and easier decision-making for farmers.”

“Technology cuts down the decision-making time substantially as credit pro-

cesses are all done electronically,” says Antois. “The visibility for customers has also improved as real-time updates are now available on the progress and status of their application.”

“We’ve come a long way from farmers planting and hoping for the best outcome, without knowing what the result will be,” concludes Antois. “Today, with the help of technology and how it’s applied, you can manage your costs, get your production to the best level possible, and finance the entire operation in a very efficient and effective way. The only uncontrolled variable remains nature – but at least technology can still give you a heads up.”

Absa and The Digital Academy help to address the need for critical digital skills

ABSA Group continues to show its commitment to addressing critical skills development as was demonstrated during the annual Digital Academy Showcase event.

The Digital Academy has, since 2015, equipped over 400 students with critical digital skills as participants work in simulated software development environments designed to encourage digital product innovation to meet business and industry demand. One of the initiative’s key aims is to build a workforce for the future, and students undergo training in full-stack software development.

The comprehensive training, targeted at the youth and often unemployed, is based on a shared vision of impactful digital skills and resources to build Absa’s modern technology architecture, powering the bank’s digital transformation. As part of The Digital Academy learnership programme, students are required to design solutions for everyday problems. The annual Showcase event provides students with the opportunity to demonstrate their work.

Since inception of the initiative in 2015 with The Digital Academy, 440 students have been trained, with 225 (51%) placed within Absa for six months of work-

place exposure. Absa currently has 120 Digital Academy graduates working in its digital, innovation and technology function. Seventy-eight of these graduates have been placed in permanent posts; 30 are on fixed-term contracts; and, 12 graduates are currently with the bank on a learnership basis.

This year, The Digital Academy will embark on two new Unemployed Learnership programmes:

- Unemployed Learnership programme with a total intake of 40 learners
- Unemployed PWD (People Living with disabilities) Learnership with 15 learners

Unemployed Learnership programmes will result in a qualification in systems support learnership at NQF5 level.

Absa Group Chief Information Officer Wilhelm Krige said: “Embracing digital skills remains critically important as we consider our capabilities to adapt quickly to change. At Absa, we believe in investing in people who have not had the opportunity otherwise to be a part of this digital revolution, which has accelerated rapidly because of the global pandemic.”

According to the Quarterly Labour Force Survey (QLFS),



Wilhelm Krige, Absa Group Chief Information Officer.

for the fourth quarter of 2020, South Africa’s unemployment rate increased to 32.5%. Furthermore, the unemployment rate among youth aged 15-24 stood at a staggering 63.2%, while for the age group 25-34, the rate was 41.2%.

Gary Bannatyne, The Digital Academy founder, said the collaboration with Absa is vital in helping to address the challenges faced by unemployed youth. “Through The Digital Academy, we can empower young South Africans with economically desirable and sustainable skills so that they have the tools to improve their circumstances.”

Each year, The Digital Academy hosts two intakes of 20 students, who undergo training for six months. The only prerequisite for joining the programme is for students to have completed Matric, to

have a foundation in coding, and a passion for technology.

Skills taught at The Digital Academy

The Digital Academy is a demand-led programme that bases ‘job readiness’ on the skills required to perform value-adding work for Absa. Aside from the foundation learnership skills, the collaboration with Absa sees learners undergo comprehensive training in:

- Full stack development (creating and understanding how a full application works)
- Aside to agile development and soft skills, the development consists of: Frontend Development (HTML/JavaScript/Typescript/Angular/React)
- Backend Development (Java/NodeJS/C#/Microservices/MQ)
- Database Development (PostgreSQL, MongoDB, Redis)
- Containerisation and Orchestration (Docker, Docker Compose, Kubernetes, Ansible)
- CI/CD (Jenkins, TeamCity)
- Source Control (GIT, Mercurial)
- Basic server usage and maintenance (Ubuntu administration)

Selpal comes to town?

WITH seven years operations in Gauteng, Selpal - a financial technology solutions (fintech) company that operates specifically in townships and rural sectors of the economy is now ready to spread its wings, and according to CEO, Stephen Goldberg, township traders and their customers could see this innovative FMCG (fast moving consumer goods) trading platform hit the Western Cape within the next 12-18 months.

“Understanding the FMCG informal market and being able to design a revolutionary route to market and cashless platform has been challenging to say the least!” admits Goldberg.

The concept was initially backed by a minority shareholding from FNB which turned into a 100% acquisition at the end of 2020, leading one to believe that after the seven year baptism of fire, FNB now believes the concept is mature enough and moreover opens up the huge potential of tapping into the informal market with its other products and services.

Goldberg explained that FNB over the last few years has made significant strides in supporting and becoming more relevant to community-based businesses. The tie-up with Selpal affirmed this commitment.

Tried and tested in

Gauteng which boasts 60% of the national FMCG trade, Selpal’s footprint is supported by an integrated two pronged approach for business to business and business to customers. The clever system connects informal retailers such as spaza shops with FMCG suppliers, wholesalers and manufacturers.

From a business user experience perspective, Selpal merchants are equipped with a free Selpal POS (Point-Of-Sale) device that doesn’t attract fees yet enables them to view, order, and pay for and sell stock (including various value-added services such as airtime) without the merchant needing to leave their shop.

Considering the cash-intensive nature of this market, FNB is leveraging its collective current cash handling infrastructure to enable Selpal to seamlessly facilitate payments between stakeholders in the supply chain. This further solves a large challenge of security and convenience for all participants.

How it works

From the merchant’s perspective; once the Selpal device is implemented in store their Vault (an electronic wallet system developed by Selpal) and contains sufficient ‘cash’, the merchant can buy their usual

inventory and pay for it *cashlessly* from their Vault, as well as sell other services such as electricity, gaming and airtime. A new customer wallet and loyalty programme is under development and follows a new and exciting B2C strategy.

Says Goldberg; “A fundamental part of this concept is to bring value to the informal trade, not extract value, that is why the device and its use - both with ordering stock and interacting with the customer - costs the trader precisely nothing and eliminates cash handling and its security issues. “Our income is through the well-established transactional fees system levied on wholesalers and suppliers.”

Concluded Goldberg, “If community-based businesses can see the value in what we are offering, we are confident that they will make use of our products and services, and in-turn, help increase the level of financial inclusion, adopting more formal financial services.

This could include increasing the level card/QR payment acceptance at spaza stores which ultimately benefits both businesses and consumers. FNB’s relationship with Selpal involves helping businesses to get access - to financial education and skills, funding and access to markets” he said.

Five million serious injury-free man hours achieved



Carina Brink-Kleinhans.

DEKRA Industrial recently reached a major milestone, achieving five million serious injury-free man hours of operational safety. This milestone achievement is testament to the fact that as 96-year old global safety stalwart, the company is leading

by example. DEKRA Industrial's Health, Safety and Environment (HSE) Manager Carina Brink-Kleinhans, discusses this very special achievement:

"We really 'walk the talk' at DEKRA Industrial! Our primary purpose is to ensure the safety, health and well-being of all staff and that of our valued clients too. This achievement therefore reaffirms our commitment to the utmost safety across the board, on any project or contract that we undertake," says Brink-Kleinhans.

She continues: "For our current clients, this is also a great reassurance that we are serious about their safety, and

that of their staff and projects. To our future clients, it assures them that the systems we are implementing are practical and effective. In reaching the five million serious injury-free man hour's milestone, we can stand up and say that we have proved our ongoing commitment!"

The Group employs golden safety rules worldwide which includes the identification of potential hazards, defining of safety targets, developing of effective safety programmes, implementing clear organisational health and safety standards, and investing in people and training in order to ensure adherence

to these on an ongoing basis.

"A great part of our success is that the people we work with are proud to be part of the DEKRA Industrial family. This has a beneficial 'knock-on' effect in terms of their 'buy-in' to our safety culture, and that of our clients'. We are open about discussion, collaboration and participation from everyone involved. Our next target is six million serious injury-free man hours, which we hope to reach by the end of this year. And I am confident that our collaborative, innovative ethos will help us get there," concludes Brink-Kleinhans.

Accurately measuring air pollutants

INDUSTRIAL areas are often associated with high levels of air pollutants as a result of their manufacturing or processing activities. In order to protect community health, it is essential to measure the PM levels on a continuous basis through the installation of specialised instrumentation, such as the PMsense particulate matter transmitter from Delta OHM.

Newly launched, the PMsense datalogger has particular applications in smart city applications, widespread environmental monitoring activities and the monitoring of PM pollutants found at industrial sites. "In line with current environmental safety initiatives and industry's desire to ensure that communities living close to their place of work do not suffer serious ill



health issues as a result of industrial air pollution, it is crucial to know the exact PM content" commented Jan Grobler managing Director of GHM Messtechnik, South Africa.

"Delta OHM's PMsense ensures a very accurate reading of PM1.0, PM2.5 and PM10 particle counts, due to its laser scattering measuring principle. The device ensures that the air quality guidelines established by the

WHO, which outline the exposure limits to key air pollutants, is followed accurately" said Grobler.

"The configuration of the instrument and the reading of the measurements can be done via the RS485 serial output, both the proprietary protocol and with the MODBUS-RTU protocol and the results are reported in $\mu\text{g}/\text{m}^3$. In combination with one of our loggers, collected data is then sent via HTTP to the Delta OHM Cloud and therefore is available on any device."

Grobler said "Delta OHM is known for the quality and accuracy of its Automatic Weather Solutions (AWS), this new PMsense device offers a fully compatible measurement in conjunction with AWS. It's fully integrated: simple

and fast, plug and play with no need for additional start-up. By incorporating the PMsense measurement in AWS, early warnings can be provided when air pollution is close to dangerous levels".

"South Africa, has in the past had a few industrial pollution issues that have impacted upon the health of nearby communities, this PMsense sensor or datalogger would be an early indication of air pollution reaching levels of non-conformity, and thereby eliminates potential health risks to surrounding communities of industrial sites" concluded Grobler.

Further information is available from: Jan Grobler, Managing Director, Messtechnik South Africa. Tel: 011 902 0158 email: info@ghm-sa.co.za

Managing thermal functions with heat exchangers

WHEN changing a fluid's thermal state, there has to be a temperature difference between the two mediums for heat transfer to take place, and the heat lost by the hot medium is equal to the amount of heat gained by the cold medium, except for losses to the surroundings.

To continually transfer heat between two mediums, heat exchangers are used.

In a direct heat exchanger, both mediums are in direct contact with each other and the indirect heat exchanger, both mediums are separated by a wall through which heat is then transferred.

Outside of a heat exchanger, the predominant heat transfer is air, whilst internally ranges from water, with or without additives, to natural and synthetic refrigerants, steam and even oils, to name the most common.

All air-conditioning and refrigeration applications make use of heat exchangers and they extend to other industrial applications such as mining, power generation, military, transport, and agricultural cooling.

When determining the optimal heat exchanger per application, there are several factors to consider. "Some of the most common factors include flow rates, maximum pressure inside of the heat exchanger, pressure drop, temperature parameters, system pressures, liquid viscosity and concentration, system upset conditions (start-up/shut down), space availability, expansion plans, life cycle costs and maintenance requirements. Consideration needs to be given to whether the application will endure continuous or cyclical conditions," says Zaur Kutelya, business development manager for the Danfoss Heating Team.

All the various heat exchanger options typically have different detail requirements, as well as preferable refrigerants per application. Each heat exchanger type is therefore designed to perform under a particular application's criteria.

Heat exchanger sizing is also a function of this application and affects every aspect of a heat exchanger coil. Other crucial considerations not already mentioned include tube siz-



The flow pattern in a gasketed plate heat exchanger.



Danfoss Micro-plate Heat Exchanger.

ing, material used, fin spacing and the overall construction methodology.

Further, avoidance of dissimilar metals in the HE unit removes risks such as galvanic corrosion in applications like marine vessels. Offering the multiple material alternatives allows manufacturers to provide the market with a heat exchanger suitable for a wide range of conditions, satisfying all specifications.



Traditional Plate Heat Exchanger.

Trends

Physical footprint has become a significant trend in recent years as available plant room space becomes smaller. Heat exchangers present themselves in various sizes to minimise the usage of floor space on sites.

Further, market design trends are focusing on the use of natural or low GWP synthetic refrigerants, with significant attention being given to low charge systems. In the wider market, the trends have moved towards customers preferring full end-to-end solutions that minimise points of responsibility and localise all project design considerations. This approach means that each individual design decision and implementation is made with cognisance of its impact on the whole project, and therefore the best overall outcomes can be achieved while limiting expenses and errors.

A compact heat exchanger (plate HE), depending on the technology and design parameters, is a set of thin heat transfer plates compressed together to form a plate-pack

which forms the heat transfer area. Each compact technology has headers and followers which hold the plate packs together. The inner working of a plate heat exchanger is to transfer thermal energy between two fluids, without the fluids mixing.

There are also different tasks for different industries and this technology was designed for a corresponding solution. In these different industries, varieties in parameters also differ between countries. For instance, in most countries, the quality of water is completely different. Flow rates and system pressure also depends on a facility's capacity which can be different at every location and so plate heat exchangers offered a new method.

Plate heat exchangers, having a now wider application use are also generally smaller and so transportation and installation cost became lower, maintenance is easier, and they are much higher in efficiency to the traditional shell and tube system.

State hasn't bowed to wage demands – the cupboard is still bare

Comment from Jacques Moolman, President of the Cape Chamber of Commerce & Industry.

DESPITE some headlines claiming the Government has caved in to union demands for inflation-busting salary increases for all 13 million State employees, a closer reading tells a different story, reaffirming that the cupboard is bare.

The latest pay offer, despite offering a monthly bonus of R 978 to each public servant and a once-off salary adjustment of 1.5% that, in the manner of civil ser-

vice employment, is an increase everyone gets by simply turning up every day, rubs it in that the cupboard is bare.

Naturally, the howl of outrage from the unions and their members who believe in money trees that bear fruit in all seasons has already begun. One can understand how the lower paid remains aggrieved at having to face economic realities they may barely understand, but the union leaders should know better.

That trade union pay negotiators with government should continue to believe they are dealing with wealth creators as in

the private sector raises the suspicion that their militancy has more to do with falling union dues and union membership than anything else.

Meanwhile, the private sector here and potential investors abroad can only look on in astonishment at the ignorance of basic economics that pervades our trade unions. Whereas in most of the world there is at least a basic understanding of how wealth is created.

By ignoring these realities the country now owes R3.95-trillion. It is time the public sector unions recognised this cannot continue, and

educate their members accordingly.

It is a hard lesson to learn but an essential one if we are to continue with all the public welfare programmes so dear to our politicians. Basic economics classes in all state schools would be a great start and compulsory in the entire civil service.

Meanwhile, the good news is that the Government appears to be holding the line. As indeed it must. The civil service wage bill of R650.4 billion, that's R650,400,000,000 - it's simply too enormous for the economy (and the tax base) to bear.

Stone age desert kites found in Northern Cape

By Bob Yirka, Phys.org

A team of researchers with the University of Johannesburg's Palaeo-Research Institute has found multiple instances of desert kites in the Northern Cape Province. In their paper published in the journal *Archaeological and Anthropological Sciences*, the group describes their study of ancient hunting "runways" built to corral wild animals.

Prior research has shown that ancient hunter-gatherers living during the Neolithic and Bronze Age built what have come to be described as desert kites—corrals meant to make it easier to kill wild animals. The kites were made by piling stones to form two sets of walls across from one another, and which narrow toward each other as a form of a trap. The walls would eventually converge into a confined pen where it would be easy to kill the animals. Prior study of kites in the Middle East in places such as Israel, Jordan and Syria have shown the walls would typically be nearly a metre wide and up to a metre and a half high. Use of the kites involved chasing the animals into the kite and pursuing them until they arrived in the confined pen. The animals could then be killed using basic weapons. Kites were used to kill pigs, deer and cattle. In this new effort, the researchers



Typical of today's landscape near Keimoes, Northern Cape.

have found several kites near the town of Keimoes in the Northern Cape.

The kites were found in multiple locations by studying the South African landscape using LiDAR equipment from an airplane over the years 2016 to 2019. The researchers also found that the ancient builders had sometimes built several kites close to one another, each aimed at capturing different animals. Their discovery marked the most southern use of kites in sub-Saharan Africa. Close inspection of

the kites showed them to have been built much more recently than kites found in the Middle East—perhaps as recently as 2 000 years ago. The researchers also suggest that the structure of the kites and the ways they were used by the ancient people demonstrated a clear understanding of animal behaviour, including migratory patterns. They were also convenient—the kites were all built within 2km of water pans and their elevations allowed for running downhill.

Silver attacks bacteria, gets 'consumed'

By American Institute of Physics

FOR millennia, silver has been utilized for its antimicrobial and antibacterial properties. Although its use as a disinfectant is widely known, the effects of silver's interaction with bacteria on the silver itself are not well understood.

As antibiotic-resistant bacteria become more and more prevalent, silver has seen steep growth in its use in things like antibacterial coatings. Still, the complex chain of events that lead to the eradication of bacteria is largely taken for granted, and a better understanding of this process can provide clues on how to best apply it.

In *Chemical Physics Reviews*, researchers from Italy, the United States, and Singapore studied the impacts an interaction with bacteria has on silver's structure.

When monitoring the interaction of silver nanoparticles with a nearby *E. coli* culture, the researchers found the silver undergoes several dramatic changes.

Most notably, the *E. coli* cells caused substantial transformations in the size and shape of the silver particles.

It is often assumed the silver stays unmodified in this process, but the work done by the team shows this not to be true.

The electrostatic interaction between the silver and the bacteria causes some of the silver particles to dissolve as it releases ions to penetrate the bacterial cells. This dissolution modifies the shape of the silver particles, shrinking and rounding them out from triangular shapes into circles.

These effects are even more pronounced if the *E. coli* cells are pretreated with a molecule to increase the permeability of their membranes before they meet the silver.

"It seems from this study that silver is 'consumed' from the interaction," said Guglielmo Lanzani, one of the authors on the paper and director of the Center for Nano Science and Technology of IIT-Instituto di Tecnologia.

Fortunately, this "consumption" likely does not impact silver's antimicrobial properties, because the effect is so small.

"We think this does not affect the efficiency of the biocidal process and, due to the tiny exchange of mass, the lifetime is essentially unlimited," said Giuseppe Paternò, a researcher at IIT and co-author of the study.

"The structural modifications, however, affect the optical properties of the metal nanostructures."

Direct investigations of processes like these are difficult, because laboratories are controlled environments that cannot fully capture the complexities of a biological setting of bacterial cells.

Nevertheless, the group is planning further experiments to explore the chemical pathways that lead to the structural changes in silver. They hope to uncover why silver works better than other materials as an antibacterial surface, and why bacterial membranes are particularly vulnerable to silver, while other cells remain less affected.

Researchers develop new metal-free, recyclable polypeptide battery that degrades on demand

This could result in battery production moving away from strategic elements like cobalt.

THE introduction of lithium-ion (Li-ion) batteries has revolutionized technology as a whole, leading to major advances in consumer goods across nearly all sectors. Battery-powered devices have become ubiquitous across the world. While the availability of technology is generally a good thing, the rapid growth has led directly to several key ethical and environmental issues surrounding the use of Li-ion batteries.

Current Li-ion batteries utilize significant amounts of cobalt, which in several well-documented international cases is mined using child labor in dangerous working environments. Additionally, only a very small percentage of Li-ion batteries are recycled, increasing the demand for cobalt and other strategic elements.

A multidisciplinary team of researchers from Texas A&M University has made a breakthrough that could lead to battery production moving away from cobalt. In an article published in the May issue of *Nature*, Dr. Jodie Lutkenhaus, Axalta Coating Systems Chair and professor in the Artie McFerrin Depart-

ment of Chemical Engineering, and Dr. Karen Wooley, distinguished professor in the Department of Chemistry and holder of the W.T. Doherty-Welch Chair in Chemistry in the College of Science, outline their research into a new battery technology platform that is completely metal free. This new battery technology platform utilizes a polypeptide organic radical construction.

"By moving away from lithium and working with these polypeptides, which are components of proteins, it really takes us into this realm of not only avoiding the need for mining precious metals, but opening opportunities to power wearable or implantable electronic devices and also to easily recycle the new batteries," said Wooley, recently honored as the 2021 SEC Professor of the Year. "They [polypeptide batteries] are degradable, they are recyclable, they are non-toxic and they are safer across the board."

The all-polypeptide organic radical battery composed of redox-active amino-acid macromolecules also solves the problem of recyclability. The components of the new battery platform can be degraded on demand in acidic conditions to generate amino acids, other building blocks and degradation products --

one of the major breakthroughs in this research, according to Lutkenhaus.

"The big problem with lithium-ion batteries right now is that they're not recycled to the degree that we are going to need for the future electrified transportation economy," Lutkenhaus added. "The rate of recycling lithium-ion batteries right now is in the single digits. There is valuable material in the lithium-ion battery, but it's very difficult and energy intensive to recover."

The development of a metal-free, all-polypeptide organic radical battery composed of redox-active amino-acid macromolecules that degrade on demand marks significant progress toward sustainable, recyclable batteries that minimize dependence on strategic metals. As a next step, Wooley and Lutkenhaus have begun working in collaboration with Dr. Daniel Tabor, assistant professor in the Department of Chemistry, through a 2020 Texas A&M Triads for Transformation (T3) grant that aims to utilize machine learning to optimize the materials and structure of the battery platform.

Story Source: www.sciencedaily.com
Materials provided by Texas A&M University. Original written by Drew Thompson. Content edited for style and length.

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Be careful what you wish for

WE are living in a beautiful country and the ANC is a very good government. Look around you. Here we are, sitting in the sunshine of this glorious winter's day, having a beer and a relaxed conversation with friends. How could anyone complain?"

Thus spoke Big Ben.

He was met with silence as the Confederacy of Conversationalists being convivial in my back garden pondered his words sipping and curiously.

"I agree," ventured Stevie the Poet, "this day is an early winter's gift. But I must dispute your logic that we have the ANC to thank for it. In my unscientific opinion, the weather is one of the very few things the ANC cannot break."

"There you go again," sulked Big Ben. "We've got roads, services, full shopping shelves, glasses in our hands, but you complain about the ANC."

"Oi! Boyo," laughed Colin the Golfer, "pull the other one. Your glorious movement is not providing any of those things. On the contrary, eh? The reason you don't have sewage running into potholes outside the front door is because your lot are NOT running the show here."

The Prof followed another route. "But of course my dear boy," consoled he, "you are perfectly entitled to your views, even if they are, forgive me, not closely related to the wider world around us."

"Well ..." considered Big Ben, but then argued forth anyway, "the DA is a joke, you know, always fighting each other and losing voters in every by-election."

"No joke and not woke," corrected Jon the Joker. "The DA are back from the by-ways and dirt roads where they got lost when the likes of Aloysius Maimane and Minister-Without-Borders de Lille were at the wheel – back on the liberal freeway where they belong."

"Well, they better show it," advised Bob the Book, "some on social media are still laughing and media like Daily Maverick display a snide disdain."

"Useless!" opined Jon the Joker. "Instead of the rantings on social media, look at the facts staring you in the face; just pull your mask a little lower down, to below your eyes. These facts: Adjudicated best-run province, Western Cape, governed by the DA. Best-run major city, Cape Town, governed by the DA. Top five municipalities, all run by the DA."

"And you want to play silly buggers with woke jokes and delusions of humour. There will be provincial elections on October 27. If the DA should lose locally, our great little town will turn into Koster-by-the-sea."

"Koster?" worried Big Ben, "isn't that a big knob in the church?"

"The Koster Jon is talking about," helped Luke the Dude with a well-acted straight face, "is a town to the west of the Hartbeespoort Dam. It is a town like any other run by the ANC. Nothing works and all the money is missing."

"They are in the news because the townspeople made a plan when the municipality totally screwed the local right to clean water. Townspeople went to court and gained the management of the water system, which they took over despite some rebellion from the cadres who prefer Being The Boss to having water. Within days the necessary work had been done and voila! Clear drinking water was flowing from the taps."

"But it didn't end there, did it?" asked Irene the Queen.

"Alas nope," continued Luke, "you never know what will happen in our courts."

Another, acting, judge ordered that control be returned to the municipality, with the predictable results. Back to smelly and filthy square one. And a thirsty time was had by all. Except for the acting judge."

"Useless!" scorned Jon the Joker. "Be careful what you wish for."

"Agreed," nodded Miss Lily. "This is not the time to be facetious. But at least that Ace Magashule, our own Cassius with the mean and hungry look, used his sword to dig himself into a hole! Last time I noticed, he was still digging."

"That one. Up to no good," frowned Jean-Jay, who has joined the cozy company from his toils on the soil. "Made a lot of merde in the Free State, then he made a mess in Luthuli House. He even gave that one, 'Doctor' Carl Niehaus, his job back!"

"And look where he is now," mused The Bearded Biker, "Still on full pay, though, while ANC staff who are actually at work – I didn't say working! – have to hope and pray from month to month."

The Big White Dog stretched luxuriously and looked for all the world as if she was smiling at Miss Lily.

"It's an interesting fracas between ANC

factions," observed The Prof from behind his pipe, "no doubt lifestyle-determining to the trough-feeding cadres on either side. But unless the result is a significant ANC split – and I don't see that happening – it won't make much of a difference to the rest of us."

"What do you mean!" disagreed Big Ben. "President Ramaphosa is a much better leader than Ace and his rebellious schemes. If Ace gets his way, all the good work will be undone!"

"Well," added Irene the Queen, "with Ace out of the way, Cyril won't have to look over his shoulder all the time. He can get on with the job we all expected him to do when he became president."

"The Ramaphoria," groaned Jon the Joker. "Useless!"

"I don't agree," said The Prof. "Look at South Africa beyond the borders of our province. That's the country where Cyril's ANC governs without the interference of DA competence. When he was deputy to Zuma and still as president. He won't change. Not now, not ever."

"Listen to this!" sparkled Miss Lily at the gloomy faces. "They've started train-

City assumes ratepayers back the urban farm idea with R3m

IT's a shame that only 2000 or so ratepayer responses were received by the Cape Town City Council when its draft budget for next year was made available for public comment.

Probably, more ratepayers had a look, groaned at the huge and depressing task of reading it, and gave up.

Those who gritted their teeth and waded in would have found items in departmental budgets that – were they in the private sector – would have been sent back with a demand to cut at least 10% of it, if not rejected outright.

Such an item was trumpeted in a media release recently issued by the Council. It concerns a plan to spend R3 millions of your money on what is quaintly described as an "intervention"—a word normally used the describe friends and family gathering around a wanton relative to persuade him or her to change their ways.

This spare R3 million is going to bring fresh vegetables to poor families who will grow them on vacant city land that the Council does not have any other idea of what to do with it (but would rather it grew vegetables rather than squatters, perhaps).

Where this tidy sum comes from is not stated but one must assume the taxpayer is the source somewhere along the line. The beneficiaries are not named. We can only assume that R3 million is surplus to the monies required to carry out the Council's basic requirements like paying their wages and salaries and doing such boring stuff as making sure the water is drinkable, the electricity flows, refuse and sewerage collected and (sometimes) fixing potholes and repairing pavements.

Who are the potential beneficiaries? They are 720 urban farmers who will participate in creating 30 food farms across the city within the 24 Sub councils. This scheme has the marvellous name of an "Urban Agriculture Programme which, according to its proud press release, "aims to encourage and upskill urban farmers across the city".

Who are these happy people exactly?

We are not told. But then as the Council press release says, it is an initiative. In other words, it is an experiment. An experiment with taxpayers' money.

Quoting the press release again:

"... the City put out a call (sic) inviting suitable not-for-profit (that makes it ok) organisations to apply for grant funding to implement a food gardens project in partnership with the City and the South African Institute of Entrepreneurship has been appointed as the service provider (a great relief to know that).

"The project will provide support to new urban farmers using secured sites such as backyards, schools, open space around City buildings, churches, NGOs, clinics and libraries that require no capital costs".

Where are these convenient plots? Nobody is saying.

To continue with the press release:

"The goal is to assist households to develop home (sic) gardens to supply most of the non-staple(sic) foods that a family needs every day of the year, including vegetables and fruits, beans, herbs and spices and even animals and fish.

"The intention is also to assist the urban farming participants to establish cooperatives and facilitate the hosting of market days and informal trading activities, where a portion of harvested commodities are made available for supply, sale and distribution to the public'(existing hawkers who buy and sell vegetables and fruit from the City Market will no doubt welcome the competition).

And, finally:

"The City of Cape Town will also assist with starter kits and business development support and facilitation of commodities to retailers," said the City's Mayoral Committee Member for Urban Management, Alderman Grant Twigg."

Now, that is not a misprint.

Now for a little arithmetic.

Let's say that R3 millions of taxpayers' money could be distributed to all the 720 wannabee farmers. In which case it would

OPINION

ON THE CONTRARY



Pieter Schoombee

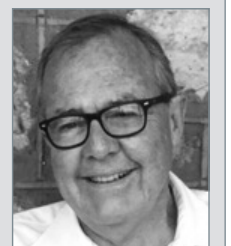
ing dogs in England to identify people with Covid even before they start feeling sick; also those who never get symptoms but can infect others. The secret is a very faint, unique smell the dogs can detect. That's a turn-up for the books in the second year of the pandemic, isn't it!"

We all agreed and a jolly Cheers! was raised to the Big White Dog.

Now don't tell me you never get good news in the media.

E-mail: noag@maxitec.co.za

THE OTHER SIDE OF THE COIN



Keith Bryer

be R4 166 for each one. That would buy quite a lot of seed, shovels, rakes and fertilizers.

Perhaps it will go to each of the 30 urban farms or R100 000 for each? After all, each farm would require fencing and security, especially at night, if my neighbourhood is anything to go by, there are lots of people wandering about after the sun goes down? Pretty good money for each vegetable plot.

Maybe the R3 million will be split between the 24 sub-Councils with each one getting R125 000. Maybe they will have to hire an urban agricultural consultant to advise them. It would not go far if that turns out to be the case.

And how much, if any, will the South African Institute of Entrepreneurship require for its services?

Will these urban farms have to pay for the municipal water these urban farms will undoubtedly need in the summer months? Or will they get it free, unlike ratepayers? Or, will those urban farmers have to bear the cost of watering their veggies themselves?

So many questions.

I do not doubt the good intentions behind this "intervention". But will R3 million turn poor families into market gardeners in one year? And if it is possible, will it take only a year, with another R3 million needed next year, and the year after that?

Remember, dear struggling ratepayers of the Mother City, it's your money that is being used.

I cannot remember being asked if it is a good idea. The City Budget makes no mention of it that I could find. To me, it looks like the Council is acting more like a welfare state every day.