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"Nigeria is ready to start the drive towards autonomous technology"
Adebayo Sanni, managing director, Oracle Nigeria

55 YEARS
SERVING BUSINESS IN AFRICA SINCE 1964




Cover picture: Workmen on site at Duvha Power Station in South Africa.
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Cover Inset: Adebayo Sanni, managing director from Oracle Nigeria
©: Oracle Nigeria

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Editor’s Note

Welcome to the September issue. In our cover story, we focus on good quality formwork and scaffolding systems being in high demand in sub-Saharan Africa as construction projects continue to soar in the region, (page 44).

Our economist Moin Siddiqi looks at the trade agreement preparations underway between the UK and Africa as the latest Brexit deadline looms at the end of October (page 20). We take a look back at the Africa Energy Forum (page 28) and gain insights into the trends of the energy industry by two leading law and investment firms in the sector, DLA Piper and Actis.

Over in the construction section, could a special road building technique, developed by Dutch company Utrecht, be the answer to flood prevention in rural areas in Ethiopia? (page 42). And finally, a new laser technology has been developed to counter the rise of counterfeit and fake diamonds in unregulated African markets.

Samantha Payne, *Editor*

Contents

Wärtsilä engines to boost Egypt power plant capacity

Wärtsilä has received an order to supply additional capacity for an existing power plant located in Borg El Arab, an industrial city 45km southwest of Alexandria, Egypt. The plant is owned and operated by Kahraba, which is one of the largest private electricity service providers in Egypt.

The engineering and equipment (EEQ) contract is for two Wärtsilä 34SG engines running on natural gas fuel. The engines will have a combined output of 19MW and will increase the plant's capacity by two thirds.

This additional utility grid capacity is needed to support the area's growing industrial base. The existing plant runs on three Wärtsilä 34SG engines.

The Wärtsilä engines will boost the power plant's capacity by two thirds.

"The local industries impose increasing demand on power capacity. The Wärtsilä engines will help alleviate this situation and will enable us to deliver a reliable electricity supply to our customers, thus supporting industrial growth in the area," said Ahmed Nassr-Eldin Khaled, deputy technical general manager, Kahraba.

"Our smart power generation technology will provide added flexibility, as well as capacity to the local grid here. Furthermore, the low noise specification for the radiators, plus the fact that the engines will operate on domestic natural gas, will enhance the plant's environmental footprint," said Magnus Miemois, regional director, Wärtsilä Energy Business.

The new equipment will be delivered to the site in January 2020, and the extended facility is expected to become operational towards the end of that year.

KING MOHAMMED VI OF MOROCCO SEEKS TO TACKLE SOCIAL INEQUALITIES

King Mohammed VI of Morocco has announced the launch later this year of a committee charged with developing a new development model to tackle social inequalities. It will suggest reforms in fields such as education, health, agriculture, investment and taxation.

In a speech marking 20 years of his rule, the king said that while Morocco has made great progress in terms of infrastructure developments, such as highways, high-speed railway, ports, renewable energy and urban development, not all segments of Moroccan society had felt the benefits. He stressed the need to open up the economy to foreign investors and revamp the public sector.

King Mohammed also called for a government reshuffle, saying that such projects and reforms require new leaders in decision-making positions. Although the overall poverty rate in Morocco fell to 4.2 per cent in 2014, rural areas experience much higher rates of poverty, at more than 18 per cent, said the World Bank.

ALGERIA TO PARTICIPATE IN AFRICA OIL WEEK

Algeria has confirmed its attendance at the 26th Africa Oil Week in Cape Town this November.

Recently appointed Energy Minister Mohamed Arkab – who has said that Algeria now produces sufficient fuel to meet domestic demand and has not had to import since 2018 – will represent the North African oil and gas producer, which is ranked 16th largest globally in terms of proven oil reserves and 10th largest in terms of proven gas reserves.

One of the minister's first priorities has been the drafting a new hydrocarbon law, which aims to counter a "slowdown in new exploration and production contracts" and "restore the attractiveness of the country's extractive industries, increase production levels and bring in foreign direct investment to the petroleum sector, without threatening national sovereignty".

A focus on upgrading existing refineries to meet international standards of consumption, as well as environmental and industry safety, has also characterised Algeria's energy agenda in recent years. During a visit to the newly inaugurated Sidi R'Cine Refinery in Algiers, which was re-opened after significant modernisation, the minister said, "This rehabilitation operation will lead to a surplus of production, which can be exported in the future."

Communicating this new agenda and highlighting that Algeria is very much open for business will be Arkab's top priority at Africa Oil Week 2019, where he will be participating in a ministerial panel alongside his counterparts from Tunisia, Equatorial Guinea and Uganda.

Arkab will join 20 other Pan-African ministers at the conference, as well as the Premier of South Africa's Western Cape province, Alan Winde.

BRIEFS

Image Credit: Oleg Znamenskiy/Adobe Stock

Egypt's macroeconomic situation has improved markedly since 2016.

IMF completes Egypt review

The Executive Board of the International Monetary Fund (IMF) has completed the fifth and final review of Egypt's economic reform programme supported by an arrangement under the IMF's Extended Fund Facility (EFF). This allows the authorities to draw the equivalent of SDR 1.4mn (around US$2bn).
David Lipton, acting managing director and chairman of the Board, said that Egypt has achieved its main objectives.

Funding to fight climate change

Image Credit: Tom/Adobe Stock

The investments will support green energy projects.

The Green for Growth Fund, a public-private partnership initiated by the European Investment Bank (EIB) and Germany's KfW Development Bank, has attracted four million euros from the Climate Action in the Middle East North Africa (CAMENA) initiative, which is managed by the EIB to help countries in the Southern Mediterranean fight climate change. The investments will be used to attract private capital to support transformative green energy projects in the region.

Ethiopian launches flights to Bengaluru as a boost to trade between Africa and India

Image Credit: Ethiopian Airlines

There will be four weekly direct flights to Bengaluru, the capital of Karnataka.

Ethiopian Airlines, the largest aviation group in Africa and a SKYTRAX Certified Four Star Global Airline, was pleased to announce that it will start passenger flights to Bengaluru, India, from 27 October.

The capital of the Indian state of Karnataka, Bengaluru is dubbed 'Silicon Valley of India' and serves as the centre of technology and innovation.

The four weekly direct flights to Bengaluru will operate every day except Mondays.

Currently, Ethiopian operates passenger flights to Bombay and Delhi as well as a cargo service to Bengaluru, Ahmedabad, Chennai, Mumbai and New Delhi.

Commenting on the upcoming services, Group CEO of Ethiopian Airlines, Tewolde GebreMariam, said, "Ethiopian Airlines is a significant player in connecting India and Africa and beyond. The new four weekly flights will connect the important ICT hub city of Bengaluru to the ever-expanding Ethiopian network in addition to our twice daily flights each to the commercial city of Mumbai and the capital New Delhi. The flights will also complement our existing dedicated freighter flights to/from Bengaluru.

"The addition of Bengaluru to our Indian network will give a wider menu of choices to the fast-growing number of air travellers between India and Africa and beyond. The increasing flight frequencies and number of gateways in India will facilitate trade, investment and tourism to/from the Indian sub-continent. The schedule is carefully designed to connect passengers efficiently through our global hub in Addis Ababa with short connections and will provide the fastest and the shortest connections between Bengaluru in southern India and more than 60 destinations in Africa and South America."

For more information visit www.ethiopianairlines.com

TRANSMISSION PROJECT LAUNCHED IN KENYA

The Kenya Electricity Transmission Company (KETRACO) officially launched the Loiyangalani-Suswa transmission infrastructure project.

According to the state-run firm's website, the US$271mn (Sh28bn) project will see an increase in electricity supply, quality, reliability and reduction of power supply costs.

It was funded 75 per cent and 25 per cent respectively by the Kenyan and Spanish governments and is set to transmit 310MW, approximately 15 per cent of the country's installed capacity. It coincides with Kenya's Vision 2030 flagship projects and achieving the Big Four Agenda on sustainable development.

KETRACO managing director FCPA Fernandes Barasa said the lessons learned from the project would help the company focus on the completion of other grid strengthening, access, regional inter-connectors and evacuation transmission projects.

BUSINESS LEADERS GATHER FOR HOTEL FORUM

Prominent figures from Ethiopia's public and private sectors have welcomed the return to Addis Ababa of the Africa Hotel Investment Forum (AHIF) – the premier tourism and hotel investment conference in Africa.

AHIF attracts many prominent international hotel owners, investors, financiers, management companies and their advisers. It will return to the Sheraton Hotel, Addis Ababa from 23-25 September. AHIF was previously held in Ethiopia's capital city in 2014 and 2015.

According to an independent study by Grant Thornton and the international tourism advisory expert, Martin Jansen van Vuuren, of Futureneer Advisors, the event is forecast to be worth millions of dollars to Ethiopia's economy and to facilitate billions of dollars of investment in hospitality projects across Africa.

Ethiopian businessman, managing director Neway Berhanu, Calibra Hospitality Group, said, "Our success in becoming the leading consulting company in Ethiopia has been helped by being an active participant in the Africa Hotel Investment Forum, since 2011. Thanks to Bench Events, we are well connected, having established very good relationships with all the major international hotel brands. That has enabled us to close 25 transactions, bringing business to Ethiopia. I'd encourage the business community and stakeholders to attend."

Abebe Abebayehu, commissioner, Ethiopian Investment Commission, said, "We are glad to support this prestigious event. AHIF attracts the highest calibre group of business leaders in the hospitality industry in Africa. By taking part, we will be able to get a much deeper understanding of what investors need. By encouraging more investment in hospitality projects, we will create productive employment for our young population and earn valuable hard currency."

BRIEFS

Kenya unveils masterplan to transform logistics sector

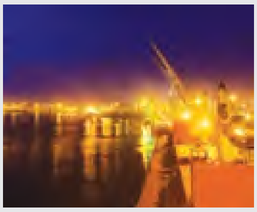

Image Credit: Adobe Stock

The KPA masterplan hopes to turn Mombasa Port into a thriving port and logistics hub in the region.

Kenya Ports Authority launched its masterplan on 9 August to transform shipping and logistics in the country.

The 2019-2047 plan, which will be implemented in three phases, aims to turn Mombasa Port into a competitive force alongside Dar es Salaam and Djibouti ports. Two new berths at the Container Terminal Two are expected to increase conventional cargo to about 77 million tonnes a year in the next 30 years, according to reports.

Rwanda and Malta agree to develop closer ties

Image Credit: Malta's Ministry for Foreign Affairs and Trade Promotion

Rwanda and Malta are keen to develop closer links with each other.

As Rwanda gears up to host the Commonwealth Heads of Government Meeting (CHOGM) in June 2020, an advance team from the Ministry for Foreign Affairs and Trade Promotion and Trade Malta was assigned to Kigali to share Malta's experience in CHOGM 2015, which was described as 'exemplary' and 'one of the best organised' in recent years. A senior level delegation will next visit Malta to further develop closer trade and cultural ties between Malta and Rwanda.

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Lesotho seeks to export power, renewables to drive development

Image Credit: Adobe Stock

Wind generation facilities in Lesotho will be discussed at this year's Africa Oil and Power Conference.

Lesotho's Hon minister of energy and meteorology Tsukutlane Au will present Lesotho's energy investment opportunities at Africa Oil & Power 2019 on 9-11 October in Cape Town.

He will discuss new hydropower and wind generation facilities as well as transmission projects linking Lesotho with South Africa, with African ministers and more than 1,000 investors at the conference.

The new transmission lines would also make the country an exporter of energy.

Lesotho's 2015-2025 Energy Policy commits the government to providing universal power access, up from just over one third of households today. In line with the AOP 2019 theme #MakeEnergyWork, the government has stated its intention to use energy to create new jobs, stimulate private sector involvement and increase Lesotho's competitiveness within the Southern African Development Community region.

The minister said in a letter addressed to the nation's energy sector actors, "Through the Africa Oil & Power conference, the ministry aims to significantly raise the profile of Lesotho in the international and pan-African energy dialogue, to promote Lesotho's petroleum and power projects, and to bring attention to the great work of Lesotho-based companies. We are proud to endorse this conference."

The Ministry of Energy and Meteorology is committed to building greater trade and investment ties in particular with South Africa and Angola, but also with global renewables, power and oil and gas companies.

The Lesotho Electricity Company, Lesotho Electricity and Water Authority, Lesotho National Development Corporation, Fantique Trade, Nedbank Lesotho, Matekane Group of Companies, Citrus Investment Holdings and other national entities plan to meet delegates and provide project briefings at AOP 2019.

OFFTAKE DEAL SIGNED OFF FOR MAKHADO

South Africa's largest steel producer has signed an offtake agreement with MC Mining for an annual bulk purchase of hard coking coal (HCC) from the Makhado project in South Africa.

ArcelorMittal South Africa, which supplies 60 per cent of steel in the country, will buy 350,000t to 450,000t of HCC from phase one of the project, located in the Limpopo province.

David Brown, CEO said, "South Africa produces significant quantities of thermal coal but has very limited quantities of high-quality metallurgical coal and the offtake with the country's largest steel producer will result in the majority of Makhado Phase one's coking coal being sold domestically, replacing some coal imports. The development of the Makhado Project will make MC Mining the pre-eminent South African producer of hard coking coal which trades at a significant premium to thermal coal and is a key ingredient contributing to the manufacture of steel."

DPO ACQUIRES MAJOR SA PAYMENT PROCESSOR

DPO Group, the leading African Payment Service Provider (PSP) has announced its acquisition of PayFast, one of the largest payment processors in South Africa.

The landmark deal was executed through a mix of shares and cash, with the PayFast management team remaining major shareholders in DPO Group. Following the transaction, DPO Group will be providing services to more than 100,000 merchants across 18 African markets.

PayFast has a range of shopping cart integrations in Africa and its Instant EFT service provides consumers with a secure alternative for making online payments. The integration of PayFast into DPO's services will increase the payment options available to DPO's business customers, while providing a Pan-African solution to PayFast's existing customer base. This merger will allow all the group's services to be available on a single platform to DPO Group and PayFast merchants, improving their capacity to do business across Africa and the world.

Offer Gat, chairman and co-founder of DPO Group said, "This deal, which we believe is the largest acquisition by a PSP in Africa, reinforces our position as a leading PSP on the continent and is an important step forward in our strategic growth across Africa. The combination of DPO Group and PayFast will increase the ability of merchants on our platform to do business with their clients within and outside of Africa. Finally, it will allow DPO to continue to improve merchant services, allowing more merchants to transact more broadly at lower cost."

Eran Feinstein, CEO of DPO Group added, "PayFast's deep experience of payment processing and facilitation in South Africa complements and expands the services we can offer our business customers via the most diversified suite of online payments options available in Africa."

BRIEFS

Zambia to benefit from AfDB loan

Image Credit: Adobe Stock

Zambian finance minister asks AfDB to strengthen companies.

Finance minister Bwalya Ng'andu from Zambia said the private sector should take advantage of the US$750mn African Development Bank (AfDB) financing facility to sustain their growth.
During a meeting with the AfDB's country manager, Mary Monyau, he said to her, "You need to help us to strengthen business acceleration capacity for small and medium enterprises so that our people in the private sector can access the US$750mn sustainable lending facility."

Inspiring next generation of women in mining

Image Credit: Adobe Stock

A new Mining Indaba report has been released on the subject of gender diversity.

Mining Indaba has released a report 'Inspiring the next generation of women in the African mining industry' to help organisations achieve greater gender diversity in the workplace.
The report is dedicated to the women and men in the industry driving inclusion and diversity. It features interviews with Deshnee Naidoo, CEO of Vedanta Zinc and Simone Niven, corporate relations group executive of Rio Tinto. Mining Indaba takes place in Cape Town each year.

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GE Healthcare and Access Bank will provide equipment financing for Nigeria's hospitals

Access Bank and GE Healthcare are to provide sustainable healthcare equipment financing to private healthcare providers, which will help them to deliver access to affordable healthcare services.

Under the partnership, borrowers such as hospitals and clinics will be able to secure loans of up to US$800,000 negotiable, based on the customer requirement.

Access Bank will provide access to loans for eligible healthcare providers, while GE Healthcare will support the programme through provision of GE healthcare equipment and technical support. The equipment under the partnership scope includes Imaging Solutions, Magnetic Resonance Imaging (MRI) and Computed Tomography (CT), Ultrasound Machines and Life Care Solutions.

General manager for GE Healthcare West, Central & French sub-Saharan Africa, Eyong Ebai; president and CEO, GE Africa & GE Healthcare Africa, Farid Fezoua; group deputy managing director, Access Bank, Roosevelt Ogbona and chief risk officer, Access Bank, Gregory Jobome at the signing of a healthcare equipment financing agreement between GE Healthcare and Access Bank in Lagos on July 26.

Speaking at the signing ceremony, Eyong Ebai, general manager for GE Healthcare West, Central and French sub-Saharan Africa said, "We are committed to invest in public and private partnerships that innovate new delivery models that will improve access to affordable and quality patient outcomes, as we progress towards Universal Healthcare Coverage (UHC) in Nigeria. Our partnership with Access Bank will help lift the financial burden off the healthcare providers."

Earlier this year, GE Healthcare rolled out a similar initiative in Kenya in partnership with Medical Credit Fund to provide small and medium enterprises (SMES) with financing for healthcare equipment.

"There is a need to provide innovative financing models for healthcare providers especially in the private sector, who currently face challenges accessing financing for the purchase of healthcare equipment due to the risk associated with the business. As a financing institution, we are committed to provide financing at the health-service-provider level and at health-service-consumer levels to ensure the people of Nigeria have all they need to live healthy lives," said Herbert Wigwe, CEO Access Bank.

The need to provide affordable healthcare in Nigeria is vital to the development of the sector.

ENGIE & MERIDIAM FINANCE SENEGAL PROJECTS

ENGIE and partners Meridiam and FONSIS have signed the EPC, operation & maintenance, and finance contracts for two solar PV projects of 60MW. The total investment cost for the projects amounts to 47.5 million euros and debt is provided by the following Development Finance Institutions; the European Investment Bank, the International Finance Corporation (IFC) and Proparco.

The solar PV plants are part of the Scaling Solar initiative in Senegal, conducted jointly by the Senegalese authorities and IFC. ENGIE was selected as the preferred bidder by Senegal's Electricity Sector Regulation Commission (CRSE) in a tender launched in October 2017.

Yoven Moorooven, CEO of ENGIE Africa, said, "ENGIE reaffirms its commitment to be a long-term player in Senegal and to bring affordable energy to the country while creating sustainable jobs. These projects are in line with our strategy to become a leader in the zero carbon transition for our customers in Africa."

IVECO TO BRING 250 MORE BUSES TO CÔTE D'IVOIRE

The government of the Côte d'Ivoire and the Abidjan Transport Company SOTRA have confirmed a new investment with CNH Industrial's global bus brand for a total running fleet of more than 750 city buses.

Côte d'Ivoire order 250 more buses from IVECO.

Abidjan's latest order from IVECO BUS, the global bus brand of CNH Industrial and one of the leading providers of natural gas buses, consists of 200 crossway low entry (LE) and 50 crealis natural power (NP) 18-metre buses.

This delivery is expected to provide Abidjan with the latest compressed natural gas (CNG) and bus rapid transit (BRT) technologies. BRT is a bus-based public transport system designed to improve capacity and reliability.

Côte d'Ivoire is the first country on the African continent to order high-value CNG buses. This choice utilises vehicles with low environmental impact, which are seen to be a viable solution for the country, given its substantial reserves of natural gas both on land and off-shore.

With this latest agreement, the city's running IVECO bus fleet will amount to more than 750 city buses, 100 of which are BRT running on CNG.

Natural gas vehicles meet environmental concerns and represent a solution for mass passenger transport. CNG vehicles offer major benefits in terms of their low running costs and a reduction in pollution and noise: fine particle emissions are reduced to nearly zero, nitrogen oxide emissions by more than one third and noise level is reduced by half.

BRIEFS

Nigeria broadcaster signs up to AMOS-17 satellite

Image Credit: Spacecom

IDS Africa will use AMOS-17 satellite for broadcast services.

Spacecom, operator of the AMOS satellite fleet, has announced that Nigeria-based IDS Africa is the latest broadcaster to sign up to broadcast services on the AMOS-17 satellite.
The satellite just was launched at its 17°E orbital position in August. IDS Africa will use the satellite to broadcast channel TV news programming throughout Nigeria as well as to the Nigerian diaspora in Europe. Spacecom worked with INTERTEL NIGERIA to bring this deal to fruition.

Classrooms built from plastic in West Africa

Unicef teams up with Conceptos Plasticos to build classrooms out of plastic waste.

Conceptos Plasticos, which recycles used plastics into construction materials, has partnered with Unicef to collect plastic waste in Côte d'Ivoire and convert to plastic bricks to build classrooms, reported Plastics Today. Unicef Executive Director Henrietta Fore, said, "This project is more than just a waste management and education infrastructure project; it is a functioning metaphor – the growing challenge of plastic waste turned into literal building blocks for a future generation of children."


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Lagos, Nigeria
www.thebig5constructnigeria.com

9 - 12
WORLD ENERGY CONGRESS
Abu Dhabi, UAE
www.wec24.org

10 - 12
ELECTRA MINING BOTSWANA
Botswana, South Africa
www.electramining.co.bw

12 - 22
IAA CARS
Frankfurt, Germany
www.iaa.de/en/

17 - 19
PROPAK WEST AFRICA
Lagos, Nigeria
www.propakwestafrica.com

24 - 26
POWER NIGERIA
Lagos, Nigeria
www.power-nigeria.com

24 - 26
SECUREX EAST AFRICA 2019
Nairobi, Kenya
www.securexpoeastafrica.com

OCTOBER

15 - 16
NIGERIA MINING WEEK
Abuja, Nigeria
www.nigeriaminingweek.com

NOVEMBER

4 - 8
AFRICA OIL WEEK
Cape Town, South Africa
www.africa-oilweek.com/Home

5 - 8
ECOMONDO
Rimini, Italy
en.ecomondo.com

12 - 13
FUTURE ENERGY NIGERIA
Lagos, Nigeria
www.future-energy-nigeria.com

12 - 14
AFRICACOM
Cape Town, South Africa
tmt.knect365.com/africacom

QUOTES

"Population and housing censuses provide vital information for monitoring the Agenda for Sustainable Development and the African Union's Agenda 2063, in addition to a wide range of statistical areas allowing disaggregation by small geographic areas and small population groups."

OLIVER CHINGANYA
Statistics director, Economic Commission for Africa's (ECA) African Centre

"Diamonds and beef have, traditionally, been the cornerstones of Botswana's economy. But what happens when these resources get 'tapped out'? We must look ahead and make the change to empower a new generation of knowledge workers. Our bright young minds are our most important resource and something we need to nurture."

ONEH GOLDING
Country manager of USB Executive Development (USB-ED) Botswana

"We cannot keep on panel-beating the old airport that was built in the 1970s. We need a facility that will be able to handle increased inbound numbers seeing that we just crossed the two million mark in arrivals last year."

NAJIB BALALA
Kenya cabinet secretary for Tourism

New brands join Propak West Africa 2019

Organisers of Propak West Africa 2019 have confirmed new brands to the show this year within the packaging, plastics, food-processing, labelling and printing industry.

Afra Technical Concept, BOBST, GEA West Africa, Heidelberg, KHS, Neofyton, Sasol, Snetor, SkySat, Sato, Windmoeller and Hoelscher are among those already signed up.

Taking place 17-19 September, at the Landmark Centre in Lagos, Propak West Africa 2019 soon will be opening its doors.

In 2018, Propak West Africa saw its previous records smashed with 4,265 attendees and more than 2,000sq m of exhibition space. With this year's edition, organisers are expecting to welcome more than 4,500 senior industry professionals, with over 200 brands exhibiting. In addition, the overall size of the show has grown by a further 27 per cent compared with 2018 to accommodate the increased interest to more than 2,600sq m.

'Meet the Buyer' scheme will be launched at this year's Propak West Africa.

Image Credit: Afrocet Montgomery

Exciting annual show features such as the conference are set to take place again this year alongside the event itself. With daily sessions lined-up including a full day dedicated to discussions around sustainability and eco-friendly materials, attendees can expect to see some of the most pertinent issues affecting the industry tackled at the three-day event.

Propak West Africa will also be launching a new 'Meet the Buyer' scheme via a dedicated partnership with Naijalink, Nigeria's leading market consulting company, specialising in connecting international companies with prospective buyers or partners across West Africa, as well as undertaking thorough research and business development advisory services.

To see the full exhibitor list or register your attendance visit www.propakwestafrica.com

Sealing the deal

Propak West Africa is returning to Lagos from 17-19 September with new brands to watch. Here we take a look at some of the exhibitors and their products.

SATO FX3-LX – AN INTUITIVE 3-INCH LABEL PRINTER

Rely on food-safe features for peace of mind

FX3-LX has the ability to automatically calculate and print best-before and use-by dates, allergens and secondary shelf-life compliance information for individual products and ingredients, based on its internal product database. The FX3-LX database is easily updated with data from a server via a USB memory stick, USB and LAN PC connection or automatically via WLAN, ensuring data accuracy is maintained at all times. This in turn helps to reduce food waste due to improper labelling. In addition, label usage tracking is also a feature of the FX3-LX, allowing the user to verify whether food safety procedures are being adhered to.

What is more, with its easy-clean, anti-bacterial casing, the FX3-LX printer is adapted to hygienic environments and can be operated with gloves.

Reduce costs and save space

The FX3-LX's PC-less printing feature makes it ideal for use by a wide range of food industry sectors. All food preparation areas, quick service outlets and restaurants can reduce costs and save space by moving the portable device from the kitchen or back-office to the service floor, as and when required.

SATO FX3-LX offers 14 different training videos including media loading, parts replacement, option installation and maintenance advice, that can be accessed wherever and whenever staff are available. Managers therefore do not waste time in 'technical' training and are freed up to run their facility efficiently while new staff quickly train to work efficiently.

NEOFYTON – ENGEL MACHINE E-MOTION 740/160T

As representatives of the Austrian company ENGEL for the entire ex-Yugoslavian region and West Africa, the company Neofyton is keeping up with world business trends and places quality as its primary goal. At Propak West Africa in Nigeria, they are bringing one of the fastest, most reliable and energy-efficient machines from ENGEL's array of electric plastics processing machines – E-motion 740/160t.

Neofyton has built a leading position in Serbia and the surrounding region during 27 years of operating and providing a top quality service for plastics and rubber industry, marked by their moto "Partnership to success!" Neofyton will again be attending the Propak 2019 fair with the latest technological innovations – ENGEL machine, and by representing the world's renowned manufacturers, driven by quality, innovation and the latest market trends.

This year they are proud to inform the public that their coexibitors, besides ENGEL, will be SIPA and Inmold.

ENGEL offers injection moulding turnkey solutions from single source as one of the leading injection moulding machine manufacturers. Through their expertise, they enable their customers to be competitive and successful.

SIPA is the PET specialist and through years they have acquired considerable expertise in bottle manufacturing and filling technologies, from preforms to finished products.

Inmold is one of Serbia's leading mould producers for injection moulding, for plastics and non-ferrous metals. Their speciality is the production of injection moulds for thin-wall packaging and injection moulds for technical components.

AIR SEYCHELLES DELIVERS AFRICA'S 1ST A320NEO

Air Seychelles has become the first African airline to operate the A320neo aircraft.

Image Credit: Airbus

Air Seychelles has taken delivery of Africa's first A320neo on lease from CDB Aviation, becoming the first African airline to operate the A320neo aircraft.

The new aircraft will allow Air Seychelles to increase capacity on its network, while delivering significant fuel savings and reducing the airline's operating costs. Air Seychelles' new A320neo is equipped with a new inflight product, reflecting the latest trends in the air travel industry, offering passengers a greater level of comfort and an enhanced travel experience.

With its widest single-aisle cabin, the A320neo allows Air Seychelles to offer unmatched comfort in classes and Airbus' 18-inch-wide seats in economy as standard.

The A320neo is the world's most advanced and fuel-efficient single-aisle aircraft.

Air Seychelles' A320neo jetliner is powered by the new-generation LEAP-1A engine from CFM International and features large, fuel-saving wingtip devices known as Sharklets.

AMOS-17 SATELLITE LAUNCHED

AMOS-17.

Image Credit: Spacecom

Spacecom, operator of the AMOS satellite fleet, confirmed the successful launch of its AMOS-17 satellite from Cape Canaveral, Florida.

AMOS-17 soared upward aboard a SpaceX Falcon-9 launch vehicle at 02:23 Israel time (23:23 UTC) on 6 August 6, (UTC time). En route to its 17°E orbital position, the satellite separated from the launcher's second stage at the 33-minute stage following ignition and, as planned, is in constant contact with its ground station. AMOS-17 will begin its testing processes in orbit. Manufactured by Boeing Satellite Systems International, AMOS-17 is a 6.5-ton high-power HTS, designed to meet Africa's communication demands. AMOS-17's advanced digital payload will provide extensive C-Band HTS, Ka-band and Ku-band capabilities, enabling the combination of broad regional beams and high throughput spot beams to maximise throughput and spectral efficiency. It will offer connectivity between Africa, the Middle East, Europe, India and China.

BIGEN GROUP CHOOSES MAURITIUS TO EXPAND BUSINESS

Dr Snowy Khoza, executive chairperson from Bigen Group, has cited ease of doing business in Mauritius as one of the many reasons it is an attractive country to invest in.

Political stability, the maturity of the market and bilateral agreements with so many African countries were other important factors, he said.

"Mauritius is a haven of knowledge – the only country in the region where you can find all the financial institutions and investors gathered in one place. The Mauritian team provides the guidance we need, connecting us with the right investors."

Image Credit: Adobe Stock

Mobiles for the masses

Barry Mansfield reports on the rise of Transsion, a China-based smartphone manufacturer that has been outpacing its rivals Apple and Samsung in Africa over the last year.

Although it is little known in Europe, Transsion is a top seller of smartphones in Africa under its Tecno brand. Headquartered in Shenzhen – where African e-commerce giant Jumia also runs its logistics supply-chain base – the firm operates a manufacturing plant in Ethiopia and has expanded its footprint in India. In early August, it announced its intention to list in an IPO on Shanghai's STAR Market (the new Nasdaq-style board for technology stocks that went live in July with some 25 companies floating). It hopes to generate around ¥3bn (US$430mn).

Executives say they plan to spend most of the new funds on creating more phone assembly hubs, with an extra ¥430mn (US$60mn) allocated to further research and development, including a mobile phone research and development complex in Shanghai. Unusually, the firm was already in the black prior to its IPO. It reported ¥22.6bn (US$3.29bn) in revenue last year alone, up from ¥20bn in 2017. Although net profit for 2018 fell to ¥654mn (down from ¥677mn a year earlier), Transsion was not exactly desperate for the funds.

Transsion is a dark horse in the mobile world. It does not do business in China, despite being based there. In Africa, it likes to describe itself as an African company. The company shifted 124 million phones worldwide in 2018 and dominates 54 per cent of the African feature phone market through brands such as Infinix and Itel, alongside Tecno. Its smartphone sales in Africa are ahead of Huawei, according to consultancy IDC. Transsion has research and development centres in Nigeria and Kenya and its sales network in Africa includes retail outlets in Kenya, Nigeria, Ethiopia, Tanzania and Egypt.

So what is the secret of its success? Analysts say Transsion's growth is partly down to an accessible pricing model, effective use of local languages (Amharic, Hausa and Swahili were added to the keyboards) and the convenience of its longer battery life to consumers in African markets (typified by longer journey times and inadequate recharging facilities). A preloaded music streaming app called Boomplay has helped to drive sales of the devices further. The company now boasts 10,000 local employees in Africa and is the continent's seventh most popular brand.

Transsion sells feature phones for under US$20. It offers phones without smart features for US$9, shifting 60 million Itel handsets at that price in 2018. It also sold 30 million Tecno phones at US$11 each. Its phones incorporate heat protection to preserve the electronics. They were the first devices to introduce night-time photography settings for darker skin tones. Transsion is capitalising on Africa's continued shift from simple US dollar phones, to feature phones and smartphones. Smartphone adoption on the continent is weak, at 34 per cent, but is expected to surge to 67 per cent by 2025, according to GSMA.

In fact, smartphone adoption is already picking up. Africa posted an annual spurt in shipments last year for the first time since 2015. In Nigeria, Kenya, and South Africa, thousands of ventures are developing business models around mobile-based products and apps. If Transsion's IPO inspires greater smartphone conversion on the continent, that could activate more start-up and investment activity – from VOD applications to fintech. There are rumours that the Shenzhen firm is considering a move into venture investing on the continent.

China's involvement with African start-ups has been relatively limited compared to its co-operation on commodities and infrastructure – further enhanced in recent years as Beijing continues its Belt and Road Plan. Transsion's IPO move follows Chinese-owned Opera's lavish venture spending in Nigeria as a sign of greater Chinese influence and investment in the continent's digital scene.

There is now an abundance of entry-level products in most African markets. Curiously, Transsion faces increased competition on African soil from Chinese compatriot Vivo (the fifth largest smartphone maker) as it aims to introduce its own low-cost offerings to the continent – beginning with the launch of its budget-friendly Y series smartphones in Nigeria, Kenya and Egypt; a line of products already on sale in Morocco. However, Transsion's smartphones are still cheaper than its rivals; last year it shifted 34 million phones for between US$45 and US$91. The cheapest Y series is US$170.

More challenges can be expected. In its prospectus, Transsion recognises the emerging threat from India's Lyf as it launches its own competitively-priced devices. Xiaomi is pushing harder into Africa; Huawei has unveiled an e-commerce platform in South Africa to sell phones and related products. Xiaomi has joined forces with Jumia to sell handsets. Executives have warned about the risk of losing customers if Transsion fails to maintain innovation, and they have highlighted areas such as brand management, marketing, after-sale service and supply-chain management for investment.

Other problems include the spread of fake phones (Startcounter estimated that a quarter of handsets in circulation in Kenya last year were counterfeits). Tecno had a hard fight against counterfeiting in Nigeria, but it eventually created a database-like portal to allow customers to personally verify their device serial number. After inputting the IMEI and VC number of the phone, the site quickly establishes if it is genuine or not. It is also possible to carry out a similar check on Tecno batteries (this verification process works with only the IMEI and no VC number).

The company is responding to competition by pushing into new territories, including Bangladesh, Pakistan, Vietnam and Indonesia. In Africa itself, it has started selling digital accessories such as oraimo earphones and Syinix home appliances. Transsion is turning to mobile internet services as an additional source of revenue, and the Boomplay service now aims to cash in on the increasing popularity of Afrobeats and local music. The warranty system Carlcare means that consumers can take the handset back to be repaired. These touches help Transsion to stay apart from the crowd. ■

Financing Africa's real estate growth

Genevieve Naidoo, executive: Property Finance Africa at Nedbank CIB, talks to *African Review* about the fast-changing real estate investment climate across the continent.

African Review: Can you give us some background to Nedbank Property Finance?

Genevieve Naidoo: Nedbank Property Finance is a leader in commercial property finance in South Africa with a market share of around 40 per cent. Nedbank CIB's Africa Property Finance business was established in July 2018 to capture opportunities in major emerging markets, with a focus on Nigeria, Ghana, Kenya, Uganda, Mozambique and Zambia, and future plans to expand into the Francophone countries. The growth on the continent cannot be ignored. With populations that are sizeable and with the ever-growing consumer demand, we see great opportunities. We believe we can offer innovative and complex deal structuring solutions to indigenous and international property players in these markets.

ATR: Can you tell us about any of your recent projects?

GN: We played the role of lead arranger and financier in the Two Rivers transaction in Kenya. This is a 102-acre development in Nairobi's diplomatic blue zone, where Centum – the largest investment company in East Africa and an affiliate of the Kenyan government-owned Industrial and Commercial Development Corporation – has a 58.3 per cent shareholding, in addition to a 50 per cent stake in the Two Rivers Mall. Besides the mall, Two Rivers is being developed into a mixed-use node with offices, hotels, residential towers, a hospital and a theme park.

ATR: What is the significance of the Kenyan mall development?

GN: We believe the Two Rivers node is a new precinct in Nairobi that is changing the skyline. The precinct is situated in a popular neighbourhood easily accessible from the Nairobi CBD and the main airports via Limuru road and the northern bypass. It also lies among popular upmarket estates such as Runda, Rosslyn, Muthaiga, among others. Thus far a mall, some offices, a 170-room City Lodge Hotel and theme park have been completed. There is still significantly more planned for the node to create an ideal mixed-use development. There are plans to include a further hotel, commercial offices and the rollout of residential apartments.

Genevieve Naidoo.

ATR: Any other notable regional transactions to report?

GN: We are busy with the final execution of several transactions amounting to well over US$100mn (R1.5bn). Most of the funding relates to projects in Nairobi, although we are also implementing some transactions in Mombasa. The bank's total funding facilities to Centum Group exceed R1bn. For Nedbank it was an opportunity to partner with a local real estate player and provide a flexible and innovative solution for them. We believe the more debt financiers there are in these markets, the better it is for the property market.

ATR: What about the general state of Africa's real estate market (outside of South Africa)?

GN: Each city and country is unique with its own set of challenges and opportunities. We have seen some common themes as a South African bank lending in these markets. We have seen over the last few months some investors pulling out of some markets for various reasons and are seeing new investors and retailers entering these markets. Where, in the South African context, a pre-let market is ideal, in African markets this proves more difficult and thus assets are taking longer to mature and reach stable occupancy levels. Where initially we anticipated assets reaching maturity within six months, what we have seen in some markets is that assets can take anything from 12 to 24 months, dependent on macro and micro dynamics. We have also seen good quality stock being developed in these markets by local and foreign developers. It is more expensive in most African cities to build than in South Africa, which we should see in rentals charged. However, we have seen rental rates come off and some markets rebase at values lower than what was anticipated by initial investors. The opportunities we see in each sub-sector and cities are different, and we believe that working with partners who understand the local environment is critical.

ATR: What does the project pipeline look like for Nedbank Property Finance right now?

GN: Growth in the South African real estate market is challenging currently. Growth markets in Africa can provide favourable returns and diversification. From an Africa perspective, we are working on a number of transactions with a pipeline in excess of US$300mn (R4.5bn), with future plans of tapping into the growth opportunities that Francophone countries offer. Our current pipeline of debt funding opportunities varies from retail shopping centres, commercial offices and light industrial warehousing in various markets with local and international property players.

ATR: What's next for Nedbank Property Finance in terms of growing the portfolio northwards to include other sub-Saharan African countries?

GN: We see opportunities in these countries from a real estate perspective, but as with emerging markets, the landscape is ever-changing. Every country, even city, has its own unique set of dynamics. What is key is for us as a debt financier in these markets, is to understand the macro and micro environments, legal and tax frameworks and then create innovative structuring solutions for our clients. ■

Forging closer UK-Africa ties in 'post-Brexit' Britain

With a population of 66.5 million in 2018 and a GDP of US$2.8trn, the UK is the world's fifth-largest economy, offering substantial market opportunities for African products and services. Britain is set to exit the EU on 31 October 2019, but uncertainty remains over the exact terms on which UK will depart the EU, whether it leaves on time and even whether there might be a second referendum on EU membership.

The UK is among the top five foreign investors in Africa with a foreign direct investment (FDI) stock of US$46bn in 2017, and last year, British firms invested US$5.6bn into greenfield African projects, up from US$2.2bn in 2017, according to the World Investment Report 2019. Britain hopes to become the largest 'Group of Seven' investor in Africa by 2022. Bilateral trade between Britain and Africa totalled almost US$42bn in 2018, mostly concentrated in South Africa and Nigeria. The London Stock Exchange has the largest concentration of African publicly quoted companies (more than 120) with a combined market capitalisation of US$70bn. Britain's 2018 foreign aid was US$19.4bn, of which one-fifth was channelled to Africa. In fact, the UK is one of only five Development Assistance Committee (DAC) members that meet the UN target of 0.7 per cent of overseas development assistance (ODA), relative to gross national income.

A new British-Africa partnership focus was unveiled in 2018 promoting economic development, private-sector investment and enhanced security, pointing to future ODA increases to Africa in these areas. New trade envoys to some Africa countries were appointed – tasked with ensuring that businesses flourish during a new era of 'Global Britain'. The UK and South Africa are co-leading the Commonwealth Digital Connectivity Agenda, which aims to quadruple trade between Commonwealth countries by 2030 through digital innovation. Former UK Foreign Secretary, Jeremy Hunt put it, "Time for the world to see African nations as partners for investment and trade."

Top 10 recipients of CDC Investment in sub-Saharan Africa

Country	Total portfolio valuation 2017	Direct jobs *	Taxes paid **
	US$mn	('000)	US$mn
Nigeria	363,121	42,779	0.616
South Africa	322,244	61,015	70.43
Kenya	267,804	25,306	91.86
Côte d'Ivoire	250,323	5,110	23.03
Cameroon	158,290	5,149	44.70
Zambia	146,124	6,900	16.18
Ghana	130,242	10,630	0.637
Uganda	120,962	2,845	7.41
Congo (DRC)	54,401	4,859	1.01
Ethiopia	29,870	4,526	5.66

**Supported by CDC investee companies*
*** By CDC investee companies*
Source: CDC Group plc

New trade arrangements

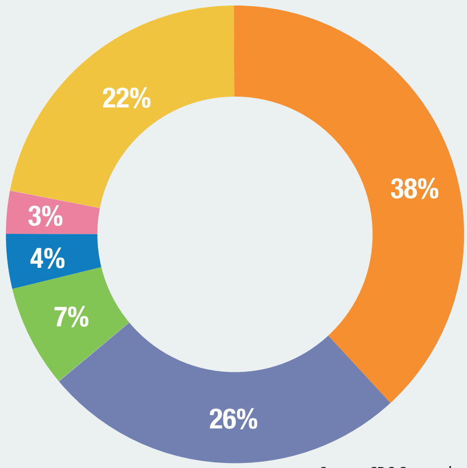
Britain has a network of partnership and association agreements across Africa – currently held by the EU Commission. A major focus over the past two years has been working with African governments towards continuity and transition from those EU trading arrangements to UK ones. The EU's existing Economic Partnership Agreement (EPA) with five Southern African Customs Union (SACU) countries: South Africa, Lesotho, Swaziland, Namibia and Botswana is being rolled over. That will be extended to all of the Regional Economic Communities: Southern African Development Community (SADC), Economic Community of West African States

(ECOWAS), East Africa Community (EAC) and Central African Economic and Monetary Community (CEMAC).

"All developing countries that have EPA with the UK have said they want to maintain their existing arrangements after we leave the EU, and we have already signed a continuity agreement with eastern and southern African countries. We also intend to introduce a trade preference scheme that will benefit around 70 developing countries," stated the Department for International Trade (DfIT).

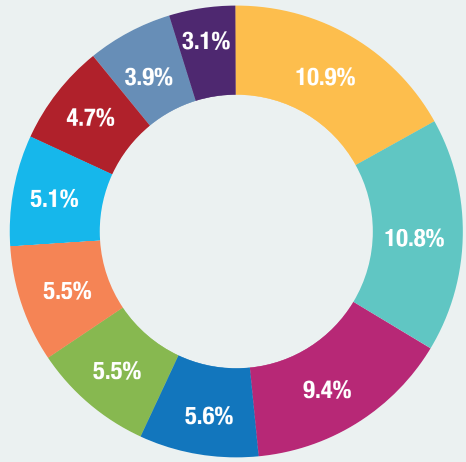
The objective is to replicate the existing EPA governing goods, trade and maritime services between EU and the African continent (signed in 2016), thus allowing African countries to enjoy similar access to Britain as is currently with EU 27 markets in post-Brexit era. The government has also introduced a Taxation Bill (Cross-Border Trade Bill) to enable Britain to put in place a trade preference scheme for developing nations as it exits the EU, which will, among other things, guarantee the same level of market access as the current EU trade preference scheme, thereby maintaining duty-free, quota-free access for the least developed countries (majority African) and offering generous tariff reductions to 25 other developing countries.

Sector breakdown of CDC investment 2017



Source: CDC Group plc

Top 10 recipients of UK official aid to Africa 2017



Source: Department for International Development

Official development support

Britain encourages direct investment to Africa through various channels, namely UK Export Finance (UKEF), the world's first Export Credit Agency (established in 1919) to provide exporters and banks with cover for overseas payment risk (i.e. underwriting loans) in support of British capital goods and service exports, as well as 'pre-export' financing, including working capital. UKEF is supporting a project (worth around US$100mn) to expand and refurbish Kumasi Market in Kumasi, Ghana's second-largest city.

The Department for International Development (DfID), which provided US$3.8bn to Africa (the second-largest bilateral donor after USA.) in 2017, also invests in some African-dedicated funds such as the Emerging Africa Infrastructure Fund and InfraCo Africa. The former provides long-term debt from US$10-36.5mn for greenfield projects, while the latter prioritises projects that have a positive developmental impact but need seed capital and technical expertise to become 'bankable' – thereby attracting private investors.

The UK's development financial arm, CDC Group, injects money into sustainable/ managed private businesses, including small- & medium-sized enterprises directly as equity or debt. In 2017, CDC had net assets of US$5.3bn, of which 49 and 37 per cent, respectively, were invested in Africa and South Asia. It aims to invest as much as US$4.5bn in Africa by 2022, almost tripling its existing African portfolio of US$2.6bn. Nigeria, South Africa and Kenya received the bulk of CDC investment, followed by Côte d'Ivoire and Cameroon (see Table 1).

What can Africa offer in post-Brexit era?

African economies are a vital component of the UK's future trading relationship with the world after Brexit. Six of the ten fastest growing economies in 2018 were in Africa (World Bank data). This year, economic growth in sub-Saharan Africa (SSA) is expected to average 3.4 per cent – exceeding the UK's 1.3 per cent (IMF data). Africa is also among the lowest cost producers of several raw materials, which increases the attractiveness of its resource sector to global companies.

A quarter of the world's consumers will be African by 2050 – a point highlighted by former British Premier, Theresa May. The labour force will increase at double the rate of the last decade. By 2030, half of the annual hike in the global working age population will come from SSA. The 'demographic dividend' and accelerating technological change will drive rapid growth in consumer markets and business supply chains – hence opportunities for both UK and African companies. McKinsey Global Institute predicts household consumption and business spending in Africa to reach US$2.1trn and US$3.5trn, respectively, by 2025. Consumers in Nigeria (largest regional economy) alone could account for one-third of Africa's consumption growth in coming decade.

DfIT recently published analysis on the respective share of UK companies in African markets and where there is untapped potential. British participation runs across the board: oil/gas, mining, related infrastructure and financial services, which underpin the growth and diversification of host countries. UK-based private equity firms like Actis Capital, Helios Investment Partners, Development Partners International and Emerging Capital Partners invest heavily in brewing, banking, telecoms, utilities and industrials across Africa.

Furthermore, British expertise is evident in renewable energy, clean water supply, sanitation, agro-tech, healthcare and education. The British government announced a new US$5mn English language programme in French and Portuguese speaking African countries.

Brexit also holds significance for Europe and Africa's political/economic ties. Britain's departure from the EU's influential security, aid, trade and development apparatus means a range of different governments and businesses must take necessary steps to adapt to the emerging reality. Carlos Lopes, former Executive Secretary of UN Economic Commission for Africa, said, there was "untapped potential of EU-Africa trade", but argued that the EU, instead of complaining about China's activities, should instead focus on deepening its engagement with the continent.

In summary, British investment and trade with Africa has increased steadily in the last decade, however, greater clarity on the post-Brexit role in Africa is needed to preserve bilateral and commercial relationships going forward. There is potential for UK and African companies to take advantage of diverse opportunities in each other's market after Brexit. ■

By Moin Siddiqi, economist

Africa Logistics Properties' first warehouse park in Tatu Industrial Park in north-east Nairobi.

Image Credit: Africa Logistics Properties

Warehousing automated tech is industry's future

Warehousing Vision Study by Zebra Technologies, validates the need for automated technology in the warehousing industry as the on-demand economy continues to grow and replace traditional business models.

Automation and worker augmentation solutions will be a major facet in the warehousing industry over the next five years in order to keep up with with the on-demand economy, according to the latest research.

The Zebra Technologies *Warehousing Vision Study* asked more than 1,400 IT and operational decision-makers worldwide about their current and future planned strategies for modernising their warehouses from 2019-2024.

It found more than 77 per cent of respondents agreed that augmentating workers with technology is the best way to introduce automation in the warehouse, but only 35 per cent of respondents had a clear understanding of where to start automating.

Regarding the study, Ryan Martin, principal analyst at tech market advisory firm, ABI Research, said, "The Zebra 2024 Warehousing Vision Study validates the explosive growth in warehousing automation technology. Warehousing and logistics are driven by the promise of just-in-time service delivery and the desire for first-time right results. To achieve these goals, IT and operations decision-makers are making big bets on tech-led initiatives to transform their business, and they are taking their customers and partners with them. These bets include everything from wearable bar code scanners and smart glasses to robotics, analytics, and AI.

"The net effect of increased investment in connected, workforce-enabling technologies is a higher degree of automation across the organisation. This is particularly notable as ABI Research forecasts there will be almost 60,000 new warehouses globally by 2025."

East Africa

Africa Logistics Properties (ALP) has become the first group to develop A-grade warehousing in Kenya.

ALP CEO Toby Selman said the company was building logistics warehouses at a 8.5 per cent rate, stated a report by Africa Property News.

He said, "With Nairobi being East Africa's key trading hub, businesses operating in the region are demanding access to warehousing facilities that are able to offer operational and costs efficiencies and safety and security, allow adoption of modern technology and double up as urban distribution centres."

Freight Forwarders Solutions (FFS) signed a 10-year lease for ALP's first Nairobi warehouse in Tatu Industrial Park, north-east of Nairobi, which opened in September 2018. The complex provides 50,000 sq m of modern warehousing facilities for international and local companies.

FFS is the contract logistics arm of Freight Forwarders Kenya, which is focused on inbound cargo, freight and transport services as well as project cargo in East Africa.

At the time of the signing, FFS managing director, Ben Clay, said, "Kenya has been crying out for a development of this specification and ambition," adding that, "this best-in-class logistics facility will enable us to provide an end-to-end delivery."

Over in Mozambique, logistics giant Agility is close to opening the first phase of a world-class warehouse park in Maputo in the second quarter of 2019.

Speaking ahead of the second annual bilingual MozamReal Property Forum, on 5 June, where she was going to provide a site tour of the first phase of the park, Deanne de Vries, senior vice president for Agility Africa, said, "Agility is a long-term sustainable investor and is a strong advocate of the future of Mozambique".

She stated the company was building "a pan-African network of international standard warehouse parks" for companies to access "the burgeoning African market enabling the development of trade internationally, domestically and regionally."

With a soaring population growth, increase in technology adoption and five per cent average GDP growth across the continent, she stated that the need for warehouse parks are a product of the changing macroeconomic trends of small and medium enterprises and ecommerce fulfillment in Africa, adding that, "E-commerce can require four times more warehousing markets than traditional logistics pathways".

The warehouse park is situated on a 29-hectare site on the Maputo Ring Road in Marracuene, Mozambique. In time, the Agility park will provide 175,000 sq m of world-class warehousing to local and international companies, the equivalent of more than 24 football pitches.

De Vries said, "Our partnership with MozamReal will help us get the word out to even more companies and individuals about our warehouse park." ■

By Samantha Payne

> "There will be almost 60,000 new warehouses globally by 2025"
>
> RYAN MARTIN, PRINCIPAL ANALYST AT ABI RESEARCH

Key findings

- 61 per cent of decision makers plan to enable labour augmentation with technology in the warehouse
- 73 per cent of respondents believe human interaction gives them the most optimal balance in warehousing, with 39 per cent citing partial automation (some human involvement) and 34 per cent citing augmentation (equipping workers with devices) as their preference.
- Decision-makers anticipate using robotics for inbound inventory management (24 per cent), outbound packing (22 per cent) and goods in/receiving (20 per cent) by 2024.

Source: www.zebra.com

Oil & gas and mining companies can reduce costs, increase production and prevent downtime with designed storage

Seemingly unimportant items such as hoses on oil rigs, filters and windscreens on mining sites, as well as gaskets, drive belts or fixings are absolutely essential to your operation and need to be immediately accessible and in perfect condition when required, according to storage systems company, Stodec Trading.

The costs and frustrations of buying and storing key components only to find them cracked, split, or distorted when they are needed has driven the development of storage units designed to prevent this.

Hose storage can require different configurations depending on size, material characteristic, connections and fittings and may need either vertical, horizontal, or coiled hanging, or coiled flat locations.

Recent installations on oil platforms in Azerbaijan and mining locations in Mauritania and Angola have been able to deal with this range of variables. A combination of cantilever racks, spigot panel supports shelving, and hanging units have kept aisleways clear, product in good condition, and the many irregular items in their own location for fast access and stocktaking.

The same issues affect gaskets and drive belts where distortion or damage from careless or incorrect storage can result in plant failure with corresponding downtime and cost.

Windscreen and glass panel storage, particularly in a mining operation, is another area where damage in store can be frequent and result in truck downtime or dangerous driving without clear vision.

Storage units are available based on standard racking with adjustable dividers to keep the screens vertical and separate and with board bases to prevent edge damage. Installing the correct storage units for these key items can prevent major problems when damage or breakdown occurs.

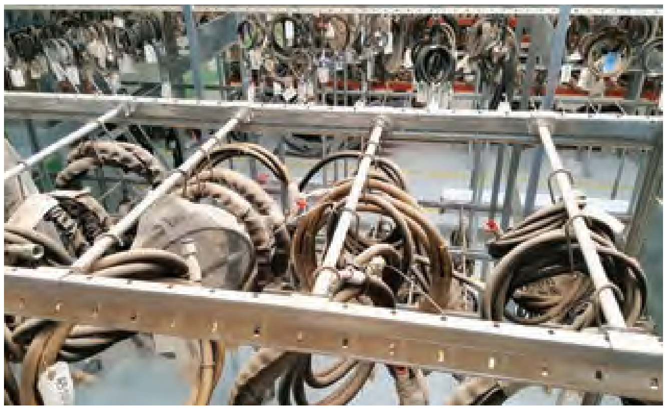


Image Credit: Stodec Trading

Stodec Trading has recently installed hanging units on oil platforms in Azerbaijan.

Consider your storage equipment as essential to keep your operation running, not just as a space or shelving area to dump things until you need them. Proper storage design can play a part in achieving safe working and profitable results.

A relatively small investment for relatively small components can prevent relatively major costs and disruption.

Stodec Trading website (www.stodec.co.uk) shows more detailed information regarding specialist storage solutions, and a detailed brochure can be downloaded.

Growing demand for E-house solution in South Africa

A range of industries are now benefiting from the versatility and speed of E-houses (customised, pre-assembled modular power substations), according to medium to heavy engineering specialist and solutions provider, Parnis Manufacturing.

"While the E-house is not a new concept, customers are realising the value of giving an experienced company like Parnis Manufacturing the overall responsibility of project managing the full scope of their specific solution," says Mario Guerini, chief operating officer at Parnis Manufacturing. With its established skills base and fit-for-purpose machinery, the company has been serving industry for over 45 years.

Image Credit: Adobe Stock

Datacentres are popular applications for E-houses.

A recent contract saw the fast-tracked production of a 13-metre by 4-metre E-house, from design through to delivery, in three months. Working to stringent quality standards and under close supervision, Parnis Manufacturing was able to take the structure through various testing processes before being signed off by a registered professional engineer. E-houses of up to 22 metres in length can be constructed and are limited only by the logistics of road transportation.

"We combine our experience in different disciplines such as mechanical and electrical engineering, with our project management expertise and advanced fabrication facilities," says Guerini. "Typical applications for E-houses today range from back-up energy solutions and data centres, to hydraulic power packs and motor control centres."

Customer benefits include high-quality wall panels. These are designed to be interchangeable in the walls and roof, making it simpler to allow access for equipment.

"Walls can be removed even after assembly to create space to move equipment in and out, and to allow more than one team to access the space at the same time," he says. "This innovative approach also greatly shortens the time required to fully commission the units."

The bolting of panels also allows for quick and accurate assembly, as this reduces welding to a minimum. Tolerances as low as 3mm can be achieved. The panels can also be surfaced and painted prior to joining, thereby also reducing handling costs.

WATER TREATMENT PLANT SET UP AT UNIVERSITY

Veolia Water Technologies South Africa has supplied Stellenbosch University's Business School with a potable water treatment plant, as the University initiates its drought response plan.

The containerised plant – part of Veolia's locally manufactured standard products – abstracts and treats 150 m^3/day of water drawn from a nearby quarry to potable standards, and was supplied on a two-year rental agreement to supplement the municipal bulk supply.

Manufactured at Veolia's water techno packages fabrication plant in Sebenza, Johannesburg, these plants include clarification, filtration, membrane technology and disinfection, all packaged within a robust steel container, and provide plug-and-play potable water treatment. Veolia also supplied storage tanks and distribution infrastructure. Veolia will supply all necessary flocculants and polymers from its Hydrex range of water treatment chemicals, and carry out all operations and maintenance requirements.

AGREEMENTS OVER DRC HYROPOWER PLANT SIGNED

The electricity purchase agreements for the Ruzizi III hydroelectric power plant in the Democratic Republic of Congo (DRC) have been signed after six years of negotiations.

Law firm Gide assisted the Organisation for Energy of CEPGL (EGL) and the governments of Burundi, the DRC and Rwanda, as well as their respective national utility companies, REGIDESO, SNEL SA and EUCL, on negotiating the agreements for the 147MW hydroelectric power plant project. It is located on the Ruzizi River, straddling the border between Rwanda and DRC.

It is the third power station along the river, which runs from Lake Kivu through to Lake Tanganyika in Central Africa, benefiting the countries of Burundi, DRC and Rwanda.

Costing an estimated US$650-700mn, this project is an iconic electricity independent production project (IPP) in the African Great Lakes region. Based on a Build-Own-Operate-Transfer (BOOT) structure, the project is backed by a 25-year concession agreement, and electricity purchase agreements entered into with each of the national utility companies for an equal share purchase of the electricity generated by the project.

It is widely supported by international financial institutions (the World Bank, the African Development Bank, the Kreditanstalt für Wiederaufbau (KfW), the French development agency (Agence Française de Développement, AFD), the European Investment Bank, the European Union), which are ready to contribute in a great proportion to the financing of the project in order to maintain an affordable tariff of electricity generated by the plant.

Financing considered for the project is a unique combination in Africa of concessionary funds, subsidies, commercial debt and private funds. Gide's team was headed by partners Stéphane Vernay and Marie Bouvet Guiramand.

BRIEFS

Image Credit: International Rivers/Flickr

The dam site is on the largest waterfall in the world by volume, the Inga Falls.

Will Grand Inga Dam be revived?

The next stage of the Grand Inga Dam hydroelectric project in the Democratic Republic of Congo could be prioritised after it was discussed at the African Union Extraordinary summit in Niger. Phases one and two have already been completed, generating, almost 1,800MW.

Amani Abou-Zeid, AU's Commissioner for Infrastructure and Energy, said, "Grand Inga is a priority because Africa needs a lot of megawatts as it proceeds to its industrial phase."

Renewables will be introduced in Libya

Image Credit: Adobe Stock

Libya considers adding renewables to its energy portfolio.

The head of the presidential council of the Libyan Government of National Accord, Fayez al-Sarraj, met with Eni's CEO Claudio Descalzi to discuss introducing renewable energy in Libya and Eni's activities in the country.

Following the MoU signed last year with GECOL and NOC, Eni has contributed to the improvement of the power sector, supplying spare parts and technical assistance allowing the recovery of 425MW of power output in the Tripoli area.

Could distributed energy systems be the answer to blackouts in Africa?

The distributed energy system was launched at Siemens headquarters in Midrand last year.

Image Credit: Siemens

Nancy Onyango exclusively interviews Johan Helberg, country manager of Kenya from Siemens, about its end-to-end distributed energy system and benefits as a clean and reliable source of energy.

What is the distributed energy system (DES)?

The DES uses locally available energy resources such as solar, wind and gas to generate electricity near point of consumption.

From a technological perspective, the DES brings together different sources of energy generation and controls them in the best possible way so that whoever the user is, they can get the cleanest and cheapest source of energy. In practical terms, let us say you are in a small town if you have got little hydropower from a small waterfall, you have a diesel generator and a bit of solar energy, you can decide on how to keep the lights on while switching in between the various sources of energy.

At Siemens, we provide a comprehensive portfolio to monitor, control, and operate these microgrids – no matter what size. Thanks to our open interfaces and international standards, our offer can be seamlessly integrated into existing solutions. With our control solutions, we monitor all components involved, thus protecting your local power supply against blackouts and balancing out grid fluctuations as well as fluctuations in power consumption. Additionally, our advanced control and optimisation software allows to maximise the value of onsite energy resources in co-ordination with local utility or wholesale market rates.

Our very first DES project has been installed in our own facility, Siemens Park in Johannesburg. We have installed a rooftop solar system to just below one megawatt because that's the regulated threshold to get the IPP license in South Africa. Our vision with this was to bring down our energy consumption down, as we wanted to walk the talk.

Are you completely off the grid now at the Siemens Park?

We can be off the grid but we are not, due to regulatory challenges. By midday each day, we generate all the energy required to run the Siemens Park on the PV only. On paper, we have got 100 per cent saving and pumping the energy that we save to the city of Johannesburg power grid.

What are your plans to roll out the DES across the continent?

We are trying to push this into Africa but there are substantial challenges because the regulatory grip is still very strong. Regulations are very important but they must be an enabler of business not a roadblock.

What is needed for a sustainable energy generation system across the African continent? If you look across the African continent, it seems as if we are struggling to keep the lights on in most of the African countries.

The question is do we have the resources? The answer is yes. If we go down the traditional fossil fuel route, which is not sustainable, we have got enough crude oil and natural gas. There is also enough space and water to put up nuclear plants. If you consider renewable energy, and look at the fault lines especially the Great Rift Valley which runs from Egypt to Malawi there is over 300GW of potential geothermal energy that can be tapped for the next 100 years. Our wind and sun availability also are untapped. We have got enough energy, but what is Africa going to do about it? That is always my question to African ministers of energy.

So, what is the missing link?

Africa has not decided who they are. What are the standards? What are the standards that are applicable for Africa? We have adopted world standards but we need to take the best from the East and West and adopt the standards that work best for us.

We are the resource basket of the world. We have got all the energy, minerals and the most important resource, human capital in the form of the youthful population who make up more than 50 per cent of the world's youthful population. The value of the youth is not being addressed.

What is Siemens response to this?

According to the Future of Work Report, technology companies based in Africa identify inadequately skilled workforces as a major constraint to their businesses. At Siemens, we are alleviating this challenge by investing in science, technology, maths and engineering programmes (STEM) in Africa to ensure that there is a pool of graduate engineers that we can tap into when we execute projects.

In Kenya, we are partnering with Dedan Kimathi University of Technology to enhance the quality of training of engineers especially in mechatronics and electrical and electronics engineering. At Siemens, we are convinced that a company is only entitled to exist if it creates sustainable value for society over the long term.

Siemens installed a rooftop solar system at its facility in Johannesburg.

Image Credit: Siemens

Are the distributed energy systems (DES) and microgrids the answer to power blackouts across the continent?

Yes. The DES and microgrid are an efficient, powerful, and ingenious energy solution. These reliable, emergency-ready systems can lead to fewer blackouts, greater cost savings, and less dependence on fossil fuels. At Siemens, we have a microgrid management system that coordinates with the utility grid and allows power to be optimised according to availability and cost. ■

DLA Piper: Operating at the forefront of the energy market

During the Africa Energy Forum, *African Review* caught up with DLA Piper partner, Dimitri Papaefstratiou, on the success of the Bridge Power Project in Ghana, and why LNG is the next biggest trend in the energy market.

Global law firm DLA Piper has an impressive footprint across Africa, operating in 20 countries across the continent.

"We are unique in the sense that we have not only a large group of practitioners in global business hubs that make deals in Africa, but we also have an incredible footprint in Africa itself – I don't think any other firm has this type of footprint in Africa," partner Dimitri Papaefstratiou told *African Review*.

One of the global law firm's most recent successes was its role in advising on the vendor financing for Stage 1 of the 400MW CCGT Bridge Power Project in Ghana. The project is constructed and vendor financed by Metka, the business unit of the Greek company Mytilineos S.A and will be one of the largest liquefied petroleum gas (LPG) fuelled power projects in the world. It will provide 17 per cent of the reliable generation capacity in Ghana and improve the fuel mix diversification of the country.

"Metka has done something quite unique and is one of the few large scale thermal power construction contractors which is consistently active across the continent," Papaefstratiou said. "They have understood that one of the key ways to enter the market where there are challenging projects is to co-invest. At DLA Piper, we advised them on two aspects: the actual construction and an innovative vendor financing structure, which I don't think has been done before, certainly not in an African context. It allows the project sponsors the flexibility to pick their own time to refinance – it is a model that could be replicated across the continent."

"We were very proud of our role advising Mytilineos on this high-profile and significant project, which will help make Ghana self-sufficient in electricity by meeting both its near-term and long-term energy needs," he added.

Dimitri Papaefstratiou, partner at DLA Piper.

Other projects that Papaefstratiou has been associated with, include the Damietta LNG project in Egypt, which it is hoped will resume production after being idle for six years.

DLA Piper has a long-standing association with the Damietta LNG project, recently advising on project financing issues for the plant.

He said, "The future looks very promising, not only with what's happening in Egypt in the Zohr field that's starting to supply gas and the very large gas finds in the Mediterranean region, but also, the very large discoveries in Israel and Cyprus. Some people might see it as an oversupply of gas, but there is a very obvious win-win situation to using Damietta and other liquefaction capacity in Egypt to liquefy and export the gas finds of the Mediterranean – one can see a real push to use and monetise those gas reserves."

He believes different countries are now looking more towards using gas or LNG to power projects rather than coal. "We were involved with a big coal-fired power station in Zambia which closed in 2016, but I suspect that will be one of a small number of coal-fired projects to reach close for the foreseeable future."

Renewable energy projects are becoming more widespread across the continent but he said there are still fewer projects compared to the European market, and tend to have longer development cycles and higher development costs.

"Many renewable energy projects in Africa are still procured on a bilateral basis rather than through a tender, so you often find disagreements over tariffs taking place over the lifetime of a project. For example, in Nigeria, there is a group of solar PV projects that don't appear to have reached financial close because of on-going discussions around tariffs. It cannot have helped that tariffs agreed in the GET-FiT and scaling solar programmes are reported to have been much lower than the tariffs agreed bilaterally in Nigeria," he said.

"The challenge of the Nigerian case was that because these projects were procured bilaterally and didn't have legal certainty of a tender to point to, the government could never feel confident that they achieved the cheapest price possible for the country at that time, which has led to those projects being left in limbo.

"If you have a bilateral approach in a more challenging environment, I think there is a much greater risk that the project may stall or that the tariffs will be renegotiated, which are big risks for the private sector. For most African countries, the execution of government projects is

METKA Bridge Power Project in Ghana is one of the largest LPG projects in the world.

not a speedy process. The development cycle is longer than in some other jurisdictions, and that means you need very patient capital to stay with you through the development cycle, through the uncertainty and delay. If you reduce the development cycle time-span, have a greater solid number of pipeline projects, and a government has a clearer ability to pay for services, I think you'd find more competitive players and prices would come down. It would be a step in the right direction." ■

aef organisers win award for Mauritius event

EnergyNet has won the 'Organiser of the Year' award from the event industry's leading association, the Association of Event Organisers (AEO), for the Africa Energy Forum (aef) 2018 in Mauritius.

"It was a tough but extremely rewarding accomplishment that the team are very proud of." Charlotte Wood-Dow, senior operations manager, EnergyNet.

Another year, another success

This year's Africa Energy Forum (aef) was another success, bringing the world's energy players together under one roof at the Lisbon Congress Centre from 11-14 June.

Portugal was the host of this year's Africa Energy Forum (aef), attracting more than 2,000 attendees, 10 ministers, nine secretaries of state and 312 speakers.

Angelo Ramalho, CEO of Efacec, a country sponsor, opened proceedings by first praising EnergyNet's, (the event organiser) decision to choose Portugal. "What better place to do this debate than in Portugal. It has an unquestionable role in the development of much-needed energy infrastructures across several African countries, notably Cape Verde, Angola and Mozambique."

He made reference to finished projects and those in progress in other countries such as Côte d'Ivoire, Egypt, Kenya, Ethiopia and Morocco, adding, "With each project, we are not just providing technical expertise, we are also raising living standards and making significant contributions to the socio-economic development of these African regions."

Efacec itself was selected to build the Bouregreg Water Treatment Plant – the largest water treatment plant in Morocco. It produced and installed the largest and most powerful transformer in Angola and has been selected for the construction of three new 200kV substations in Rwanda.

Among the top deals and project announcements that took place during aef's 21st edition included DBSA committing US$4.9mn of development funding to Joule Africa's hydropower project in Sierra Leone, CDC Group setting up new transmission and distribution company Gridworks, and ATI & KfW revealing a 'Transparency Tool' – an energy solution to quicken the pace of electrification in Africa.

The African Development Bank launched the report "Revisiting Reforms in the Power Sector in Africa", while Wärtsilä announced its Modular Block solution for providing ready-to-go power plants. Facility for Investments in Small Renewable Transactions also declared a financing update for a ZAR245mn (US$17.2mn) facility for Building Energy's Kruisvallei Hydroelectric Project in South Africa.

A spokesman from EnergyNet, said, "These announcements further reinforced the forum's market-leading position as an industry driver, and suggest exciting times are ahead for Africa's energy sector."

During the event, energy solution provider KOHLER-SDMO told *African Review* it had signed an agreement to supply generators for a power plant for the national grid in West Africa. The plant consists of 10 generators of 2,000 kVA, for a total power of 16 MW in 20,000V. Cargo flights were organised during May and June from Brest Airport, Brittany.

David Raison, Africa regional director at SDMO Industries, said,"This has been an exceptional cargo operation for KOHLER-SDMO in Africa and we look forward to supplying our state-of-the-art generators to this West African client for years to come."

Clarke Energy and Kohler SDMO also opened their first assembly plant for diesel generating sets in Lagos, last year.

At the Clarke Energy stand, Yannis Tsantilas, managing director in Nigeria said the new plant was progessing well, with ambitions to double its capacity this time next year.

He said, "We are currently assembling 80-100 units per month in Nigeria, and are working at 50-60 per cent of capacity. Within the next 12 months, we need to increase our capacity because of the demand that we are facing – Nigeria is effectively producing 3-5GW while the minimum that the country requires is about 120-150GW."

In the conference rooms, debates such as how commercial banks and DFIs can contribute to financing energy projects took place and country spotlight sessions informed attendees about major trends happening in their countries.

Kola Karim, chairman and CEO of Shoreline, set the scene regarding the potential of Nigeria's gas industry and its challenges, such as regulation, foreign exchange/pricing and bankability of projects, that need to be addressed to unlock the value chain and drive the power sector in the country.

He told the audience, "We are one of the largest independent oil producers in Nigeria. Our story is simple: taking opportunities from the IOCs, taking assets and optimising them. Today we have 1.2 billion barrels of oil reserves and 3.5tcf of gas reserves. This tells you again about the opportunities in Nigeria that if worked properly can unlock the entire value chain starting from the gas value chain."

African Review also spoke to Lucy Heintz, head of renewables at Actis, (see page 30) about how the firm impacts the industry. ■

Noupoort Wind Farm in South Africa is owned by Lekela Power.

Distributed generation: Birth of new phase in energy industry

Actis' head of Africa, Lucy Heintz, talks to *African Review* at Africa Energy Forum about investing in leading energy players in Africa and future energy trends ahead.

Lucy Heintz.

Sitting opposite Lucy Heintz, after a jam-packed day at aef in June was a coup for *African Review*, especially knowing how busy and sought-after a speaker and influencer she is in the renewable energy industry – she has ranked twice among the top 100 power people in the world, in recent years.

While at the energy conference in Lisbon on 12 June, Heintz, who is head of Africa at Actis, was at the forefront of a financing deal in Egypt, but she remained tight-lipped when asked about the details.

"We never speak until a deal is closed. However, there will be press coverage about Egypt soon," she said with a smile.

Actis has an impressive portfolio of investments in the renewable energy space. Last year, it closed the 158MW Taiba Ndiaye Wind Farm in Senegal through Lekela Power which is majority owned by Actis in addition to two further deals in South Africa for Lekela Power. It completed financing for the 100MW Kipeto Project in Kenya – the second largest wind power project in the country.

Where Actis differentiates itself from its competitors and has received recognition in the industry, is in the area of environmental, social and corporate governance (ESG). Take the Taiba Ndiaye wind project for example: from the start of its construction, Lekela made sure that there was a marketplace built for the benefit of the locals. It was originally located on the road near the site.

"We appreciated and managed the health and safety risk transporting the large equipment, so we wanted to invest in the community and improve their lives, an important factor to us and our platforms that we invest in," she said.

Lekela Power, worked with the local women's community to build a proper market place to stop them trading by the side of the road.

"Now the community has a much clearer area to trade and a much bigger meeting point," she said. "There are a number of projects which don't take place in Africa because developers don't think about the implications for the local community. You have to think about birds, bats and even butterflies in some projects – with Actis, we add value to projects."

> "Now you can have a container with rooftop panels with batteries, enabling villages to access electricity"
>
> **LUCY HEINTZ**

Actis' strategy has always been to create long-term businesses like Lekela Power so that they can be a long-term partner for banks, governments and communities.

Lekela Power has 760MW of African projects in operation since construction, with another 250MW on the verge of reaching financial close.

"We invest in businesses and build them to scale, and make sure they have operating projects, a diversified portfolio and fantastic ESG practices. Once they become a substantial business in their own right that's when we make our exit," she said.

One such example is Globeleq, which is now a leading IPP in Africa. "We established Globeleq and have now created a competitor for ourselves, which is a long-term player with fantastic standards and great practices – Lekela will be the same.

"Also, by creating a Globeleq or Lekela Power, Africa is their only market and there is no other place for them to be. They won't be like an international company who comes and goes."

Trends

When questioned on what exciting trends surfaced from aef this year, she made reference to Ethiopia, which has initiated its Scaling Solar Round 2 tender for 500MW to 750MW projects and Tunisia's second 70MW solar tender.

She said there was a lot of excitement about the fifth round of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) in South Africa.

She said, "The REIPPPP has already developed more than 4GW and is leading the way in terms of what you can do with a big programme. Multiple bidding rounds has meant tariffs have gone down and power is being delivered – the population sees that. It is a model and establishes a case study for the rest of Africa and other markets as well."

A market place was set up in Senegal thanks to Lekela.

She believes the renewable revolution has enabled so many more players in the energy space globally, as well as in Africa, especially because of new technologies and developments, such as battery storage.

"Another big development is energy access. Now you can have a container with rooftop panels with batteries, enabling villages to access electricity without needing a giant plant, a long transmission line or a license to operate it," she said.

"People who have never had electricity, can access it in a completely different way to how we accessed it in Europe, which makes it very exciting. There is also a lot of investment that's going on in distributed generation in the off-grid and mini-grid sector. Despite some teething problems, this is the birth of a new phase in the industry," she added. ■

IMPROVED DESIGN AND EFFICIENCY TIPS BALANCE TOWARD HV MOTOR REPLACEMENT

The applications knowledge of Zest WEG Group, coupled with the design capability of parent company WEG, now make it easier for old high voltage (HV) motors to be replaced with improved HV machines within the customer's existing footprint and operational configuration.

Compared to HV machines designed 20 to 30 years ago, advances in technology allow for these HV units to often be manufactured smaller than the originals, says David Spohr, Zest WEG Group's newly appointed business development executive. He works with customers to optimise their HV motor operations.

WEG's HV motors are typically purpose-built to meet the precise needs of the customer. While smaller in dimension compared to the original older HV motors, these motors still deliver the required performance at even higher output and efficiencies.

"As a leading technology provider of a wide range of motor products, we have the capability to design a replacement motor to match the footprint of the original unit," Spohr says. "This means it is not necessary for the customer to modify mechanical infrastructure or electrical design to accommodate an upgraded motor."

He notes that, with the design lifespan of electric motors which ranges between 20 to 30 years, there are still many old units in operation around South Africa. Technological improvements in motor design and efficiency, however, present a case for the replacement of old units rather than repeated repairs.

Spohr highlights that the cost of a major motor overhaul could be up to 60 per cent of the cost of replacement. The advanced technology of the new units, however, bring important benefits. Strategic among these are reliability and efficiency, which means improved operational performance and direct savings in energy consumption

Image Credit: Zest WEG

High voltage mill drive motor in operation at a mine in South Africa.

"When motor failures occur, Zest WEG Group has the ability to conduct a detailed on-site analysis," Spohr says.

The assessment includes an energy consumption analysis conducted with specialised software. In the light of the machine's application, Zest WEG Group recommends enhancements for greater control and efficiency. These include motor control options such as variable speed drives (VSD) for applications such as fans and pumps.

"There are also significant productivity benefits from a new, more reliable motor," says Spohr. "Unplanned downtime can severely erode plant performance, reduce output and risk supply relationships with customers. All this needs to be considered in the decision to continue repairing old motors."

COMMERCIAL FEATURE

Delivering spare parts on time to the highest standards

At Blumaq, they offer a 24-hour European and 48 hour worldwide delivery service, with more than 90,000 items ready for immediate delivery.

But what is stock? The stock, or inventory, of a company is defined as "the group of goods found in it, accumulated in a specific place, in transit or immersed in the production process, and which objective is their business application in industrial or commercial processes". In this way, a correct stock management guarantees an adequate control and response to our customers demand.

Blumaq has many subsidiaries around the world.

Image Credit: Blumaq

Why is it important to have a large stock?
Blumaq, which delivers replacement parts and maintenance products including engines and alternators for construction and mining equipment, can deliver their spare parts on time because customers must have the peace of mind in the event of any unexpected situation or emergency repair. Customer satisfaction is very important to the company, and offering a part on time is as important as the quality of the delivered part itself. They say this fact distinguishes them from their competitors.

To be able to offer this service, Blumaq has a wide variety of stock available in all of their subsidiaries across the world: in Turkey (with three locations), USA (with two locations), France (with two locations), Romania, Portugal, Zambia, South Africa, and in Russia (with two locations). These are the countries in which Blumaq offers a fulfilled service, as well as in other countries which are part of its distribution network, covering more than 168 countries.

What is the main function of the stock?

- To ensure a consistent supply, enough to be able to give service to customers.
- To allow them to support their customers when they demand the product or service.
- To make personalised and adapted offers to each customer, enabling the creation of orders with delivery times as real as possible.

Taking this data into account, Blumaq is aware of the importance of having a large stock and knowing how to make their spare parts reach customers as soon as possible to the highest quality standards.

Good customer service combined with the quality and guarantee of their brand is their winning formula.

OMV RAISES OUTPUT AND QUALITY AT GYPSUM PLANT

After significant upgrades and expansions to its manufacturing facility at Potchefstroom, leading gypsum supplier OMV has boosted its supply capacity while improving its gypsum quality.

OMV produces synthetic gypsum from the phosphate waste-product of the fertiliser industry, supplying the cement, agricultural and industrial sectors.

Image Credit: OMV

One of two conveyor belts for the first stage of moisture removal from gypsum slurry before it leaves the washing plant at OMV's Potchefstroom facility.

According to OMV mechanical engineer Marinus van den Berg, the company has upgraded and automated its washing plant, while also adding a kiln drier and a calcining plant.

"The redesign of the washing plant included changing to a continuous lime batching system," van den Berg says. "This improves the controllability of the process and the product quality. Standard deviations of the pH levels – a primary control parameter – are now down to 0,2 pH points."

The washing plant upgrade meant full automation and higher availability. It also included a completely new laboratory, now staffed with a chemical engineer and chemical technician to focus on quality control. He emphasises the peace of mind that comes with a product of consistent quality. For industrial customers in particular, a dependable standard means less need to adjust their process in response to variabilities in the gypsum feed.

A major enhancement of the gypsum facility has been the addition of a rotary drying kiln. This allows reliable supply to customers even during the rainy months.

"The kiln reduces the moisture content in our gypsum by an extra 10 per cent," he says. "This has made our year-round supply more reliable, while the drier material also saves on road transport costs."

An important part of the technology employed in the kiln is optimised fuel economy for lower carbon emissions. Along with the kiln installation has come the construction of an undercover gypsum warehouse with 30,000 tonne capacity.

Image Credit: OMV

OMV's new calcining plant has been installed in its undercover warehouse, with the testing laboratory on the left.

Senegal's energised renaissance

Sebastian Wagner, CEO of DMWA Resources investment firm, says there is a chance for Senegalese economic growth but many steps need to be taken to avoid the pitfalls of a curse.

After decades of struggles against a deficient power generation system, Senegal is now at the verge of a paradigmatic shift that could put many of its troubles to rest. With new power generation facilities, power outages have greatly diminished, system reliability has improved and with it, the opportunities for economic growth. To be sure, many still live without access to electricity. On average, four in every 10 people are not connected to the national grid. The situation is worst outside the main urban centres, where 60 per cent of the population remains unconnected, but the chance to improve this situation has never been closer.

At a production capacity of a little less than 1 gigawatt for a growing population of 15 million strong, investment in further generation capacity is paramount if Senegal is to ever develop its internal market and give its citizens a shot at a better standard of living. However, sustainability must guide decision-making as much as strategic need.

The imported heavy-fuels and coal used to generate most of the country's power comes at a heavy cost for the state's coffers. In 2016, refined and crude oil imports cost the Senegalese state more than USD$1.5bn.

Sustainable power

The alternatives are obvious. Senegal is blessed with many hours of high solar exposure and wind flows. The opportunities are also there to be seized. French power company ENGIE and investment company Meridiam won a tender in April for a 60MW solar park. This will build on the country's established renewable generation projects, which now amount to 80MW. As the price of solar and wind technologies decreases, these technologies have become more and more appealing in recent years which also has a positive impact on the cost per MW for the consumer. ENGIE's park will cost 40 per cent less than the previous endeavours in solar in Senegal. Another 158MW of wind power is planned by the Lekela Power company in Taiba N'Diaye.

> "Almost half a gigawatt of installed capacity will be available in 2020"

These developments build on a combination of factors. Senegal's reputation for stability and positive business environment have made the West African nation luring for foreign investors. Investment has come not just from the country's traditional partners in the West, but from the East, with Turkey, China, the UAE, South Korea and India making sizeable investments in the country. To the growing interest of private investors adds the support from international institutions like the United States-led Power Africa programme, Overseas Private Investment Corporation (OPIC), or the International Finance Corporation (IFC), a part of the World Bank Group. These organisations have helped finance many power generation-related projects throughout the continent. In partnership with the government, through the Scaling-Solar scheme supported by the IFC, these projects, including the new 60MW solar park project won by ENGIE and Meridiam, are bringing relief to the country's struggling power grid.

Since 2016, when the first solar power project was launched in Senegal, the country has seen a fast development in renewable energy projects. If all goes well, almost half a gigawatt of installed capacity will be available in 2020 – that would be one of the fastest increases in renewable to fossil fuel generation ratio in the world.

The gas bliss

Kosmos Energy's discoveries of large quantities of natural gas reserves in the offshore regions of Senegal has come as a game changer for the country. Over the last couple of years, successive finds have risen the estimated in-place reserves of the country to up to 50 trillion cubic feet of natural gas, propelling it to the top five of Africa's biggest natural gas holders.

Exploration license holders Kosmos and BP have already suggested a fast-track development using a floating LNG facility that could see first gas being commercialised as early as 2021 from Greater Tortue/Ahmeyin fields. Additional discoveries in 2017 have made the companies consider two rather than one train of LNG processing capacity. This means that very soon Senegal can have access to an inexpensive source of energy it can use to power its homes and industries, not to mention a new and strong stream of income.

The political will seems to be present for that to take place. February's announcement of the agreement between Senegal and Mauritania for the exploitation of their shared natural gas reserves in the Greater Tortue Complex, which holds up to 25TCF of natural gas, is a symbol of the times. Quick decision-making among political leaders focused on economic development.

Already, plans are being made to convert heavy-fuel turbines to operate with natural gas. Just in April, the technology group Wärtsilä won a tender for the deployment of a 130-MW Flexicycle plant that can operate in a combination of different fuels so it can immediately be shifted to natural gas once the resource is made available. The country's older power plants will soon follow.

By using natural gas as a power source, the national grid will be able to offset the intermittency of renewable power supply while saving millions in fuel costs and reduce CO_2 emissions. ■

Source: African Energy Chamber

Image Credit: African Energy Chamber

Lagos gears up for eighth edition of Power Nigeria

Lagos is set to host the eighth edition of the Power Nigeria Exhibition & Conference – West Africa's largest power and renewable energy event.

Power Nigeria, an annual power and renewable energy event, is widely recognised in the industry as creating an effective match-making platform, and bringing major stakeholders together from across Nigeria and West Africa to meet manufacturers and suppliers from more than 24 different countries – all of who will be displaying their products and innovative technologies to the Nigerian market.

The 2019 edition will bring together key delegations from regional government bodies and infrastructure and public utilities including the Federal Ministry of Power, Works & Housing; the Transmission Company of Nigeria (TCN); the Nigerian Electricity Regulatory Commission (NERC); the Nigerian Investment Promotion Commission (NIPC); Abuja Electricity Distribution Company (AEDC); Eko Electricity Distribution Company; IKEJA Electric; Ibadan Electric Distribution Company (IBEDC), and others.

Also taking place during the exhibition is the much-anticipated Power Nigeria Agenda, a three-day CPD Certified Conference where industry leaders will discuss critical topics such as:

- Customising existing power plants for the greatest ROI
- Capitalising on the digitalisation of Nigeria's power sector
- Deployment of effective financing and funding
- Key trends and procurement transformation.

Image Credit: Informa Markets

Eng. Ahmed Abdu, H.E. Yusuf Barnabas, and Simon Parker meeting at one of the previous power shows.

Commenting on the free-to-attend conference is Deep Karani, exhibition director of Power Nigeria, he said, "Over the past few years, our teams have worked tirelessly to ensure the Power Nigeria agenda focuses on innovations and advancement of the Nigerian power sector. The 2019 edition will discuss topics such as financing, procurement, digitalisation, renewable energy reforms, and more. The conference is set to reinforce Informa Markets' commitment to actively cultivate Power Nigeria into the largest technology sourcing platform and create invaluable networking opportunities for international and local companies to connect, network and drive growth into future investment opportunities for West Africa."

> "The conference is set to reinforce Informa Markets' commitment to actively cultivate Power Nigeria into the largest technology sourcing platform"
>
> **DEEP KARANI, EXHIBITION DIRECTOR OF POWER NIGERIA**

The event brings together many stakeholders in the power sector in Nigeria.

Image Credit: Informa Markets

"Attendees of the Power Nigeria Agenda can expect presentations from industry representatives of the African Development Bank (AfDB), Dangote Industries and Ministry of Power, Works and Housing among others. The exhibition will also feature a brand-new display zone highlighting products and solutions from Mantrac-Caterpillar, Eaton, Tranos and Philips Lighting.

"I would like to also extend our appreciation towards our main sponsor Skipper Seil for their continued support and commitment towards Power Nigeria," added Karani.

Power Nigeria exists to serve the West African and Nigerian energy market. Informa Markets say the event has successfully established itself as an annual hub for suppliers to meet buyers, driving the energy markets in Nigeria forward. The international brand status combined with local knowledge and stakeholder partnerships results in making Power Nigeria a must-attend event for all energy industry professionals. Interested attendees can register for free at www.power-nigeria.com ■

Generating efficiency

Teksan is one of the few global companies that uses both hybrid and gas driven power generation technologies to suit specific client needs.

Image Credit: Teksan

Offering services with uninterrupted power solutions for 25 years, Teksan Generator is growing fast on the global scale by expanding its geographical coverage and fortifying market position through its strong sales and services network. The company, which is enlisted among "Turkey's Top 500 Industrial Enterprises", provides diesel, natural and biogas gensets, lighting towers, cogeneration trigeneration and hybrid power systems with comprehensive technical services. Furthermore, Teksan can serve its customers with niche solutions such as super silent solutions as well as composite canopies, which are the choice of the professionals that are in search of uniqueness in comfort and better designs in their architectural projects.

Teksan, which exports approximately 60 per cent of its production to more than 130 countries including the UK, Holland, Greece, Poland, Russia, Kazakhstan, Saudi Arabia, Iraq, the UAE, Algeria, Libya, Kenya, Thailand, and many more, distinguishes against competitors through its technology, R&D, and innovations.

The company that innovates tailor made power solutions for major projects such as construction, telecommunication and data centres, retailers, hotels, hospitals, residences, mining facilities, financial institutions, sport centres and industrial plants, has noteworthy references such as Anfield Stadium (UK), Raiking Hospital (Thailand), Allai Newroz Telecom (Iraq), Jeddah Mövenpick Hotel, Rejal Alma Sewage Treatment Plant (Saudi Arabia), ING Bank Haagse Port Investment Banking and Vodafone Arnheim Building (Holland), besides other global projects.

Teksan, one of the few companies in the world that can use hybrid power generation technologies, is also differentiated with its natural and biogas driven cogeneration trigeneration systems, which utilise renewable sources such as solar and wind to deliver higher energy efficiency rates up to 90 per cent, and decrease the payback period of the investment to a short span such as two to three years while reducing carbon emission by 40 per cent.

Teksan Hybrid Genset, a solution where diesel engine and battery bank can be integrated to renewable energy sources to power off grid projects such as telecom towers and oil drilling platforms, decreases payback period of investments up to 1.5 years by reducing fuel consumption up to 65 per cent.

Teksan's Lighting Towers, solutions which also have hybrid power technology, are used in outdoor areas such as construction sites, and provide savings in fuel consumption up to 73 per cent.

In addition to the savings in fuel consumption, Teksan's environmentally friendly hybrid solutions also decrease operational expenses through longer service intervals that can be handled with fewer technical personnel and delivers extended economic life of the engines due to lower engine operation times. ■

TURBINE DRIVE TRAIN OVERHAULED IN JUST SIX WEEKS

In a recent major overhaul of a 70 MVA turbine generator set, Marthinusen & Coutts, a division of ACTOM (Pty) Ltd, contracted with South 32's Metalloys to take full responsibility for the entire drive train refurbishment.

Working in collaboration with business unit ACTOM Turbo Machines, Marthinusen & Coutts completed the work successfully within six weeks. The electrical generation plant is at Metalloys' manganese plant in Meyerton, Gauteng.

According to Mike Chamberlain, Marthinusen & Coutts' marketing executive, this achievement showcased the capacity of the divisions to take full control of large mechanical and electrical refurbishments. Chamberlain highlights that the customer did not want to split the responsibility for the complete generator and turbine drive train between separate contractors.

"Marthinusen & Coutts and ACTOM Turbo Machines' capabilities enable us to control the entire process, offering peace of mind to customers, coupled with optimised cost efficiencies," says Chamberlain. "This also reduces customers' risk and managerial effort in dealing with multiple suppliers."

The scope included a complete inspection of the turbine rotor and internal components, as well as runout and dimensional inspection on the rotor. Inspections incorporated glass bead blasting and non-destructive testing of many components.

High-speed balancing of the 13 tonne rotor was conducted, and turbine rotor journals were repaired. White metal bearings were relined, and the thrust bearing was modified to improve fitment in the bearing casing. Positive material identification tests were conducted on all the studs, nuts and shaft seals. A complete 3D scan was done of the centreline to allow reverse engineering drawings.

At is repair facility in Cleveland, Johannesburg, Marthinusen & Coutts also performed a number of inspections, tests and repairs on the rotor. Dimensional inspections and electrical tests were conducted, as well as non-destructive testing such as the phase array test. Slip rings were ground, the diode wheel was inspected, and the diodes were tested.

ACTOM Turbo Machines inspected and refurbished the auxiliary mechanical equipment. This included lubrication and control oil systems, pumps, coolers, and white metal bearings on ID and FD fans. ACTOM Turbo Machines project manager Hannes de Jager notes that an overhaul of this magnitude and scope would usually take over two months.

"The excellent working relationship we had with Metalloys' technical staff, and the cooperation we got from them certainly contributed to completing the work as quickly as we did," says De Jager. Starting the inspections, tests and repairs in July, the team completed the overhaul by mid-August.


Marthinusen & Coutts successfully completed a major overhaul on a 70MVA generator set.

Image Credit: Marthinusen & Coutts


Marthinusen & Coutts took full responsibility for the entire drive train refurbishment.

Image Credit: Marthinusen & Coutts

New bridge to be constructed from Mombasa Island to Kenyan mainland to replace century-old Makupa causeway

The Kenya National Highway Authority (KeNHA) plans to demolish the Makupa Causeway linking Mombasa Island to the Kenyan mainland and construct a new bridge in 2020, according to local reports.

The 120m Makupa causeway, which was built in the 1920s, will be replaced with a 200m causeway bridge similar to the one in Mbita, in Homa Bay County.

It will be part of the expansion of the Mombasa-Jomvu Road into a dual carriageway at a cost of Sh6.5bn (US$62.3mn).

The KeNHA said the new bridge, which has been contracted to Third China Engineering Company, will protect the marine life which has been impacted by the Makupa causeway between Tudor and Port Reitz creeks.

Image Credit: Adobe Stock

The Makupa Causeway will be demolished to make way for a new bridge to protect Mombasa Island as a tourism hub.

Earlier this year, President Uhuru Kenyatta ordered the demolition of the causeway and said the new bridge would protect the island's status as a tourism hot-spot.

"There shall be a bridge connecting the island to the mainland. I was glad when the President made an announcement on Kibarani because land had been grabbed around here, but we are looking at means that will not affect the ecological system of this area," said Mombasa governor Hassan Joho.

Land which had been grabbed includes the nearby Kibarani dumpsite, which has caused toxic waste to seep into the ocean. In July, last year, the President revoked the allocation of the dumpsite land after the National Land Commission announced 80 acres had fallen into private hands, according to Business Daily.

"We will remove all the waste that had been dumped here to reclaim [the land], we are working with the National Environment Management Authority, ministries of Transport and Infrastructure and Environment to achieve that," Joho added.

GLOBAL CONSTRUCTION COMPANIES LOOK FORWARD TO ENTERING NIGERIAN CONSTRUCTION MARKET AS THE BIG 5 TAKES PLACE IN LAGOS

With the government's capital expenditure on construction reaching US$2.2bn in 2018, Nigeria is the polestar of the international business community today. The reason is clear: the pipeline of construction projects in Africa's most populous country is nothing but impressive.

Beyond building schools, hospitals, sports facilities and social infrastructure, the recent National Integrated Infrastructure Master Plan is addressing an estimated 17 million unit housing deficit. As a consequence, Nigeria's construction sector is growing at an ever faster pace, nearing a nine per cent year-on-year increase in the first quarter of 2018, according to reports by the Oxford Business Group.

It is no surprise that today more and more international construction companies are taking active steps to enter the lucrative Nigerian market, which serves as a strategic business hub to expand into the wider West Africa region. The Big 5 portfolio of construction events, the largest in the Middle East and Africa, has therefore announced the launch of its first ever event in the country's largest and fastest growing city, Lagos.

According to dmg events, organisers of The Big 5 Construct Nigeria, which will take place at the Lagos Landmark Centre on 9-11 September, the feedback from international manufacturers is extremely positive on the launch of the new construction show.

"There's true excitement within the industry looking at Nigeria's business potential and the huge investments currently underway in both the infrastructure and urban construction sectors," says Muhammed Kazi, portfolio event director at dmg events.

"As mature markets become increasingly competitive, construction companies are now finding fresh opportunities in Africa."

Rastone srl, an internationally renowned company in the stone industry, was one of the first exhibitors that secured their space at The Big 5 Construct Nigeria. According to its CEO, Roberto Alimonti, today the company's top priority is to open new markets outside Europe. "Nigeria is on the top of the list", he says. "News about their economical, commercial and financial potential confirm Nigeria and the Sub-Saharan Africa to be the markets of the future.

Image Credit: dmg events

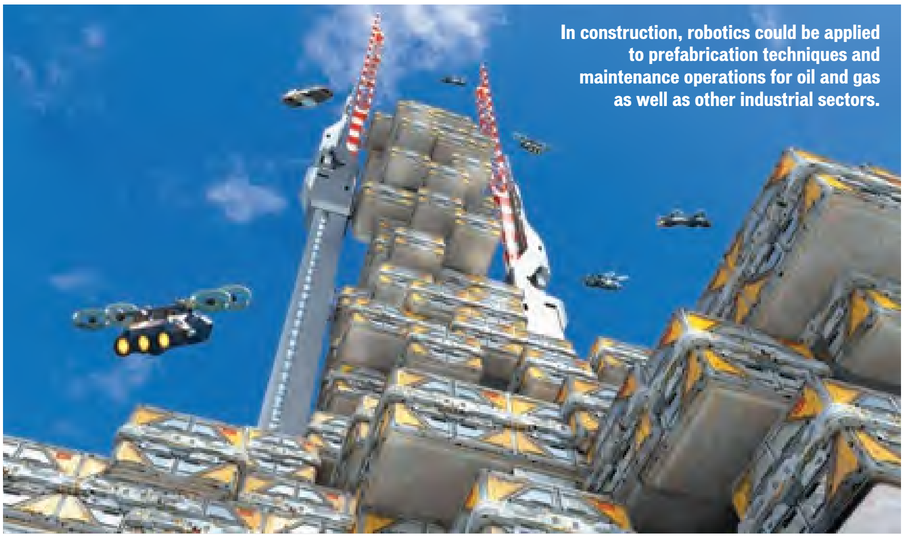
Big 5 Construct Nigeria is taking place at the Lagos Landmark Centre on 9-11 September.

"We have already participated in some events in Nigeria over the past years, and our previous investigations there confirm the positive outlook. Supported by our experience and high professional skills, we do really believe to have a chance to develop good business relations in the Nigerian construction field."

Tatyana Kim, the export executive at Aquagas Plastic Industries, a UAE based manufacturer of polypropylene pipes and fittings also participating in the show in Lagos, echoes Alimonti. "The Nigerian market is competitive, yet there is a huge chance to get a share of it. Nigeria is the largest economy in the African continent with a constant GDP growth. Opportunities abound for worldwide exporters in construction, electricity and power generation, as well as security and safety equipment."

AI-powered applications set to revolutionise construction

Artificial Intelligence (AI) encompasses a large universe of possibilities and use cases, including machine learning, natural language processing and robotics. McKinsey & Co has homed in on five AI applications used in other industries that have direct application in the construction sector.



In construction, robotics could be applied to prefabrication techniques and maintenance operations for oil and gas as well as other industrial sectors.

Image Credit: 3000ad/ Adobe Stock

Transportation route optimisation algorithms for project planning optimisation

Currently available technology already offers transportation companies the ability to optimise routes and improve traffic navigation. In the future, an AI technique called reinforcement learning, which allows algorithms to learn based on trial and error, could provide even more effective optimisation, as well as solve objective functions (e.g. duration or cost of fuel). Such technology could be directly applicable to E&C project planning and scheduling, as it has the potential to assess endless combinations and alternatives based on similar projects, optimising the best path and correcting themselves over time.

Pharmaceutical outcomes prediction for constructability issues

The pharmaceutical industry has emerged as a leader in investing its large R&D budgets into predictive AI solutions, which lower R&D costs in the long run, chiefly by forecasting medical trial outcomes. These applications can be directly applied to the construction industry – particularly in major projects with R&D budgets as large as those of major pharmaceutical companies – in two ways to forecast outcomes. First, predictive applications can forecast project risks, constructability, and the structural stability of various technical solutions, providing insight during the decision-making phase and potentially saving millions of dollars down the road. And second, these applications can enable testing of various materials, limiting the downtime of certain structures during inspection.

Retail supply chain optimisation for materials and inventory management

AI has changed the game for the retail supply chain by reducing manufacturing downtime, reducing oversupply, and increasing predictability of shipments – all resulting in impressive reductions in costs, logistical burdens, and variability. Supervised learning applications (e.g. gradient-boosting trees) will become directly applicable as modularisation and prefabrication become more prevalent. More projects are using off-site construction for large quantities of materials, and the need for enhanced supply chain coordination will become critical to control costs and overall cash flows.

Robotics for modular or prefabrication construction and 3D printing

While use of modularisation and 3D printing is advancing in construction today, there could be a longer-term opportunity to maximise the benefits of these approaches through machine learning. For example, robotics industry researchers have successfully trained robotic arms to move by learning from simulations. In construction, this application could be applied to prefabrication techniques and maintenance operations for oil and gas as well as other industrial sectors.

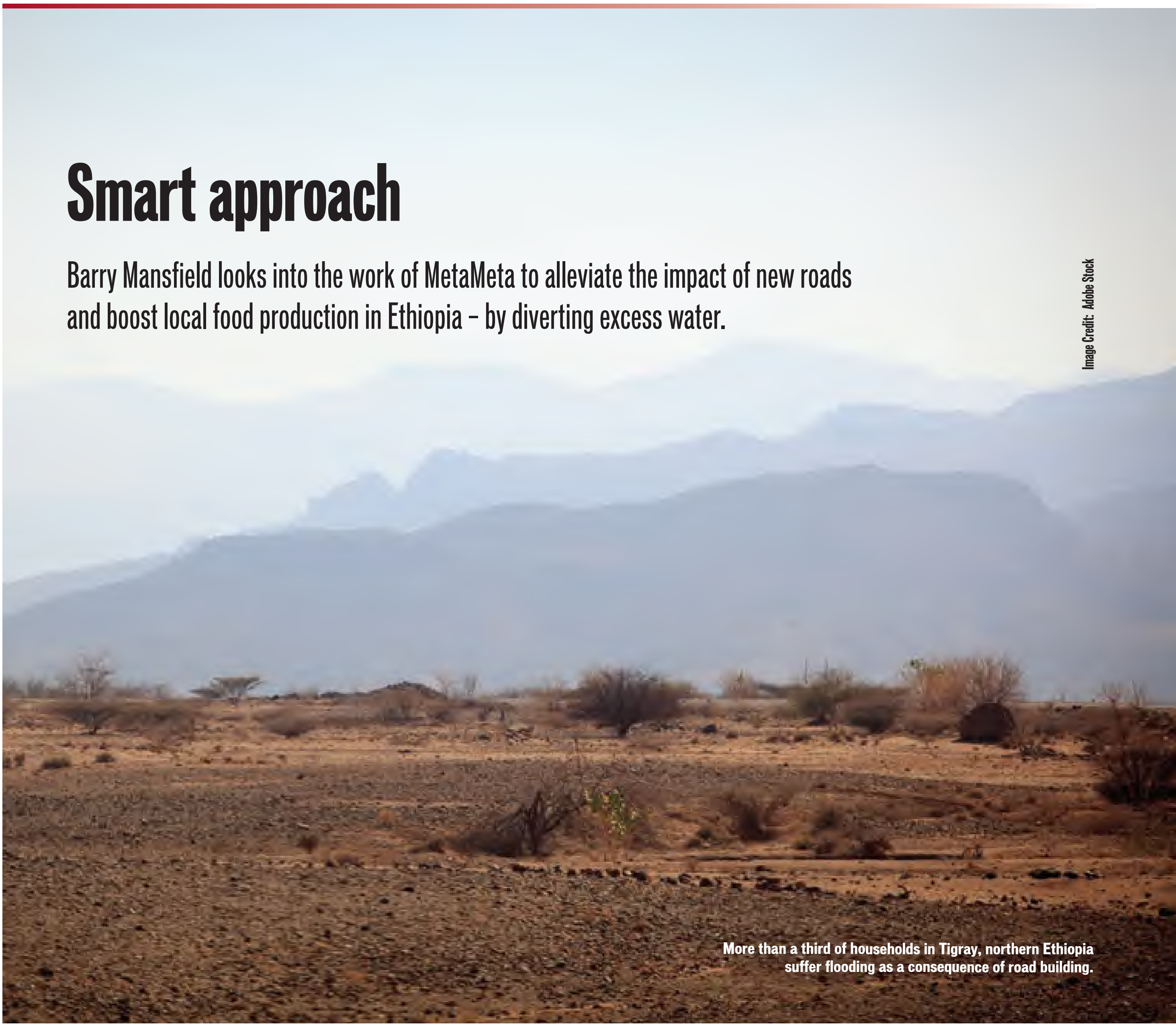
The global market for 3D printing is expected to reach US$120bn by 2020 and about US$300bn by 2025, driven by research and product development activities and the increasing need for more creativity in the design process. 3D printing technology will ease the production process in various sectors, offering the prospects for major leaps in the world of industry.

Reports indicate that 3D printing technology will cut construction costs by between 50 per cent and 70 per cent, and cut labour costs by 50 per cent to 80 per cent. In addition, the technology will help reduce waste produced in construction operations by up to 60 per cent, which will reflect positively on the economic returns of the sector and contribute to sustainable development.

Healthcare image recognition for risk and safety management

In the healthcare industry, machine-learning methods are creating breakthroughs in image recognition to support the diagnosis of illnesses (e.g. detecting known markers for various conditions). Down the road, this technology could be applied to drone imagery and 3D-generated models to assess issues with quality control, such as defects in execution (structural and aesthetic) and early detection of critical events (e.g. bridge failure).

These techniques could help engineers compare developing and final products against initial designs, or train an unsafe-behaviours detection algorithm to identify safety risks in project sites based on millions of drone-collected images. ■



Smart approach

Barry Mansfield looks into the work of MetaMeta to alleviate the impact of new roads and boost local food production in Ethiopia – by diverting excess water.

More than a third of households in Tigray, northern Ethiopia suffer flooding as a consequence of road building.

One of the most rapidly expanding economies in Africa, Ethiopia, has a bold plan to achieve recognition as a middle-income country by 2025. But this promising country faces exploding urban migration and strongly increasing demand for food – challenges that demand improved roads for access, supply and mobility. That's why the last 15 years has seen heavily ramped up efforts in new road construction, in addition to the expansion of existing road networks through a series of Road Sector Development Programs (RSDP).

In 1997, the entire road network in Ethiopia was estimated at around 27,000km. By 2014 it had reached 100,000km. However, for the country to satisfy its ambitious growth targets, it will need to raise this to 200,000km in the next two years. The problem is that new roads in sub-Saharan Africa often transform the landscape in a detrimental way, bringing dust, flooding and erosion. The impact is felt painfully by rural communities. Roads can disrupt water flows to wetlands, obstruct fish movements and trigger landslides, harming the livelihoods of many.

The World Bank has estimated that 35 per cent of all road damage in Ethiopia is down to run-off. This issue is especially prevalent on national highways since they are tarmacked – and so by default tend to dissect watersheds and impede run-off patterns, as they follow the escarpments. Water logging in upstream sides of new roads and the drying up of wells downstream are both commonplace. Older approaches to road drainage design lead to gullying, depletion of soil moisture and lowering of shallow groundwater tables. This type of damage can be extremely expensive to rectify.

Thankfully there is now a solution: a road building technique developed by the Utrecht, Netherlands-based social enterprise MetaMeta provides a method to lessen the impact of new roads while also supporting local food production by harvesting excess water. Under a initiative launched not only in Ethiopia but nine other nations including Bangladesh, roads are constructed using specially designed drainage structures to store the water that results from flooding. This can then be used to tend crops and feed livestock.

MetaMeta found that more than a third of households in Tigray, northern Ethiopia, experienced flooding as a consequence of road building – with additional harmful effects on crop production for one in ten homes. The study established that inadequate construction techniques were the cause of soil erosion on farms and adjacent plots of land by the roadside. The team found that new road construction leads to an overall increase in maintenance costs and repairs, which in turn hinders transport options, with restricted access to markets, hospitals and schools.

The smart roads scheme began as a UPGro catalyst project, and is now backed by USAID, the Rockefeller Foundation, SIDA and the Zurich

Foundation, as well as the World Bank. MetaMeta's approach has been adopted by a project called Roads for Water, which is currently testing the concept. Funded by the Global Resilience Partnership, an independent group of public and private organisations, the project has revealed that an investment of US$1,800 per km is sufficient to implement these measures – and should directly benefit more than two million people.

Collection of excess water is achieved with underground aquifers and storage ponds. Road drifts can be used to hold water in dry riverbeds and ensure that floodwaters are distributed over a wider area. These smart roads are not only reducing maintenance expenses, but also increasing resilience to shocks. They are forcing down the cost of road construction through, for example, the reuse of borrow pits for full-time water storage instead of having them backfilled. This has the added side benefit of creating a genuine local water resource.

Worldwide, an estimated 900 million rural people still lack sufficient access to road and transport infrastructure. The investment gap on roads is expected to approach US$1.6trn per year internationally for the next 40 years as increasing amounts of roads are built, especially in the developing world. But new engineering innovations will not work unless they are driven by local expertise and fit the local context. It is crucial to foster collaboration across a wide range of local partners – meaning engineers, technicians, farmers, labourers, government officials and more.

The US$1,800 per km investment compares positively with annual maintenance expenditures of US$1,100 on rural roads in sub-Saharan Africa and a periodic maintenance of US$11,200 often incurred from water damage. MetaMeta found that bringing the ministry responsible for roads together with the ministry responsible for water and guiding them through the obstacles and opportunities has yielded worthwhile results. Successful engagement of communities is also essential in the effective mapping of local hydrology, water usage, points of conflict and social considerations.

Other road projects

Multiple road projects are underway in Ethiopia as part of the drive to meet existing growth targets. For example, South Korea's Hyundai Development secured a 143km road project worth US$138mn from the Ethiopian Roads Authority (ERA) to connect the Gore and Tepi regions. Construction began in January 2019 and is expected to finish in June 2023. The Authority has also awarded asphalt upgrading and new road construction projects to three local and three Chinese companies worth 13.8 billion birr.

In December, the ERA signed agreements for the construction of a network of roads totalling 724km. The agreement spans 10 road projects across Oromia, Amhara, Somalia, Gambella and SNNPR regions and involves the construction of bridges and water drainage systems. In another show of increased African co-operation with Asian governments and financiers, only 12 per cent of the cost of the Gore-Tepi road will be met directly by the government – the Export-Import Bank of Korea will finance the remainder in the form of a loan. ■

LGW and LGR offer great strength, flexibility and ease of handling and assembly, providing high-quality fair-faced concrete finishes.

Image Credit: ULMA

Rising high

Good quality formwork and scaffolding systems are in high demand in sub-Saharan Africa as cities continue to expand at a phenomenal rate.

The continent's urbanisation rate is the highest in the world, with the share of Africans living in urban areas expected to grow from 36 per cent in 2010 to 50 per cent by 2030, reported the World Bank.

In fact, the global scaffolding market, including the Middle East and Africa is expected to grow at 6.1 per cent CAGR between 2018 and 2026, according to Transparency Market Research, with the market set to be worth US$78.4mn by 2026.

This is good news for major scaffolding companies already present in Africa such as PERI, ULMA, Form-Scaff and Layher South Africa, which will be keen to continue taking advantage of one of the fastest growing construction markets.

PERI, one of the largest manufacturers and suppliers of formwork and scaffolding systems, is behind the construction of The Pinnacle – a twin tower luxury mixed-use development in Nairobi – the tallest skyscraper in Africa. PERIS's optimally harmonised Automatic Climbing System (ACS) and Rail Climbing System (RCS) will be used in combination for the towers and lift shaft cores. Also, the Rail Climbing System with Protection Panels (RCS P) will be introduced on this project.
Chris Heesen, head of strategic projects Africa from Peri, previously told *African Review*, "The innovative and economic solutions, which are a first for the Kenya market, also boast safety aspects, which will set new trends and standards in the local construction market."
The tower development comprising 209 residential apartments and a Hilton Hotel, will be completed on May 30, 2022.

Other developments

Doka formwork, which was used in Dubai to help construct the world's tallest building, has just signed a distribution agreement with Waco Africa for the exclusive distribution of Doka products and systems across sub-Saharan Africa and the Indian Ocean Islands.

The agreement, which came into effect on 1 August, will see Waco Africa become one of the largest formwork providers on the continent in terms of presence and capacity through its subsidiary Form-Scaff.

Speaking on behalf of Doka GmbH, Paolo Zumaglini, member of the Management Board said, "In signing this exclusive agreement with Waco Africa, we are gaining a strong, reliable partner whose footprint covers more than 30 branches in nine sub-Saharan countries and whose experience extends to over 55 years. Doka looks forward to supporting Waco Africa through its engineering expertise and contributing towards the development of a region that includes several of the world's fastest growing economies."

Commenting on behalf of Waco Africa, Mike Els, chief executive officer said, "We are extremely excited about the long-term prospects that this partnership will bring. One of the most technologically advanced formwork companies in the world, Doka will add enormous value to Form-Scaff – the African market leaders – who are renowned for their extensive branch network and stockholding as well as their robust product range supported by detailed designs, engineering services and on-site technical support."

Modular systems

ULMA, also one of the top leading manufacturers of scaffolding platforms with a large presence in Africa, says versatile modular systems are frequently sought-after, such as LGW or LGR, which provide solutions for all types of vertical geometry in building construction. It says these systems offer great strength, flexibility and ease of handling and assembly, in addition to providing high-quality fair-faced concrete finishes.

ULMA's SP Prop is used for the shoring of slab formwork and for various other site needs. It is a telescopic steel prop with great durability. Depending on the prop model, the finish can be galvanised or coated with polyester resins. Its regulation and fixing design provides quick prop adjustment.

While ULMA's BRIO scaffolding is composed of simple systems with few elements, which are fast and

safe to assemble. Once erected, they provide ample work and transit areas, guaranteeing the highest possible levels of protection for workers and third parties. This system can efficiently cover the most complex geometries with great safety requirements, facilitating the assembly of complex structures at different heights. The company added, they are ideal scaffolding systems to cover façades and perform any labours necessary for construction or restoration work.

A spokesman from ULMA, said, "Understanding, flexibility and adaptation to each client's needs and to the construction methods of each market is crucial, and that's why ULMA has a network of collaborators in Africa which is currently being consolidated and is open to new collaboration agreements with companies offering formwork and scaffolding solutions in different African countries."

Duvha Power Station

Southey Contracting used Layher Allround modular scaffolding to assemble two 40m high full internal boiler scaffolds for maintenance work at South Africa's Duvha Power Station, operated by Eskom, in October 2018.

The Layher scaffolding system was introduced on the plant, and staff from Layher South Africa provided training and technical support throughout the duration of the project.

The benefits of the modular scaffolding system included quick assembly, 50 per cent weight saving from original design, shorter downtime for maintenance and repair.

A Layher spokesman said, "The dedication from the Layher staff was witnessed from the initial scoping phase until the last piece of scaffolding was removed from the boiler. Layher did not only manage to reduce the weight of the scaffolding by 50 per cent, but their unique design allowed the client to do more work in the planned shutdown period. Overall both the client and the contractor reap the benefits of using Layher Allround."

On-site technical services being carried out at Duvha Power Station in South Africa.

Image Credit: Layher

Other Layher scaffolding systems are being used by one of their clients, Enermech, in Madagascar. ■

North America's largest construction trade show returns in 2020

CONEXPO-CON/AGG, North America's largest construction trade show, returns to Las Vegas in 2020.

Attendees will have access to leading manufacturers and suppliers in a range of categories from asphalt, aggregates, concrete to lifting to help their businesses thrive.

BELL, STEC, GOMACO, and ROTOTILT, will be among the 2,800 exhibitors showcasing products and latest technologies at the Las Vegas Convention Centre from March 10-14, next year.

The Tech Experience has returned with two locations and the show campus has expanded with the new Festival Grounds for a total of 10 areas to explore across the 2.5 million sq ft exhibition space.

There will be plenty of show shuttles and hotel shuttles running during the event, plus information stands and staff on hand to help attendees easily navigate the show campus.

"This show is massive and a must attend. It has all the latest equipment and the cutting-edge technologies we need to make us even more efficient," said Dan Felix, Zachry Construction Corporation.

The exhibitors at the CONEXPO-CON/AGG show in 2017.

Image Credit: CONEXPO-CON/AGG

IFPE 2020 exhibition will be co-located with CONEXPO-CON/AGG, bringing together the fluid power, power transmission and motion control industries.

Last year, CONEXPO-CON/AGG earned the top spot in the Gold 100 list of trade shows as the largest exhibition of any industry in the USA in 2017, and earned best-in-class Grand Awards.

"These awards are a tremendous honour that reflect the hard work, dedication and innovative focus of everyone involved in producing AEM exhibitions; our success would also not be possible without the support of our members and the industry," said Megan Tanel, senior vice president exhibitions and events.

Registration is now open for CONEXPO-CON/AGG and IFPE 2020 exhibitions.
To register, visit www.conexpoconagg.com

Producing quality sand for the construction market

South African construction materials producer Ground Breakers is the brain child of businessmen JC Janse van Vuuren and Johan Meintjes with in-depth experience of plant hire, transportation logisitics and quarrying operations.

JC Janse van Vuuren and Johan Meintjes developed a full-circle business model whereby quarry materials would be reprocessed and re-used in situ to eliminate transportation and dumping costs as well as to promote environmentally-friendly practices and structures.

A leading supplier of building material including G5, G6, G7, top soil, building sand, river sand and plaster sand, Ground Breakers started to produce materials for the local construction market in November 2016 at its Lindley quarry in the province of Gauteng. A bucket wheel was put to work to transform the quarry's raw feed of decomposed granite into construction sand and aggregates, with additional low-value fill or bedding products. Encouraging best practice across the industry, the company also offers site clean-up and plant hire services to other quarry operators keen on using a standalone scalping screen to repurpose spoils or site rubble on their sites as and when required, rather than incur transportation and input costs.

Image Credit: CDE

Drone view of the Combo™ and bucket wheel.

The challenge

To fully achieve the sustainable and profitable vision of the company's owners, an upgrade of the existing bucket wheel system was required to tackle the loss of valuable materials to ponds and excess moisture in the final products. JC Janse van Vuuren and Johan Meintjes explained, "Our quarry site in Lanseria faced a lot of challenges; we had limited water sources and limited space to put up a proper wash plant. Any silt dams we dug were taking away valuable mining area.

"The market required a clean washed concrete sand, and our bucket wheel was not delivering a quality product. We also lost a lot of fines to the settling ponds, wasting material that we could not sell without dredging the ponds and re-processing it through the bucket wheel. We knew that to grow the business we had to find a more sustainable and efficient washing solution."

The limitations of bucket wheel technology

Although bucket wheel technology was widely used in its prime when sand resources were abundant and the price of construction materials was high, it is now being replaced by more advanced technology to address shortcomings such as the difficulty to control the volumes of water required for accurate material classification due to the limited capacity at the feed point. Indeed, as bucket wheels struggle to process sufficient volumes of water to achieve the desired cut points, fines are not efficiently removed and 100-300 micron fractions are lost to ponds or to the water treatment phase along with the overflow, making the sand product coarser. To mitigate the risk of inaccurate material classification, bucket wheels' settings must be adjusted on a regular basis. Diverting excess material to settling ponds requires considerably more space to accommodate the latter, and classification efficiency decreases as the proportion of fines in the feed material grows. The time then required for clearing out settling ponds to recover lost material requires long periods of plant downtime.

Outside of the issue of high maintenance costs for a restricted throughput, the sand product typically discharged from the Ground Breakers' bucket wheel system contained between 23 per cent to 25 per cent of moisture. This high moisture content meant that stockpiling the final product required double – sometimes triple-handling (to move the material to a separate stockpile area).

The solution

Following a visit by CDE experts, Ground Breakers' feed material was tested at CDE's laboratory. Based on the analysis results, CDE engineers established that the customer could make significant savings by adopting cyclone technology to eliminate the loss of fines to ponds. This would help to retain every valuable grain of sand available in the system and reduce the size of the settling ponds as well as maintenance time. In addition, CDE technology could add a plaster sand product to the company's offer, which has higher commercial value than the river sand currently processed.

After considering the site's footprint and the customers' requirements, CDE presented the Combo™ all-in-one wet processing and water recycling system as the most appropriate solution to the customers' requirements. The Combo™ would allow them to produce two high-quality sands simultaneously from the raw feed including plaster sand and river sand, for a much faster return on investment. Incorporating cutting-edge water management would ensure that the final products would be dewatered to an average 12 per cent moisture, making them ready for market straight from the belts. As an added benefit, the fully integrated CDE AquaCycle thickener would allow for up to 90 per cent of the process water to be recycled directly into the system for near-independence from fresh water supplies.

Following a collaborative design process with the customer, CDE developed and built a Combo™ modular plant to transform 60 tonnes per hour of raw feed into washed 0-6mm river sand and 0-1.5mm plaster sand. ■

FIRST BOBCAT ELECTRIC EXCAVATOR COMES OFF PRODUCTION LINE

Bobcat has announced that the first of the company's new E10e zero tail swing (ZTS) 1 tonne electric mini-excavators has come off the production line at the Bobcat compact equipment manufacturing plant at Dobris in the Czech Republic.

Finished at 1pm on 11 July, the first E10e off the line has the Serial Number B4KL11001. It is headed to the Netherlands to the Authorised Bobcat Dealer, Apeldoorn-based Inter-Techno, where it will be used as a demo machine and is available for hire from Inter-Techno's partner company, 123Machineverhuur.

Doosan Bobcat has chosen the Dobris factory to produce the E10e for all markets worldwide, with the first machines to be sold in EMEA (Europe, the Middle East and Africa), with North America and then Asian markets to follow.

The E10e is built on the same platform and produced on the same production line as the highly successful diesel-powered E08 and E10z mini-excavators. This line currently has a total capacity of 2000 machines a year and can produce the required mix of diesel and electric models as dictated by actual market demand.

Image Credit: Bobcat

E10e assembly line at Bobcat's compact equipment manufacturing plant at Dobris, in the Czech Republic.

Jarry Fiser, mini-excavator product line director, Doosan Bobcat EMEA, said, "We are very pleased that actual demand is higher than our original expectations and production capacities. We prioritised Bobcat dealers in the Netherlands, the nordic countries, Germany and Austria. These countries have very positive public acceptance of alternative power sources."

"The E10e is just the start of our journey in further expanding our portfolio in alternative power sources. In essence, all the components in the power train are made to measure and we are still adjusting the processes with our suppliers so that we can increase the production volumes when needed. The 2019 production capacity is already sold out and we are accepting orders for delivery in 2020."

The Bobcat E10e is the world's first 1 tonne electric mini-excavator, combining zero emissions, low noise and a width of just 71 cm, allowing it to easily pass through standard doors and in and out of lifts. It is therefore ideal not only for indoor demolition and basement digging, but also many other sites where this type of machine is required such as urban/city centre developments, night-time work and contracts in quiet zones such as hospitals, cemeteries, schools and so on.

The E10e has a state-of-the-art lithium-ion, maintenance-free battery pack with an advanced management system, designed to fit within the standard machine envelope to maintain the machine's ZTS profile, matching all the parameters and dimensions of the standard diesel-powered E10z mini-excavator. Based on customer studies, Bobcat has optimised the battery pack to provide capacity to match typical work patterns.

TOMRA XRT sorting technology discovers 1,758 carat diamond in Botswana

TOMRA Sorting technology has helped to discover one of the largest diamonds in history – an unbroken 1,758 carat stone at Karowe Mine in Botswana.

Commissioned by Lucara Diamond Corp, it uses a cutting-edge X-Ray camera with DUOLINE sensor technology to recognise and separate material based on its "atomic density".

It also helps to get a high level of purity in sorting materials, irrespective of the size and the degree of moisture or surface pollution present.

Since TOMRA XRT technology has been introduced, it has recovered two diamonds greater than 1,000 carats and detected four of the top ten largest diamonds in the world to date.

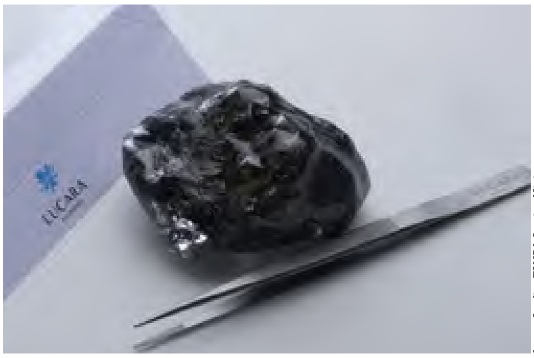


Image Credit: TOMRA Sorting Mining

Lucara Diamond Corp commissioned TOMRA Sorting Mining to use its sensor technology, leading to the discovery of a 1,752 carat diamond in Botswana.

Geoffrey Madderson, diamond segment manager in TOMRA Sorting Mining said, "As the largest diamond ever recovered by a mechanical process, it reinforces the unparalleled value XRT offers kimberlite and diamond mining companies," Madderson further added, "Lucara's innovative strategy in combination with TOMRA's world-class sensor technology has once again proved an enormous success."

In addition to the XRT circuit at Karowe, TOMRA currently operates XRT and other advanced optical sorting equipment in Russia, Canada, Brazil and other countries around the world.

TOMRA Sorting Mining designs and manufactures sensor-based sorting technologies for the global mineral processing and mining industries.

ARMED FORCES SURROUND DRC COPPER MINE

The world's biggest mining company, Glencore, confirmed the armed forces of the DRC (FARDC) were in the area around the operations of the Kamoto Copper Company (KCC). This follows a growing presence of illegal artisanal miners throughout industrial mining concessions in the Kolwezi area, which led to the tragic incident at KCC on 27 June.

It is believed at least 36 illegal miners died when two underground passages of a open excavation pit collapsed at the same site, which claimed six lives in 2016, according to media reports.

KCC has communicated its expectations to the FARDC to exercise restraint and operate in accordance with Voluntary Principles on Security and Human Rights (the Voluntary Principles) and international human rights standards. This includes the principles relating to the use of proportionate force and provision of medical aid.

A company spokesman said, "As stipulated in our Code of Conduct, Glencore upholds the dignity, fundamental freedoms and human rights of our employees, contractors and the communities in which we live and work as well as others affected by our activities."

The company says KCC will continue to engage with all the relevant stakeholders to collaborate on identifying and implementing a long-term, sustainable solution to illegal mining in the DRC.

INVESTORS ATTRACTED TO EQUATORIAL GUINEA

The EG Ronda Licensing Round Roadshow in China was met with tremendous success as more than 100 Chinese investors participate and discuss investment in oil, gas and minerals with the Ministry of Mines and Hydrocarbons' delegation.

The ministry officials delivered presentations on the current EG Ronda Licensing Rounds 2019 for oil & gas and mining & minerals to Chinese investors and stakeholders. More than 100 participants from the biggest Chinese energy companies, notably including CMEC, CPP, CNOOC, PowerChina, Sinochem, Sinopec, Zhenhua Oil and China Minmetals responded to Equatorial Guinea's invitation to come and invest in the country.

"The EG Ronda Roadshow in China was a tremendous success. We have met with very serious investors who believe in the immense hydrocarbons and mining potential of Equatorial Guinea and are ready to invest, we will announce agreements very soon," declared H.E. Gabriel Mbaga Obiang Lima, Minister of Mines, Industry and Energy in Equatorial Guinea."This will ensure investment into our oil & gas sector, and more importantly help develop our mining and minerals industry and create jobs."

Equatorial Guinea showcased 27 oil & gas blocks on offer under the EG Ronda Oil & Gas Licensing Round 2019, including EG-27 (former Block R) and EG-23 for appraisal and development. It also offered an opportunity for exploration and mining companies worldwide to apply for exploration rights in the Rio Muni area, which is highly prospective in minerals such as gold, diamonds, base metals, iron ore and bauxite.

"The leadership H.E. President Teodoro Obiang Nguema Mbasogo and the reforms of our government to provide a stable regulatory framework and attractive business environment have been key to attracting Chinese investors," the minister added.

BRIEFS

South Africa mining sector must prepare for 4IR


Image Credit: Adobe Stock

New skills in the mining sector are needed to adapt to 4IR.

South Africa's mining policy has undergone a revolution in the past three decades but the country will now need to get ready for the 4th industrial revolution (4IR), says Owen Murphy, a Johannesburg tax and advisory specialist.

Mineral Resources Minister Gwede Mantashe has agreed, by saying "South African mining industry must carry out skills development to prepare itself and its employees for the 4IR. While it was destroying old jobs, it was also creating new ones."


Image Credit: Adobe Stock

Prices of iron ore has reached its highest in five years.

Iron prices soar after five years

The price of iron ore has reached its highest level in five years due to decline in world supply, positioning Africa as an attractive destination for mining companies.

According to the Platts Iron Ore Index (IODEX) the ore reached close to US$115 per tonne in the last week of June, compared to US$40 per tonne at the end of 2015. Niron Metals hopes to develop an iron-mining project in Zogota, south-east Guinea, according to reports.

Transforming diamond security

Guaranteeing the quality and provenance of diamonds, whether rough, uncut diamonds or processed, cut stones, has always been a challenge for the industry. Tim Guest reports.

Rough uncut diamond sorting. Some 133 million carats of rough diamonds are legitimately mined each year, 65 per cent or which come from mines in Africa.

The diamond industry takes security very seriously. However, the presence of increasingly sophisticated counterfeit and fake diamonds, as well as the continued emergence of conflict diamonds from unregulated regions, means today's diamond supply chain is faced with more security challenges than ever and needs increasingly sophisticated ways of telling the real McCoy from the imposter. Synthetic diamonds, too, from legitimate sources, are sometimes passed off as natural stones adding to security challenges.

For cut stones, laser etching of their surface has been the predominant method of marking and identifying the finished product, but it is not failsafe and is easily polished off. A new laser technique, however, from Oxford University spin-off, Opsydia, and taken up so far by De Beers, enables a laser security mark to be inscribed beneath a cut diamond's surface making it impossible to remove without damaging the stone.

While such new tech developments are set to transform cut diamond security, it does not prevent the problem of raw, uncut stones from unregulated conflict sources entering the supply chain. In among some 133 million carats of rough diamonds legitimately mined each year, (according to global management consulting firm, Bain & Company), 65 per cent originate in Africa, with Botswana and the Democratic Republic of the Congo among the top five global producers. Yet, there is still a small percentage of conflict diamonds – rough diamonds used to finance wars against governments around the world – entering the supply chain and fighting this issue relies on the World Diamond Council's (WDC) Kimberley Process (KP), and all its 81 member nations. They commit to removing conflict diamonds from the global supply chain and currently state they prevent 99.8 per cent of the worldwide trade in conflict diamonds.

> "We are in discussions with many organisations for whom our technology can be used to increase security"
>
> **LEWIS FISH, OPSYDIA**

Refreshing the Kimberley Process

The WDC represents the international diamond industry in a tripartite collaboration with governments and civil society known as the Kimberley Process, a multilateral trade regime established in 2003 with the goal of preventing the flow of conflict diamonds. At its core is the Kimberley Process Certification Scheme (KPCS) under which member states implement safeguards on shipments of rough diamonds and certify them as 'conflict free'. Whilst preventing a huge percentage of conflict diamonds from entering the supply chain, the process is not without its limitations. This was addressed in March this year at the United Nations. The UN General Assembly (UNGA) called for a strengthening of the KP to more effectively sever the link between the illicit transaction of rough diamonds and armed conflict ones, thereby contributing to the maintenance of international peace and, in particular, security and sustainable development in artisanal diamond-mining regions. The resolution, which was proposed by the European Union, was ratified by consensus by the members of the 193-member UNGA body.

The WDC's president, Stephane Fischler, said, "Thus far, the KP has failed to properly stem the incidence of 'systemic violence,' nor to reduce the tenuousness of stability in artisanal mining communities and the lack of development opportunities. However, with the KP currently in the final year of its review and reform cycle, it has a unique opportunity to prove its potential of relieving millions of artisanal miners and their families, of the predicament they currently face."

He added that the industrialised diamond mining sector, which produces 85 per cent of rough diamonds in terms of volume and 95 per cent in terms of value, already invests hundreds of millions of dollars per annum, both directly and indirectly, in the development of economies and communities in the countries in which it is active. By eliminating the destabilising factors that inherently exist in places plagued by systemic violence, a strengthened KP will be a critical element in ensuring that similar contributions can take place in countries where artisanal mining is dominant. "The diamond industry's capacity to serve as a nation builder must come to be considered an integral part of the diamond's value proposition," he said.

Opsydia under the surface

For cut diamonds, Opsydia's laser technique is a breakthrough intended for wide adoption in the jewellery industry to increase security and confidence in the quality and provenance of stones. It uses high-precision lasers to place security codes, logos or other branding information that are less than 1/50th of the size of a human hair, below the surface of diamonds. Markings may be written within the table, girdle, or crown. The laser pulses, shorter than one trillionth of a second in length, shot over a million times per second, create tiny lines, which can be written as numbers or logos within the diamond. These are invisible to the human eye, but can be viewed via a microscope. Unlike current industry standard security marking on the diamond surface, these marks sit within the stone, so cannot be polished off economically. They can also be so small that they have no effect on grading or quality of the gems, meaning security can be maintained even when gems are mounted in jewellery.

De Beers has already adopted Opsydia's process for its new laboratory-grown diamond business, Lightbox Jewelry.

Lewis Fish, spokesperson for Opsydia talking with *African Review*, said, "At this stage we have sold systems to De Beers for their Lightbox Jewelry business, who have adopted our process for all stones larger than 0.2 carats. The marks written inside Lightbox diamonds are visible with a jeweller's loupe to serve as a mark of quality and distinguish them from natural stones. We are in discussions with many organisations for whom our technology can be used to increase security and confidence in the quality and provenance of stones, including natural and lab-grown diamonds, as well as other types of gemstones." He said that while he could not disclose other organisations with which Opsydia is in discussions, they include 'large and small players from a wide range of areas in the industry, all along the supply chain, from source to retail'. ■

Image Credit: Opsydia

Opsydia prototype diamond marking machine.


Image Credit: Opsydia

More diamond sorting.

DURATRAY

DURATRAY INTERNATIONAL

is committed to continue their growth through servicing existing and new clients by providing quality and unique dump bodies while manufacturing in an environmentally responsible manner. We are dedicated in achieving the number one independent dump body supplier of choice to the global mining industry.

Duratray International is part of Conymet International Group, with more than 40 years of experience in the mining industry. We specialise in the design, engineering, manufacturing and commercialisation of dump bodies for haulage equipment. Along with spare parts, steel and rubber wear components we provide technical assistance, maintenance and replacement of parts.

Our staple product, the Duratray Suspended Dump Body (SDB), is a unique lightweight tray that consists of a flexible rubber wear mat supported by high capacity synthetic suspension ropes and a steel frame resistant to abrasion. This design has demonstrated a wide range of benefits catered to specific mine applications including increasing payload, combating Carry-Back and reducing noise.

Over the last 10 years a vast number of innovative engineering improvements have been undertaken on the Duratray SDBs these consist of developments to suit most standard mining conditions including heavy or abrasive rock and sticky materials.

OUR RANGE OF ATTACHMENTS IS NOT LIMITED TO DUMP BODIES, WE ALSO OFFER RUBBER LINERS FOR MOBILE AND FIXED PLANT, RAIL CARS, WATER TANKS, BUCKETS AND OTHER CUSTOMISED PRODUCTS.

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Robust haulers for mining sector

A round-up of the latest ADTs from Terek Trucks, Caterpillar and Volvo to serve the rigorous demands of mining sites across Africa.

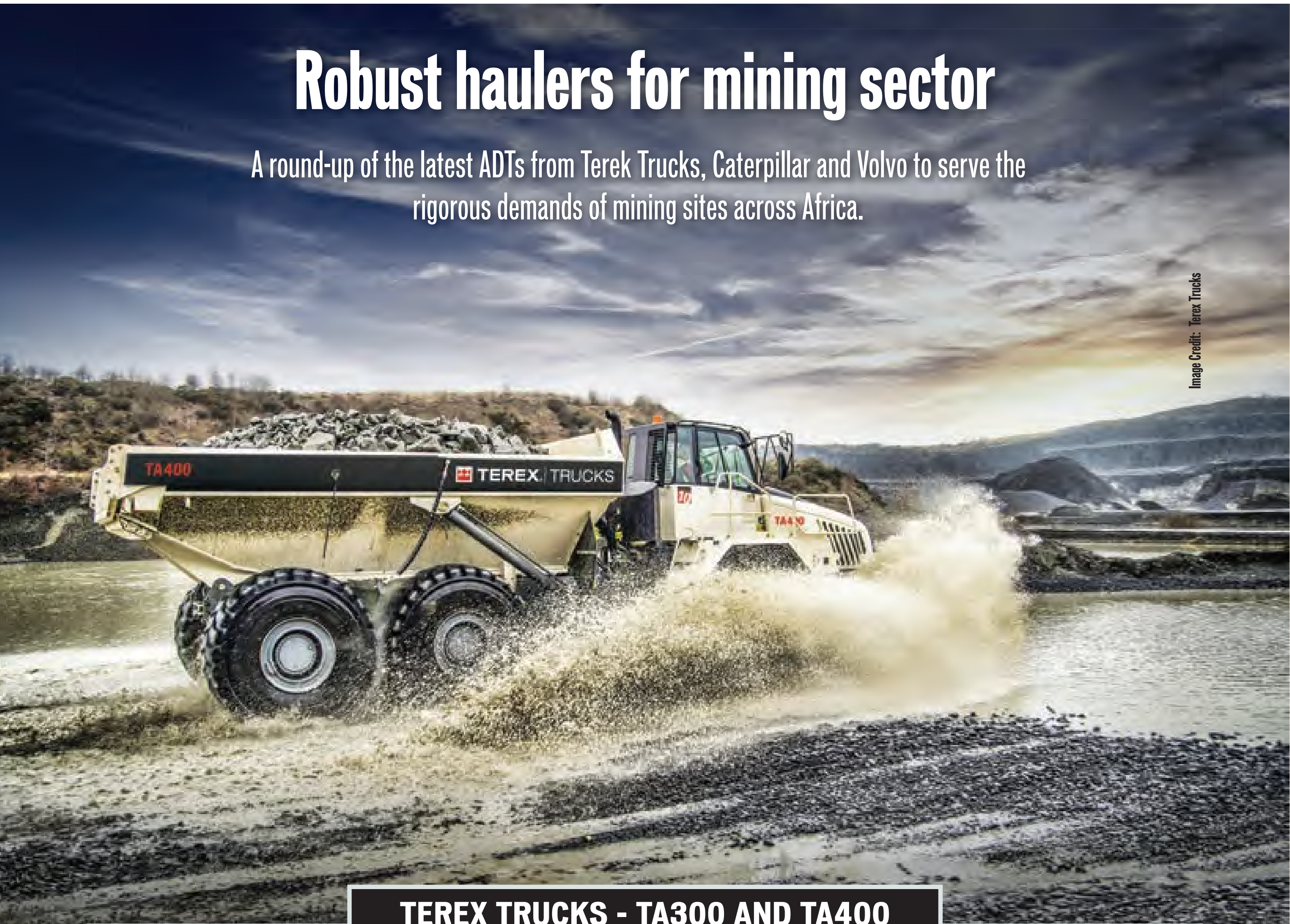

Image Credit: Terex Trucks

TEREX TRUCKS - TA300 AND TA400

Terex trucks' two articulated haulers – the 28 tonne (30.9 ton) TA300 and the 38 tonne (41.9 ton) TA400 – are a popular choice among mining companies throughout South Africa, which mainly use the machines for coal mining. The country's mining industry has historically been a driving force for South Africa's development, and although investment in the industry has declined, it is still a big market – contributing US$23bn (344 billion South African Rand) to the country's gross domestic product (GDP) in 2018.

South African miners need powerful, robust articulated haulers that can perform in extreme environments, such as steep inclines in mines, and are simple to operate and easy to maintain," says Roger Teece, EMEA regional sales manager at Terex Trucks. "This is why they appreciate Terex Trucks machines – because of their simplicity, quality and reliability. The straightforward engineering makes maintenance and servicing easy, without needing special diagnostic equipment. According to customer feedback, our long maintenance intervals and low total cost of ownership are factors that help drive purchasing decisions among our South African customers."

Product highlights

Towards the end of 2018, the TA300 was upgraded and it is now manufactured with the latest EP320 transmission. The updated machine delivers a five per cent improvement in fuel efficiency, a 5 km/h (3.1 mph) increase in speed to 55 km/h (34 mph), an extended maintenance period and enhanced performance when compared with the previous model. All of this means that customers can be more productive, achieving faster cycle times, lower cost per tonne and reduced carbon emissions.

The TA400 boasts a heaped capacity of 23.0 m^3 (30.3 yd^3) and is powered by a high performance, fuel efficient engine that develops a gross power of 331 kW (444 hp) and a maximum torque of 2,255 Nm (1,663 lbf ft). The planetary gear transmission provides smooth, efficient gear shifting for optimised fuel consumption and reduced cost of operation. Ground level test points and a fully tilting cab, combined with an electronically raised hood, ensure ease of service and reduced downtime.

CATERPILLAR - CAT 794 AC

Image Credit: Caterpillar

Caterpillar has announced the Cat 794 AC mining truck is now available, equipped to meet US EPA Tier 4 Final exhaust emissions standards.

In field testing, the Tier 4 pilot trucks matched the superior performance and productivity of the Tier 2 equivalent versions of the 794 AC. The Tier 4 trucks also delivered lower operating costs by reducing diesel fuel consumption.

The 320-ton-class (290-tonne-class) 794 AC features the Cat C175-16 diesel engine. The Tier 4 truck is equipped with an exhaust aftertreatment system using a selective catalytic reduction system (SCR), which uses diesel exhaust fluid to reduce emissions of nitrogen oxides. Caterpillar selected the SCR solution, because it provides the most robust and reliable Tier 4 Final emissions compliance without sacrificing engine performance.

The modular SCR design, adopted from other Cat production machines, minimizes new content and design changes to the field-proven 794 AC. Designed for easy serviceability with readily accessible components, the aftertreatment system is aligned with truck preventive maintenance intervals to maintain high availability. This Cat emissions platform is proven through more than 20 million operating hours in the field.

Caterpillar is using the same exhaust aftertreatment platform in the process to gain EU Stage V certification of the 794 AC. The Stage V certification process is currently in progress.

Comprehensive field testing

The Tier 4 Final 794 AC design successfully completed field validation, with all the pilot trucks exceeding requirements. The machines integrated and worked seamlessly in each mine ecosystem, and customers reported excellent performance and reliability. The trucks were put to the test in a variety of applications, including hot and cold ambient temperatures, uphill hauls and flat hauls.

In a copper mine, Caterpillar conducted an on-site performance study of the 794 AC Tier 4 Final trucks and measured no loss in performance or productivity compared to the Tier 2 equivalent 794 AC trucks. In addition, the machines demonstrated up to 5.6 per cent less diesel fuel burn over the haul cycle.

The 794 AC Tier 4 Final trucks have accumulated more than 10,000 hours of operating time and continue to deliver reliable and productive performance in multiple North American mines. For more information about Cat large mining trucks visit www.cat.com

VOLVO CE - R100E

Image Credit: Volvo CE

The R100E is built for all surface mining and quarrying applications, where operational costs are critical.

It is powered by the premium 783 kW (1075 hp) engine. The combined drivetrain delivers high torque capabilities, unparalleled pulling performance and class-leading rimpull, for optimum traction. Customers can expect to spend less per haul with the R100E, featuring a 60.4m^3 capacity V-shaped body for optimum load retention and minimal material carry-back. The industry-recognised load profile policy enables the operator to meet a consistent average target payload (95t), while the speedy body-tipping system ensures fast cycle times for an all-round efficient performance.

Volvo builds on the high capacity and hauling speeds of its rigid hauler with intelligent monitoring systems. The On-Board Weighing (OBW) option is an integrated system that ensures the machine moves the optimum safe payload to further optimise production and minimise operational costs. It does this by using exterior-mounted pressure sensors to monitor and relay machine statistics to the operator's on-board display. Not only can machine information be viewed in real-time via the on-board display, it can be remotely accessed via Volvo's CareTrack telematics system to help operators and fleet managers improve planning.

Creating inclusive and diverse talent in mining

Newmont Goldcorp held a leadership event at its Akyem mine in the eastern region of Ghana to educate young women aged 15 to 25 on their future career options within the mining industry.

The mining industry has always been considered male dominated. Over the years, efforts have been made to increase female representation in the industry. Contributing to this effort, Newmont Goldcorp Ghana in line with its inclusion ethos and National Corporate Social Responsibility Strategy in 2018, signed a Memorandum of Understanding with its development partner Junior Achievement (JA) Ghana to leverage programmes that promote the pursuit of Science, Technology, Engineering and Maths (STEM) subjects and careers among young girls.

Newmont Goldcorp Ghana's CSR Strategy also focuses on developing outcomes aligned with the UN Sustainable Development Goals (SDGs) which seek to create decent work and economic growth (SDG 8) and forge partnerships that contribute to achieving these goals (SDG 17) in the country.

As part of the partnership, Newmont and JA Ghana organised the maiden edition of the New Futures for Girls Leadership Camp, an initiative aimed at empowering young girls between the ages of 15 to 25 years to broaden their future career options. The event sought to give the girls an overview of the various professions available to them in mining and develop their interest in the industry.

Image Credit: Newmont Goldcorp

Participants at the Akyem Mine's Phase One Reforestation Project.

The two-day event, held at Newmont Goldcorp's Akyem mine, hosted 30 girls from various high schools in Ghana, including Kinbu Senior High School, Labone Secondary School and the Wesley Girls High School contestants from the recently ended National Science and Maths Quiz.

Speakers at the event included Newmont Goldcorp Africa's regional vice-president for Sustainability and External Relations, Adiki O. Ayitevie, regional vice president for Human Resources Awo A. Quaison-Sackey and seasoned media personality, Nana Ama Agyemang Asante of Citi FM. Other Newmont Goldcorp Ghana employees in Human Resources, Operations, Operational Services, Legal and Communications also engaged with the girls, discussing with them the various professions in mining. As part of the activities, the girls had a tour of the Akyem mine's pit area and reforestation project to provide them insight into the process of gold mining and learn about the company's reforestation and environmental management programmes.

> "Our aim is to develop the leadership skills of these young women and prepare them for the future."
>
> **AGBEKO AZUMAH, DIRECTOR FOR COMMUNICATIONS AND EXTERNAL RELATIONS**

Speaking about the initiative, director for Communications and External Relations, Agbeko Azumah said, "Although progress has been made, women still remain under-represented in STEM disciplines; a good reason why young girls must be encouraged to pursue such professions."

"Our aim is to develop the leadership skills of these young women and prepare them for the future. And for us at Newmont Goldcorp Ghana, our Corporate Social Responsibility strategy enjoins us to serve as a catalyst for local economic development and ensure the creation of an inclusive environment where all people can thrive," he added.

Through this and other initiatives such as its University Strategy, Newmont Goldcorp Ghana believes that supporting the youth and women in STEM disciplines will contribute greatly to creating an inclusive and diverse talent pipeline for the industry in the future. ■

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Image Credit: Adobe Stock

Managing the autonomous evolution

Image Credit: Oracle

Adebayo Sanni.

The combination of Artificial Intelligence (AI), Machine Learning (ML) and automation will help businesses manage and gain value from their information more easily and effectively, according to Adebayo Sanni, managing director from Oracle Nigeria.

Humans are now generating an estimated 2.5 quintillion bytes of data every single day, with more data being created in the past two years than in all of human history.

Managing this growing flood is complex and the task comes with a high level of responsibility. But throwing more bodies at the problem isn't efficient or even a guarantee of success. The 24/7 requirements on business and huge security challenges mean that "manual" management is no longer an option.

The key lies in the use of Artificial Intelligence (AI), Machine Learning (ML) and automation. Particularly when combined together they will let businesses manage and get value from their information more easily, effectively, and with less effort. One technology in particular that is unlocking new levels of value is the autonomous database.

Nigeria accounts for nearly 50 per cent of West Africa's population and the country has one of the largest populations of youth in the world. This sees Nigeria in the enviable position of building skills for the data-driven environment. With data becoming the currency of business today, establishing skills must be a priority. This leads to an understanding of how data can deliver on what is required and help guide autonomous technology to extract the best value out of it.

Managing the data challenge

The value of data is not in its abundance, but comes from analysing and understanding data, using it to make better decisions. So just as mechanical automation helped traditional manufacturing industries to benefit from economies of scale, software automation can free up valuable human resources from mundane administrative tasks.

Forward-looking organisations are already embedding AI and ML technologies into their critical business systems and processes, with key areas of the business predicted to benefit the most from this type of automation being operations, customer service, decision support, IT and finance.

With AI and next generation cloud services becoming established, the autonomous database has arrived. Embracing core traits of being self-driving, self-securing and self-repairing, it offers unprecedented availability, performance, and security – helping eliminate human error.

The autonomous database is set to revolutionise data management, helping boost the speed of insight and driving significant increases in productivity. With a self-driving system that uses built-in machine learning algorithms to manage itself, businesses can lower costs and increase productivity whereby manpower can be optimised and resources can be deployed to higher value tasks. This can be through tasks such as redefining data strategy, deriving actionable insights from data, and designing robust systems with business impact.

Change required

According to a recent Harvard Business Review Analytic Services survey, so far, few organisations have made the move to intelligent automation to any significant extent – for a number of reasons. As with anything new, it takes time for adoption - companies need time to get their heads around how these emerging technologies can fit into their current enterprise systems and just how to do that within their existing budgets, skills and culture.

While this change certainly won't happen overnight, respondents are expecting to significantly increase their use of intelligent automation over the next three years. With that the case, business and IT leaders need to start considering how to move along their automation journey from basic adoption to full intelligent automation.

Skills development

To get there, a substantial amount of change will need to happen, not least in the digital transformation of data, skills, processes, and culture. Intelligent automation requires a corresponding upgrade in skillset. Database administrators must be encouraged to seek new certifications and experience, building on their existing core skill set.

Just imagine, all those incredible minds, currently dedicated to tuning, patching, securing and managing databases, applied to more valuable activities, such as improving data architecture, securing external data sources, and otherwise ensuring the business is making the best possible use of data.

As more data continues to be generated each day, there will be even more pressure on businesses to make the most of the data available. Database management will be more crucial than ever before, and emerging technologies such as autonomous vehicles will soon become the norm as they help businesses boost innovation and financial gains.

Last year, Oracle Academy announced a collaboration with the Federal Ministry of Education of Nigeria (FMoE) to create new computing education pathways for local students. Through the agreement, FMoE plans to integrate Oracle Academy computer science curriculum and resources across 10,000 academic institutions across the country, reaching over 1.5 million students within the region. Over the next three years, Oracle Academy will also facilitate the training of 4,000 educators at the secondary and higher education levels to teach computer science.

Earlier this year, Oracle Academy hosted Knowledge Builder sessions with STEM university students. They were provided with guidance on technology career paths and industry relevant skills as well as practical sessions on artificial intelligence, data analytics, machine learning and data visualisation cloud services.

From a country standpoint, Nigeria is ready to start the drive towards autonomous technology. Now the focus is on getting the skills in place to capitalise on the willingness to change. ■


A LONG WAY
TOGETHER