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African Review

JUNE 2016

of BUSINESS and TECHNOLOGY



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Globeleq chairman Dr. Reuel Khoza on investing in African energy infrastructure



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Serving the world of business

Editor's Note

This issue of African Review offers profiles of Panafrican Group's Scott McCaw and Fergus Robley, and Professor Hasan Murat Mercan of the World Energy Congress. And the effect of emerging mobile money technologies on the continent's connected businesses is assessed by Nic Rudnik of Liquid Telecom. In transport and logistics, African Review covers marine power systems and testing equipment, and new systems for increasing warehouse capacity in Kenya. This magazine also assesses an environmentally-friendly method for cleaning concrete surfaces, and previews IWE Istanbul Water Expo's showcase of water and wastewater treatment technologies. The primary focus of this issue is power, with a summary of power sector market developments across the continent, and an interview with Globeleq chairman Dr Reuel Khoza. This issue also carries an appraisal of GE gas engine technology in Dar es Salaam, on MAN Diesel & Turbo's work to extend access to electricity, and on FG Wilson's five decades of genset production and distribution. A comprehensive preview of the African Energy Forum is followed, too, by an appraisal of SDMO's compact power portfolio. The construction section includes analysis of investment requirements for African infrastructure, with articles on construction technology available today. There are, also, reports on construction and mining equipment for African operators, as shown at bauma recently. This magazine also offers the mining sector a review of the latest simulator technology.

Dr Andrew Croft, Managing Editor

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StorIT and Tintri form new distribution network for Middle East and North Africa

Specialist data management solutions distributor **StorIT** has signed a distribution agreement with **Tintri Inc**, which produces VM-aware storage (VAS) for virtualisation and cloud environments. As per the agreement, StorIT will promote and distribute Tintri's entire portfolio of solutions through its extensive channel network of value-added resellers (VAR) and systems integrators (SI) across the Middle East and North Africa (MENA).

Suren Vedantham, managing director at StorIT Distribution, said, "We are excited to partner with Tintri, a company which has been at the forefront of innovation in recent times in the areas of data storage for virtualised environments and virtualised infrastructure management. For enterprise customers, Tintri's technology value proposition provides significant benefits in terms of reduced expenses, increased performance and a drastic drop in management overhead and Tintri's all-flash storage stands out for its ability to guarantee customers optimum performance of their virtualised applications. By leveraging on our strong channel network, we plan to provide Tintri with an extensive market reach that could secure significant market share and a sustained growth opportunity in the region."

Eric Berry, vice president of global channels at Tintri Inc, said, "In line with our channel expansion plans, StorIT Distribution is the right choice as our distributor for the MENA region. As a specialist VAD, StorIT's expertise in the data management, cloud and storage domain, will help provide more exposure for Tintri's highly differentiated storage in the region. With its market expertise, valued-added services, exceptional customer service and a true technical understanding of our products, StorIT will assist us in our efforts to deliver unparalleled value to our customers."

StorIT will work closely with the vendor's global sales and support teams to ensure its channel partners receive strong pre-sales, marketing, implementation and post-sales services. The goal is to effectively sell Tintri's VM-aware storage to customers enabling the ability to improve storage efficiencies within their virtualised environments.



Claudio Polla, regional manager for Sub-Saharan Africa at Tintri Inc, meets with Suren Vedantham, MD at StorIT Distribution, to finalise a distribution agreement

TECSYNC SPONSORS TECH REGULATORS' SYMPOSIUM

Electronics brands **XTOUCH** and **InnJoo**, both part of **Tecsync Group**, have contributed to the 2016 Global Symposium for Regulators (GSR) event held in Sharm El Sheikh, Egypt, in May. Organised by the **International Telecommunication Union (ITU)**, GSR is an annual event which brings together communication and information technology Ministers, regulators, governmental officials and operators from over ninety countries. Held in a different country each year, the sixteenth edition of the annual event was being hosted by the Government of Egypt under the auspices of President Abdel Fattah El Sisi.



Ahmed Kandil, Ahmed Kandil, XTOUCH and InnJoo country manager, Egypt, Tecsync Group

Ahmed Kandil, XTOUCH and InnJoo country manager, Egypt, said, "Our participation highlights the strong presence we have in Egypt as well as our ongoing commitment to provide Egyptian consumers with innovative luxury devices and maximum value."

Driven by strong demand, the company has recently opened an office in Egypt to fully support sales growth of XTOUCH and InnJoo products. Both brands' product line-up included premium quality smartphones, accessories and tablets.

TCL PARTNERS IN EGYPT WITH ELARABY



TCL has signed an MOU with strategic partner Elaraby

Manufacturers **TCL Multimedia Technology Holdings Limited** and **Elaraby Group** have signed an MoU on developing a production base in Egypt. TCL Multimedia is the only vertically-integrated enterprise in China to manufacture display panels, modules and chips as well as run product assembly operations under the same roof. In recent years, TCL Multimedia has also been committed to brand internationalisation through cross-border acquisitions, organic expansion and other strategic planning. Mr Liang Tiemin of TCL Multimedia, said, "Following this Sino-Egyptian strategic cooperation, a joint-venture TV manufacturing plant will be set up in Egypt to tap into the broad prospect of the Middle East and African markets, a move of strategic importance to upgrade TCL's industrial layout."

► BRIEFS

dmg expands into North Africa

Exhibitions company **dmg events** Middle East, Asia & Africa is launching two event brands into North Africa, to meet increasing demand for knowledge and products in the construction and interior design sectors. The company has collaborated with event services firm **Elan Expo** to launch **INDEX North Africa** for the region's interiors, décor and design market, as well as **The Big 5 Construct North Africa**. **INDEX North Africa**, featuring **Workspace at INDEX**, will be the first to take place, opening in December 2016. It will incorporate Morocco's successful **MaDecor**, so becoming the largest sourcing event for interior products in the region. **The Big 5 Construct North Africa** will debut in 2017 to showcase opportunities in the region's real estate, building products and construction sectors.



Phoenix Solar will work in the MENAT region with meteocontrol

Solar alliance in MENAT region

The Middle East, northern Africa and Turkey (MENAT) are the focal point of a partnership between photovoltaic (PV) service providers **meteocontrol GmbH** and **Phoenix Solar AG**. Phoenix Solar will rely on meteocontrol's monitoring systems to operate PV power plants in the MENAT region. "With meteocontrol, we have gained a skilled partner who can help us with our projects in the MENAT region," said Klaus Friedl, director of the Middle East region at Phoenix Solar AG.

THE VOLVO A60H SETTING NEW RECORDS IN HAULING...



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TMEA survey find 4,000 clearing and forwarding agents trained across East Africa

A recently-conducted independent survey by **TradeMark East Africa (TMEA)** cites that a total of 4,023 out of 4,500 freight forwarders and clearing agents have been trained on improving trade logistics within the East African region. The US\$2.1mn programme funded by TradeMark East Africa and implemented by the East Africa regional freight forwarding governing body, **FEAFFA**, in conjunction with the **East Africa Revenue Authorities (EARA)** aimed to meet established skills gap among freight forwarders and clearing agents.



TMEA research reveals 4,000 East African agents have been trained in freight logistics

The four-year programme implemented between 2011 and September 2014 was based on the premise that freight forwarders and clearing agents lacked necessary skills and capacity in clearing cargo at the border points resulting to an increase in cargo clearance costs and cargo release times in the region.

Results of the programme are tangible as a study by Kessler (2012) in Rwanda established that **EACFPFC**-certified clearing agents make eight times fewer errors per year than their untrained counterparts do. Since freight-forwarding companies are fined for errors, the study estimated a US\$385 annual saving for companies who employ trained clearing agents.

"Where you see trade grow you see prosperity take root. By training the key people in the freight forwarding business, we are helping move goods quicker, save time and money and help the region develop," said Frank Matsuert, chief executive officer at TradeMark East Africa.

The efficient flow of international trade relies on a range of skilled service providers working together effectively, including shipping lines, port terminal operators, customs officials, operators of off-dock container yards, land transport agents, and clearing and forwarding agents. According to the report, lack of skills and capacity among clearing and freight forwarding agents has been identified as a significant hurdle in trade across the East African region.

"With more than 40 per cent of business costs accruing to transport and logistics, there is increasing appreciation of the importance of the sector in international trade. I am pleased this programme has raised the professional standards in the industry with the aim of increasing trade and prosperity in the region," said the Federation's regional executive director, John Mathenge.

TIGO DEPLOYS 4G MOBILE NETWORK IN TANZANIA

Tanzanian digital telecommunications operator **Tigo** is extending its 4G LTE network further across the country, impacting its customers with faster internet connections. The Tigo 4G technology is five times faster than 3G technology. From inception in April 2015 in Dar Es Salaam, Tigo 4G LTE has expanded to Arusha, Tanga, Dodoma, Morogoro, Moshi, Mwanza, Tabora, Musoma, Bukoba, Kigoma and Shinyanga and plans are underway to cover all major cities before the end of 2016.

The Tigo 4G LTE network provides faster internet speed to surf, download content, make uninterrupted Skype calls, and utilise high-definition video streaming.

Tigo general manager Diego Gutierrez said, "The expansion of 4G technology to all corners of the country is in line with our commitment to provide our customers with world class services that enable them to enjoy a fully digital lifestyle."

UK, KENYA AGREE ON RENEWABLE ENERGY

A Memorandum of Understanding (MoU) to deepen cooperation between the UK and Kenya governments on renewable energy was signed recently by British High Commissioner Nic Hailey and Kenyan Cabinet Secretary of Treasury Hon Henry Rotich.

The MoU will promote opportunities for private sector trade and investment by the UK in Kenya's renewable energy sector. As part of the MoU, **UK Export Finance (UKEF)** has also affirmed its interest in considering requests for export financing or insurance for eligible renewable energy projects in Kenya, drawing on a risk appetite of up to at least £250mn (Ksh36b, US\$364mn).

The UK is committed to growing the renewable energy sector, domestically and around the world. The UK-supported **Africa Enterprise Challenge Fund** is already investing US\$25mn in 32 private sector companies to deliver low carbon growth.

The fund is being supplemented by US\$20mn to help private sector businesses in clean energy, agriculture and water management in Arid and Semi-Arid Lands (ASALs).

Following the MoU signing with Mr Rotich, Mr Hailey said, "The UK and Kenya are leaders in renewable energy, clean technology and innovation. Kenya has one of the most active renewable energy sectors in Africa, and the UK is a global leader in many of the sectors for which Kenya has greatest demand.

"This MoU brings UK expertise, development and export credit financing together with the aim of bringing clean, renewable energy to the Kenyan people and accelerating Kenya's development and economic growth. UK firms are excited about the opportunities in Kenya and I'm confident this new MoU will lead to significant increases in UK investment in Kenya's renewable energy."

► BRIEFS



Brands including Ishida and Kronos, alongside local firms such as Statpak Industries and KEP Services, have confirmed for Propak East Africa 2017

Growth expected at Propak

The 2017 edition of packaging, printing and plastics exhibition Propak East Africa is predicted to grow by 50 per cent compared to last year, based on expressions of interest to the event organiser **Montex**. Last year, Propak East Africa attracted 90 companies and 2,235 visitors from 38 countries. The event next year is running from the 7-9 March 2017 at the KICC in Nairobi and has already sold 60 per cent of the space.



Seed's expansion into East Africa is intended to boost and scale established businesses in the region (Photo: Stanford Graduate School of Business)

Stanford opens for businesses

Building on the success of its work in West Africa with Stanford Seed, the **Stanford Institute for Innovation in Developing Economies** has launched its Seed Transformation Program in East Africa. The first group of potential business leaders began a 12-month transformational process in Nairobi, Kenya, in May. The course focuses on sustainable economic growth through private-sector-led development.

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Consultancy contracts for AECOM across South African infrastructure

Infrastructure and support services company **AECOM** has been awarded a R134mn (US\$8.5mn) five-year contract by the **South African National Roads Agency (SANRAL)** to provide consulting engineering services for the upgrading of National Road R573, Section 2, from the Gauteng/Mpumalanga border to the Mpumalanga/Limpopo border, a distance of about 50km.



AECOM is involved in a fuel works project at King Shaka International Airport in Durban

The R573, or Moloto Road as it is referred to, sees tens of thousands of commuters travel by bus daily to Gauteng, with fatal accidents a common occurrence. It was incorporated into SANRAL's network in July 2015, with government giving the mandate to make this deadly road safer.

AECOM's recent contract wins in South Africa include a panel appointment to provide traffic engineering services for the KwaDukuza Municipality, north of Durban, for the next three years.

"While the Durban Hub has not significantly operated within this space in the past, this win will serve as the catalyst to achieve growth in terms of the highways and bridges sector in the province," said Bruce Ross, AECOM's business unit lead (Durban hub), civil infrastructure, Africa.

AECOM has also been appointed to provide consultancy services for the fuel works project at King Shaka International Airport in Durban. Samuel du Rand, AECOM's business unit lead, oil and gas, Africa, commented, "A full conditional assessment of the aviation fuel system will be done, following modifications according to the findings of the assessment."

AECOM has 1,900 employees on the continent and maintains a project presence in around countries, including Botswana, Ghana, Kenya, Libya, Mozambique, Nigeria and Uganda. AECOM chief executive - Africa, Carlos Poñe said, "We understand Africa's specific infrastructure needs and the challenges inherent in working on continent."

NAMPO CELEBRATES SMART FARMING

While weather and rainfall patterns in Africa begin to normalise, the agricultural sectors on the continent are still coping with the aftermath of the severe weather conditions, exacerbated by the El Nino, as well as other market complexities. As future proofing industries and food security become increasingly top of mind, **Bayer** shared its views at NAMPO Harvest Day 2016 on the latest in scientific and digital innovation that it believes are the future of sustainable farming. Klaus Eckstein, CEO of Bayer Southern Africa, said, "We understand that farmers' need a varied 'toolbox' of solutions to tackle today's accumulating pressures - and we want to be part of the solution by driving the development and adoption of innovative technologies and scientific sustainable approaches to farming. It was for this reason that we launched the 'Committed to the Future' pledge, which we announced at the Grain SA conference earlier this year. This campaign highlights the importance of responsible use of crop protection products."

HARITH INVESTS IN NOVO ENERGY

Harith General Partners has invested in **NOVO Energy**, a power and technology company that specialises in supplying alternative fuel technologies and services in Africa. Harith, the South African based fund manager, purchased a significant shareholding at NOVO Energy through its US\$435m second Pan African Infrastructure Development Fund (PAIDF2). The partnership was established to create a strategic alignment and focus on the supply of natural gas in the Southern African energy mix. Harith and NOVO, share a common vision to offer cleaner and more affordable industrial and transportation fuel to the Southern African market.

With more than 100 years of cumulative experience in the alternative fuels market, NOVO has positioned itself as a notable competitor. The integrated gas company, has established long-standing partnerships with leading international technology suppliers to design, implement, operate and maintain fuel solutions using natural gas.

NOVO also specialises in the establishment, ownership and operation of gas infrastructure such as gas compression stations, dispensing stations for vehicles and pipelines for the supply of gas to customers.

Harith CEO Tshepo Mahloe said that it is widely accepted that natural gas will play a significant role in the energy mix and economies of a number of African countries in the foreseeable future.

Mr Mahloe said, "The NOVO offering and expertise allows for current and future gas sources to be linked with existing and growing markets on the African continent. In addition to the environmental benefits of natural gas, the availability of gas also creates substantial socio-economic development opportunities through job creation and increased sustainability of the sectors it serves."

BRIEFS



Mathe Group's new tyre recycling plant

Mathe invests in tyre recycling

Waste tyre recycling firm **Mathe Group** has commissioned a new tyre processing facility in Hammarsdale, South Africa. The 2,500 sq/m factory and 1,000 sq/m warehouse are equipped with R20mn (US\$1.3mn) worth of equipment from China. "It has the capacity to manufacture two tons of truck tyres per hour and up to 24 tons per day. At present, we are feeding in a truck tyre every 11/2 minutes," said Mathe Group founder Vusumuzi Mathe.



Ravi Naidoo, executive director economic development, City of Johannesburg

SMEs promoted at SAITEX

The **City of Johannesburg** has provided support for up to 40 companies at SAITEX, held 19-21 June. The sponsorship allows small and medium enterprises to be representing export and entrepreneurial development in the city. Ravi Naidoo, the City's executive director economic development, said, "They will be able to showcase their products, meet potential buyers from around the world and gain access to valuable industry information."



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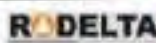
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TPS delivers TFC 45 H reach stackers to SOBEMAP for port operations in Benin

Terex Port Solutions (TPS) has delivered ten Terex TFC 45 H reach stackers to Benin. The machines have been put into operation by **Société Béninoise des Manutentions Portuaires (SOBEMAP)**. With the robust reach stackers, the state-owned port operator will further accelerate its container handling in the West African country's most important economic centre, Cotonou.

SOBEMAP aims to extend its leading role in the region. The reach stackers were ordered via the TPS distributor **SOLOMAT** - which is based in Marseille, France, and is responsible for all handling operations in the Port of Cotonou. The customer already operated eight TFC 45 H reach stackers, four of their own and four rented, which they acquired between 2006 and 2008. Antoine Kouthon, managing director at SOBEMAP, said, "The existing and new TFC 45 H reach stackers have contributed to the sustainable growth of our business. Together they form an efficient fleet of 18 machines that will help us to extend our leading role in the region."

Giuseppe Di Lisa, vice president sales & service EMEAR at TPS, was delighted to win another major order for Terex reach stackers from a loyal customer. He said, "Reach stackers from TPS combine competitive operating costs, ease of maintenance and operator comfort. This mix meets the requirements of many terminal operators. Moreover, our diverse portfolio has reach stacker models to meet the specific needs of customers all over the world with regard to load capacity and stacking height."

The TFC 45 H is part of TPS' comprehensive range of proven Terex reach stackers. With its wheelbase of 6,000 mm, the machine can stack up to five high-cube containers (9'6") in the first row. The maximum load capacity is 45 t in the first row, 27 t in the second row and 13 t in the third row. In April 2015, in addition to the existing range, TPS presented the Terex Liftace 5-31 reach stacker as the first machine of the new lift truck generation. It was followed in April 2016 by the Terex Liftace 5-36 reach stacker.



TPS has delivered ten TFC 45 H reach stackers to Société Béninoise des Manutentions Portuaires in Benin

ORANGE BRINGS MORE BUSINESS TO NIGERIA

With its recent expansion into Lagos, **Orange Business Services** has extended its commitment to support enterprises in Africa - and, specifically, in West Africa.

The B2B division of the Orange Group has established a new sales office in addition to the existing customer support activities in the country.

The objective is to support senior IT decision makers with strategies to grasp the market opportunities being brought by digital transformation. The potential for businesses to expand in Nigeria is demonstrated by the size and rate of growth already achieved by existing Orange clients, especially in the financial sector.

"The expanded Orange Business Services presence in Lagos helps support the many Nigeria-based businesses who want to increase their business performance and profitability," commented Giorgio Heiman, vice president, Africa at Orange Business Services.

"We act as a trusted advisor to help our customers compete on an equal footing in what is rapidly becoming a global market. This includes competitive, high-quality IT services delivered in all countries in which they operate."

Orange Business Services in Nigeria supports both Nigeria-based businesses, which are growing and transforming thanks to digital technologies, and multinational companies from elsewhere on the continent and beyond, which are looking to expand within Africa.

"We place great emphasis on local presence in our markets. There are many growth opportunities in IT, particularly in high-growth markets like Nigeria and across West Africa, but these can only be harnessed if service providers have a local understanding of strategic, political and cultural sensitivities in a region," added Heiman.

MAINONE HOSTS ITW FORUM ON DIGITAL BUSINESS

West African telecom services and network solutions provider **MainOne** hosted an Africa Panel Session scheduled at International Telecoms Week (ITW), the annual global gathering of telecommunications companies, held in Chicago, in the USA, and attended by a mix of African wholesale carriers, mobile network operators and a host of global service providers and content distribution companies. It was an occasion for these industry leaders to share perspectives with a global audience on the recent developments in the region as well as opportunities and challenges being faced across the region towards the wide-spread proliferation of broadband services access. It was equally a gathering for discussing the needed impetus for getting the continent ready for the global information explosion already taking place in select parts of the continent, where Internet consumption by individuals is beginning to compare favorably with consumption patterns in advanced economies.



MainOne hosts session on unlocking Africa's digital potential at International Telecommunications Week

► BRIEFS



Kwame Addo-Kufuor, President of the Ghana Chamber of Mines

Power prospects at WAMPOC

Kwame Addo-Kufuor, president of the **Ghana Chamber of Mines**, and regional chief financial officer of **Newmont's** Africa operations, serves as chairman at WAMPOC 2016, held in Accra, Ghana in the first week of June. This year's conference agenda is formed around investment in the reliability and sustainability of power supply for the mining sector - and stakeholder expectations in a challenging global environment.



Ismail Ahmed, founder and CFO, WorldRemit

Mobile Money grows in Ghana

MTN Mobile Money is now the fastest-growing method of receiving **WorldRemit** money transfers in Ghana, rising by 13 per cent per month on average. WorldRemit was founded by Ismail Ahmed, who has sought to address the cost of money transfer to Ghanaians. Eli Hini, GM, mobile financial service at MTN, said, "WorldRemit's service extends the usefulness of mobile money beyond our borders to reach the entire global Ghanaian community."

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AN EXPOSITION OF BUILDING EQUIPMENT

Hosting a comprehensive array of building and related industries in residential, commercial and industrial development, Interbuild Africa will be held in Johannesburg, South Africa, from 17-20 August.

Interbuild Africa has been running since 1968, and is now the largest building services and construction exhibition in the continent. It offers new product launches, live demonstrations, technology innovations, conferences, seminars and professional expertise. The event is co-located with: Glass Expo Africa, Plumbdrain Africa, EcoAfribuild, Wood World South Africa and Hardex Africa, to provide exhibitors with a comprehensive platform to meet new and existing customers, launch new products, and build up lists of new sales leads.

Interbuild attracts visitors with a high level of purchasing authority, offering them extensive access to products and services, industry relevant conferences and seminars and live daily demonstrations.

When it was last held, in 2014, Interbuild Africa and its co located shows welcomed a total of 6,727 visitors.

Following the last event, Guy Read, sales manager at **Bohle Glass Equipment**, said, "Interbuild Africa has provided us with the opportunity to demonstrate our products to new customers, particularly those in regions that we don't frequently visit. We were pleased to see potential customers from international countries at the show and develop business relationships with them."

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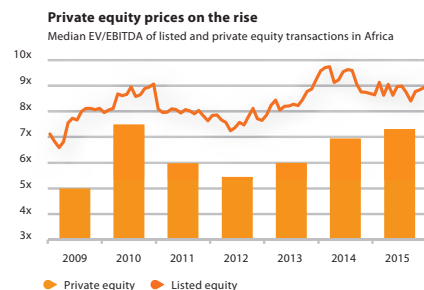
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GREATER VALUES IN AFRICAN PRIVATE EQUITY DEALS

According to investment specialists at **RisCura**, over 30 per cent of reported African private equity (PE) transactions in 2014 and 2015 took place at greater than a 10x multiple of earnings before interest, taxes, depreciation and amortisation (EBITDA), a strong increase over earlier periods; between 2009 and 2013, more than half of PE transactions took place at lower than a 6x EBITDA multiple.



SUMMIT SEEKS TO UNLOCK INVESTMENT IN COMESA

The central theme of the inaugural Global African Investment Summit, held 5-6 September in Kigali, Rwanda, is 'How the private sector can help realise the aspiration of the Africa's largest single common market?'. "This summit will provide a timely and essential meeting place for Africa's most senior influencers in government and the private sector to engage with global representatives interested in gaining direct access to the region's current investment opportunities," said Sindiso Ngwenyay, Secretary-General of the **Common Market for Eastern and Southern Africa (COMESA)**.

GABSTEN AND KIBO OFFER SME CLOUD BACKUP AND RECOVERY

Data management company **Gabsten Technologies** and converged services provider **Kibo Connect** have formalised a partnership to deliver a managed backup-as-a-service solution to the South African market, making this service more accessible to small and medium enterprises (SMEs) in the country; the offering includes: simplified administration; autonomy for managing backup environments; secure access; file sharing; data privacy; deduplication; and incremental/bit-based backups whereby only new and changed data is backed-up, so thereby reducing bandwidth requirements.

SES TO CONNECT SEAVSAT'S MARITIME CUSTOMERS

Mobile broadband and maritime communications provider **SeaVsat** has chosen



SES's capacity and customised broadband platform will provide reliable communications to SeaVsat's maritime customers

the Enterprise+ Broadband service offered by satellite operator **SES** and to utilise additional SES capacity to deliver connectivity to vessels worldwide; "The SES Enterprise+ Broadband service has given us more flexibility and the high throughput that is needed for our vessels off the coast of Nigeria," said Arlette de Boer, managing director at SeaVsat.

SCANDINAVIAN RETAILER INVESTS IN EAST AFRICAN JOBS

Multinational Swedish retail-clothing company **H & M Hennes & Mauritz AB** has responded to the call of the **African Union** to boost industrialisation, job-creation and increase foreign direct investment in Africa in line with the Agenda 2063 development initiative; with an established production line in Ethiopia, H&M plans to expand into the rest of the continent, starting with countries in East Africa.

NIGERIAN MANUFACTURERS' GROUP SEEKS INDUSTRY LINKS

The **Manufacturing Association of Nigeria (MAN)** has inaugurated its Large Corporation Group, which will amongst other things come up with policy recommendations that will lead to a conducive economic and social climate for the operation and development for large scale



Nigeria's Minister of State for Industry Trade and Investment Dr Aisha Abubakar and MAN president Dr Frank S Udemba Jacobs with President and CEO of GE Nigeria Dr Lazarus Angbazo at the Lagos inauguration of the Large Corporations Group

industries in Nigeria; MAN president Dr Frank S Udemba Jacobs said one of the most crucial tasks before the Large Corporation Group is to facilitate effective linkage between small/medium scale enterprises and large scale industries in the nation's production and supply value chain, to help make Nigeria a stronger regional manufacturing hub.

OIL & GAS STAKEHOLDERS TO SHOW AT AFRICA OIL WEEK

Global Pacific & Partners and **ITE Group** are set to host the 23rd Annual Africa Oil Week/Africa Upstream 2016 Conference from 31st October-4th November 2016 in Cape Town, South Africa; the event highlights Africa's upstream industry with insights and debate from representatives of the continent's Governments, national oil companies, licensing agencies and corporations shaping the continent's hydrocarbon future, providing extensive executive networking for securing new venture possibilities and financing and investment opportunities.

AFDB AND WAPP FINANCE NIGERIA-BENIN CIRCUIT

The **West Africa Power Pool (WAPP)**, a specialised institution of the **Economic Community of West African States (ECOWAS)**, and the **African Development Bank (AfDB)** have signed a grant agreement worth US\$2mn to support the Nigeria-Benin Interconnector Reinforcement Project, through the construction of a 330kV double-circuit high-voltage transmission line from Erukan (Nigeria) to Sakete (Benin), to facilitate optimal power exchanges and trading between the Member States; speaking at the signing event, AfDB acting vice-president Stefan Nalletamby said, "The project will allow inclusive economic growth needed to transform the lives and livelihoods of many in the West African region."

TIMETRIC SPOTLIGHTS GEOVIA FOR MINE SOFTWARE

According to a recent survey by **Timetric's** Mining Intelligence Centre (MIC), **GEOVIA's** Surpac is the most widely-used mining software across African mines, followed by **Datamine** and **Hexagon Mining's** MineSight; the survey identified the different mining software platforms used at individual mine sites across the African continent based on interviews with over 110 African mine managers and other senior decision-makers, with the respondents asked to nominate one or multiple software used in five main mining processes: 'geological mapping and block modelling', 'surveying', 'drill and blast', 'mine scheduling' and 'mine planning'.

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PHILIPPE LE HOUÉROU

executive vice president/CEO, IFC

“ We have a wonderful opportunity to leapfrog out of poverty – simply by building robust energy generation.

JUBRIL ADEWALE TINUBU

group chief executive, Oando

“ Nigeria now has near 100 per cent wireless coverage and a 92 per cent cellphone ownership rate, and, for the first time, Nigerians have access to global online marketplaces anywhere, anytime, on any device.

NJIDEKA HARRY

president/chief executive officer, Youth for Technology Foundation

“ Smartphone adoption among Nigeria's 170mn citizens is growing exponentially.

ROB HASLAM

vice president/managing director, government ID solutions, HID Global

“ African cities are experiencing dramatic change, including the far reaching impact of digital technology.

MATT COETZEE

global urbanisation expertise leader, Aurecon

“ The future is mobile and we are giving our customers the power to control their businesses from the palm of their hand, thanks to the power of the cloud.



DR RUTENDO HWINDINGWI

divisional director, Sage East and West Africa

“ The majority of the world's poor are hard-working smallholder farmers who can reach their full potential with access to finance, training, and services.

ANDREW YOUN

founder/executive director, One Acre Fund

“ Long-term investment and commitments into local agricultural and farming enterprises, both small and commercial, are essential to building supply chains for sustainable food sources that will meet demand and future export potential and research and innovation forms a critical cornerstone of this.

DR KLAUS ECKSTEIN

chief executive officer/head of cropscience, Bayer Southern Africa

“ Data visualisation enables faster and better decision making for businesses, and that is the reason why organisations across the globe are investing in newer and more sophisticated business intelligence solutions that incorporate visualisation tools.

PALLAB DEB

vice president/global head - analytics, Wipro Limited

“ Visualised forms of information help facility managers literally see how building systems are functioning, how they could and should be made to function better, how to make equipment last longer, and how to make everything - including people - work more efficiently.

NEIL CAMERON

general manager, Johnson Controls Building Efficiency

“ Africa's business leaders have the opportunity to pursue new business opportunities on the continent, more particularly in the light of rapid innovative and technological advances that have the potential to transform and shape industries.

HEIN BOEGMAN

chief executive officer, PwC Africa

“ New private-sector participation is undoubtedly the key to unlocking Africa's infrastructure investment aspiration and ensuring the expertise is in place to support the move to regional harmonisation.

SINDISO NGWENYA

secretary general, COMESA

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Full information can be found on www.africanreview.com

VOLVO LAUNCHES I-SHIFT CRAWLER GEARS



Volvo Trucks has announced its latest version of I-Shift with crawler gears for its trucks during a press briefing in Gothenburg, Sweden. First launched in 1991, I-Shift became a fully-automated robotic transmission in 2002. This year, Volvo Trucks will launch I-Shift F with crawler gears. The I-Shift F has been specially developed for excellent starting traction and to handle driving at ultra-low speeds. I-Shift with crawler

gears can drive at speeds as slow as 0.5-2 km/h and can start off from standstill while hauling 325 tonnes.
www.africanreview.com/transport-a-logistics/vehicles

PROPAK EAST AFRICA 2017 EXPECTS SUBSTANTIAL GROWTH



Propak East Africa is expected to be the largest packaging, printing and plastics exhibition in the region. (Photo: Propak)

Propak East Africa, the packaging, printing and plastics exhibition is expecting to experience 50 per cent

growth compared to the previous year.
www.africanreview.com/events

UBA TO EXTEND FOOTPRINT ACROSS 25 AFRICAN COUNTRIES



UBA's group chairman noted the bank is realising the potential of Africa. (Image source: Tony Eleumelu Foundation)

United Bank for Africa (UBA) group chairman Tony Elumelu has pledged more capital for African growth at a recent forum.

www.africanreview.com/finance

RWANDA PARTNERS WITH MASTERCARD FOR CASHLESS ECONOMY



The collaboration will help Rwandan government's 'Vision 2020' strategy, which aims to achieve 90 per cent financial inclusion by 2020. (Photo: Håkan Dahlström/Flickr)

The Rwandan government will partner with MasterCard in a move to include 90 per cent of Rwandan citizens in the financial mainstream.

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Encouraging agricultural entrepreneurs

Scott McCaw, Panafrican Group managing director, and Fergus Robley, the general manager of Panafrican Agriculture Division, FMD, outline their strategy for supporting agribusiness

In your experience, which banks are particularly proactive in lending to farmers? To what extent can investment in agricultural technology and systems help African farmers reach their full potential?

In a world of ever increasing population and urbanisation, focus on food sustainability for the African continent is critical. Most farming on the continent is still done by hand and scarcely provides sufficient yields for subsistence. By introducing appropriate mechanisation and good farming practices to the African farmers, the yield limiting factors will be reduced and productivity improvements of 4-10 times can be achieved.

Unfortunately, we often see mechanised solutions supplied into Africa as the silver bullet to achieve food sustainability. However, quite often, this equipment is not maintained, in a state of disrepair and not being utilised appropriately, resulting in no increase in productivity!

Good farming practice and appropriate mechanisation go hand in hand. But this requires the dissemination of the correct information and training to move farmers away from subsistence farming to life-changing, increased productivity with saleable excess capacity. This is the evolution to income generating commercial ventures.

In addition, irrigation, is also viewed as the means to better crop yields. This is true however, understanding and adopting good farming practice to conserve soil moisture is often a more realistic approach. In Africa, the cost of getting sufficient water for irrigation is challenging, due to high evaporation and evapotranspiration.

The actual amounts of water required during the growing seasons can be up to five times more in volume than natural rainfall. To keep the costs of production within commercially viable limits, it is important that mechanisation is done in a way to reduce soil disturbance to preserve existing moisture in the soil, while achieving aeration to maximise water absorption and retention. This can be achieved through reduced disc use, adopting tined implements, and, with certain crops, only tilling the land that is actually utilised. This approach also preserves the soils natural resources (organic matter, enzymes and micronutrients) for the benefit of the farmer.

Which crops offer the best prospects to farmers in East African nations such as Kenya?

Adopting good farming practices goes beyond mechanisation and irrigation. Crop choice and crop rotation are also very important elements to the process. In Kenya, mono cropping is the norm and we often see nitrogen fixing crops planted with nitrogen hungry crops, which results in loss of the natural soil trace elements. Another example, is potatoes planted in the same fields, year on year, which results in ever decreasing yields due to disease. The passing of good information to grass roots African farmers, in a language that is absorbed and understood, is key. In East Africa this is accomplished through research institutions in both the public and private sectors, however the challenge remains getting that information out to the farmer in an appropriate fashion. Crop rotation that complements the traditional staple diet approach is



Scott McCaw, managing director, Panafrican Group

not a 'nice to have', it is a 'must have', to preserve the soils for the future generations. Also, the choice of crops, with ready markets improves year on year. Today, farmers are not restricted to traditional wheat, maize and rice.

Examples of such crops are sorghum, groundnuts, sesame, sunflower, safflower, soybeans, beans, Lucerne, Rhodes grass, potatoes and pulses.

How can youth be encouraged to pursue their own agribusiness ventures, or to gain expertise in agriculture through higher education? In what ways does equipment supplied by Panafrican empower agricultural entrepreneurs? In your experience, which banks are particularly proactive in lending to farmers?

Mobilising youth into agriculture is important, where an estimated 50 per cent of the population in Africa is under the age of 21 and employment opportunities remain insufficient. Panafrican's Agricultural Machinery Division, FMD, along with others, have a responsibility to develop future farmers through information and education. In 2015 we entered into

discussions on developing 'The Model Farm Concept' in conjunction with the College of the Rockies from Canada and the plans will be rolled out in 2017. This combines education with hands on application. In addition to this we will continue to carry out open forum talks with the learning institutions. The Panafrican Group has a dedicated training unit, which not only focuses on training internally and externally to support the aftermarket for our products, but it also embraces the private sectors responsibility for educating the youth.

In conjunction with education, the markets have to offer affordable solutions. Panafrican group's Agricultural Machinery Division, FMD, along with our principal suppliers, AGCO Massey Ferguson, launched the 'Farm in a Box' concept with the MF 35 as the entry level tractor. This unique Massey Ferguson product package caters to the entrepreneurial youth and the evolving African middle class by offering a technologically appropriate tractor and implement package with a very affordable price, allowing cooperatives/farmers/contractors to enjoy the benefits of mechanised agriculture. This project is designed to encourage employment/careers within the agricultural sector. In order to assist in financing this opportunity, especially at the early stages, Panafrican has entered into an agreement with Equity Bank to provide customer finance solutions. So as you can see, we have combined a technologically appropriate, affordable and financed package solution, with education, to launch future or developing commercial farmers in East Africa. ■

Promoting a sustainable African energy agenda

Professor Hasan Murat Mercan, Chairman of the World Energy Congress Executive Board, promotes the continent's power capacity prospects

As Chairman of the Executive Board of the 2016 World Energy Congress (WEC), to be held in Istanbul, Turkey, 9-13 October, Professor Hasan Murat Mercan seeks to promote sustainable energy systems all over the world - but he has recognised that investing in African energy infrastructure is a priority for the global economic community. A former Deputy Minister of Energy & Natural Resources in the Government of Turkey, Professor Mercan brings significant expertise to the World Energy Council, which organises the Congress.

Energy and economy

With respect to the Middle East and North Africa, Professor Mercan maintained that policies related to energy efficiency and a diversification of national energy mixes have the subject of increasing attention. He added that it is critical for realistic targets to be set and investor-friendly policy frameworks to be developed, if emissions levels are to be controlled. When discussing development in Sub-Saharan African countries, Professor Mercan affirmed that energy sector emissions levels are not the sole principal concern. SSA emissions are expected to increase between 30 per

cent and 140 per cent by 2050 - but emissions control must be balanced with the need to deliver significant economic growth. He stressed that the impact of soft and hard adaptation measures, implemented to counteract rising average global temperatures, will be critical to the continent's economic development.

The World Energy Council forecasts that economies in the Middle East and North Africa will continue to be heavy users of energy, and that Sub-Saharan Africa will see a rapid rise in rates of energy consumption. GDP across the Maghreb and Arabic territories is set to triple by 2050, stimulating a doubling in energy demand during the same period. In SSA, lead economies such as South Africa.

Capacity challenges

Africa's energy challenges vary in scale, as nations differ in terms both of historic investment activity and also the relative sophistication of contemporary policy frameworks. However, there many common factors affecting generation distribution and utilisation of energy. Professor Mercan highlighted the issues in interview with African Review. So many African nations suffer from under-capacity and an unreliable supply of electricity, coal



Professor Hasan Murat Mercan, Chairman of the Executive Board of the 2016 World Energy Congress

and liquid fuels. Even in leading economies such as South Africa, the electricity supply crisis is acute - with tight reserve margins, poor maintenance practices, fuel constraints and little or no new capacity, set against a continuous growth in demand for reliable electricity supply. In fact, in South Africa, the country's major power utility, Eskom, has been implementing rotational load shedding to avoid national blackouts. As a consequence, shops and factories have been shutting down or opening and operating for limited periods, and transportation has been severely impacted, including delayed flight connections to other countries.

Opportunity and equity

The World Energy Council estimates that the Middle East and North Africa hold 66 per cent of the world's oil resources and 45 per cent of the world's natural gas reserves. It finds also, that several countries in the region have sought to diversify their economies and energy mix, to enable a transition from current heavy reliance oil and gas exports. The Council's research confirms, also, with SSA economic growth likely to remain strong, in line with the current averages of 4.5 per cent

in 2015 and 5.1 per cent in 2016, increasing industrialisation and growth in manufacturing bases will necessitate investment in capacity, improved practices and reformed legislative and regulatory powers. Africa's economic prospects rely heavily on commodities and resource extraction. Materials such as oil, gas, coal, uranium, minerals and gemstones sit alongside agriculture as key economic drivers. However, there is a disconnection between the wealth of resources and a poverty of consumption levels. African energy equity is low, with just 55 per cent of the total SSA population lacking access to electricity. This is why Professor Mercan presses his vision into the WEC agenda, with the fourth and final Congress day dedicated to African issues. He and his fellow Council members recognise not only the need for development, but the opportunity to bring investors, enterprises and governmental bodies together to commit to tangible action. He has also brought on board influential figures such as Strive Masiyiwa, group executive chairman and founder of Econet, to encourage multi-lateral stakeholder commitment to sustainable energy infrastructure. ■

“ The Congress is an excellent platform for all companies and organisations in the sector to come together, network, share ideas and collaborate on the future challenges and opportunities.

PROFESSOR HASAN MURAT MERCAN, CHAIRMAN OF THE EXECUTIVE BOARD OF THE 23RD WORLD ENERGY CONGRESS

WEF demonstrates need for Africans to showcase investment credentials

Africa needs to address perceptions of risk on the continent to help investors understand what its markets have to offer, and develop success stories that highlight the capability of Africa's people and institutions to deliver complex projects, quality local content and innovation. **World Bank** vice-president for Africa, Makhtar Diop said that this era of low commodity prices is "a wonderful opportunity" to invest in agriculture, a sector that has been neglected. Efforts need to be made to increase the proportion of land under irrigation, use technology to improve productivity and reduce farmers' risk levels through insurance and other measures.

Pravin Gordhan, Minister of Finance of the **Government of South Africa**, noted that African countries need to focus on mobilising their own resources and implementing projects that will demonstrate Africans' ability to deliver. This would give investors comfort and alert them to the benefits of investing on the continent and the good returns that are on offer there.

Fredrik Jejdling, president for the sub-Saharan Africa region at **Ericsson**, said that the company has been in Africa for 120 years, which proves its commitment to the future of the continent. He added that, despite some hurdles at present such as currency devaluation, they do not detract from the long-term attractiveness of the markets in Africa.

Claver Gatete, Minister of Finance and Economic Planning in the **Government of Rwanda**, emphasised that regional connectedness is key to economic growth. He cited several initiatives undertaken by the East African Community in this regard related to the mobility of labour, skills and visitors within the region, of technology, of capital markets and of goods from the port at Mombasa to countries inland. This has increased the region's attractiveness as an investment destination and stimulated business activity and improved efficiency. These initiatives, he explained, are driven by leaders in the participating countries, showing what can be achieved with the right political will.

Makhtar Diop also suggested improving regulation in Africa and considering establishing regional regulators to create common standards across countries and who are properly empowered to enforce regulation.



Makhtar Diop, World Bank vice-president for Africa, at the World Economic Forum on Africa

RWANDA MOVES TOWARD CASHLESS SOCIETY

The **Government of Rwanda** is collaborating with **MasterCard** to fast-track the country's move to include 90 per cent of its citizens in the financial mainstream, as set out in its Vision 2020 strategy. In line with an MoU signed by **Rwanda Development Board** CEO and Cabinet Member Francis Gatete, and Raghu Malhotra, president of Middle East and Africa for MasterCard, Rwanda will promote the move to a cashless economy by collaborating on numerous initiatives.

These solutions include the digitisation of school fees and national healthcare claim payments, providing an online payment gateway for Rwanda Online, contributing to the creation of a common mobile banking platform, and contributing to management of spending activities across borders.

Mr Gatete said, "We are confident that Rwanda's partnership with MasterCard will be beneficial to the country and its citizens as we are implementing our vision of becoming a knowledge based service-oriented economy. I believe this can only be achieved as we embrace the fourth industrial revolution."

Malhotra remarked that the Government of Rwanda shares the commitment of MasterCard to realising a world beyond cash. He said, "Our global reach and local experience makes MasterCard a perfect partner to help Rwanda meet its Vision 2020 strategy. Rwanda is a key market in East Africa for MasterCard and today's announcement marks an important milestone in driving financial inclusion, not just in the country but in the region and Africa as a whole."

According to the **World Bank's** Global Findex 2014, two billion people globally do not have access to formal financial services. In Rwanda, 42 per cent of adults own a financial account, whether formal or informal.

IMF REVISES ECONOMIC GROWTH FORECASTS

Economic growth across Africa is likely to remain slower in coming years than it has been over the past 10 to 15 years. The **International Monetary Fund (IMF)** baseline projection for 2016 is now down to three per cent, from what was a forecasted 6.1 per cent in April 2015. The main reasons for a relative slowdown are not unique to Africa and are the same as those weighing down the global economy: a general slowdown in emerging market economies, and in particular the rebalancing of China's economy; ongoing stagnation in most developed economies; lower commodity prices; and higher borrowing costs. However, two-thirds of Sub-Saharan African economies are still growing at rates above the global average, and will remain the second fastest-growing region in the world for the foreseeable future, after Emerging Asia. This is further supported by the year-on-year increase in FDI project numbers in Africa in 2015 that occurred in a context in which the total number of FDI projects globally dropped by five per cent.

► BRIEFS

Green property development



South African architectural and project management firm **Swisatec** is set to build a R14bn (US\$884mn) Green Village in Cape Town. The mixed-use Blue Rock Village has been labelled the first 'Green Village' in Africa. Lukas Reichmuth, founder and director of Blue Rock Village, describes the project as a place "for the discerning investors and a home to those who wish a lifestyle full of only the best Cape Town area has to offer".

MoneyGram expands further in Equatorial Guinea

Financial services provider **MoneyGram** continues to expand in Equatorial Guinea with the launch of money transfer services at **Banco Nacional de Guinea Ecuatorial (BANGE)** locations. MoneyGram customers in Equatorial Guinea now have fifteen new convenient locations where they can send and receive money between family and friends. BANGE provides financial services to thousands of customers in seven major cities. Equatorial Guinea is among the largest recipients of foreign investments in Africa. The key sending countries to Equatorial Guinea are Spain, US, and Cameroon; most outbound transfers are sent to Spain. Moreover, Africa is a critical market for MoneyGram, which has more than 30,000 locations in 50 African countries.



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Are you onboard Africa's digital journey?

As more services and products move online, new business models are unfolding across the continent at the heart of which is connectivity



Mobile banking and digital advertising are also helping to fuel innovation and growth in African e-commerce

Ten years from now, business in Africa will look unrecognisable. By 2025, internet penetration is expected to reach 50 per cent of the continent with the number of smartphone users rising to 360mn, according to McKinsey Consultants. That's double the current number of smartphone users in the US.

Greater access online will have a profound effect on the way Africans live and work, and will transform the way the business community operates and delivers services to customers. This digital transformation is taking place across the continent right now, and there are a number of key trends that businesses should already be paying attention to.

Money on the mobile

Mobile banking is a major trend that is currently disrupting traditional

business models in Africa. The region has the highest levels of mobile money penetration in the world. According to GSMA Intelligence, it accounted for more than half of the 255 live mobile money services across the globe in 2014, and over half of African mobile operators have already launched mobile money services. Mobile money is fostering an ecosystem for mobile money

providers, telecoms operators and third-party organisations to facilitate transactions to different industry verticals.

If we take utilities as an example, we see that mobile money users in the region could receive their salary into a mobile money account, and in turn use it to pay a utility bill digitally since the funds are already available in electronic form. This provides a more convenient and

secure platform for businesses and their customers to exchange payments.

Countries such as Nigeria and Kenya have become powerful examples to the world of how mobile money can deliver services to huge unbanked populations, seriously disrupting traditional banking and retail models in the process.

Successful mobile money platforms are in fact prompting the traditional banking sector in Africa to up its game. High-cost branches cannot survive in their traditional form and so a new focus on customer experience has led organisations to experiment with different models, such as assisted self-service, in-store branches, full-service branches, community centres and flagship stores. This in turn is also driving the need for

“ Mobile money is fostering an ecosystem for mobile money providers, telecoms operators and third-party firms to facilitate transactions to different industry verticals.”

NIC RUDNIK, CEO, THE LIQUID TELECOM GROUP

more reliable and secure connectivity across the region.

Advertising in the digital age

Other digital services are also playing a part in transforming business across Africa. Digital advertising is helping to make up for traditionally low advertising spending levels across Africa.

Social media is taking centre stage for many brands. Facebook claims it has 100mn people coming to its site every month across the African continent, and the social media giant has targeted advertising partnerships in the region. In 2015, it opened its first African office in Johannesburg to expand its business across the continent, and, in particular, tap into the large market for the social network to earn advertising revenue.

As a mobile-first continent, there is expected to be a big push from

businesses into mobile advertising. In fact, the market for mobile advertising via SMS and apps has been developing fast, and is expected to become a considerable component of total advertising in Africa in the coming years. Businesses are being urged to focus marketing budgets on mobile-enabled campaigns rather than traditional desktops and personal laptops - adjusting their above-the-line (ATL) digital advertising spend accordingly.

According to Informa Telecoms and Media, Africa's telecoms firms are expected to generate US\$1.3bn in advertising revenue by 2016. The research firm expects mobile operators to generate these revenues from the likes of SMS, MMS, mobile apps, downloads and streaming advertisements.

More sophisticated digital marketing practices will also help

hook a new generation of African consumers online.

An e-commerce ecosystem

Mobile banking and digital advertising are also helping to fuel innovation and growth in African e-commerce. According to McKinsey, African e-commerce sales are expected to reach an impressive US\$75bn by 2025.

A combination of increased spending power and internet access is driving the payments of goods and services online, as well as inspiring a new generation of start-up e-commerce businesses.

Countries such as Senegal, Mozambique, Nigeria, South Africa and Kenya are leading the way in developing vibrant e-commerce markets. Online retailers and start-ups in these countries are finding new ways to bring both local products and popular US and

European brands to consumers across the region.

Jumia, for example, is the largest online retailer in Nigeria and is making serious headway across the rest of the region since its inception in 2012. Aiming to become Africa's answer to Amazon, it now operates in nine countries and its parent company, Africa Internet Group, secured over US\$300mn from its latest round of funding. This includes backing from MTN Group and Goldman Sachs.

Disruptive digital start-ups like these can only thrive with more sophisticated connectivity in place.

The tech trend of the decade

There are other more technology-driven trends on the horizon that will also have a major role to play in the development and advancement of African businesses. One of these, which is already gaining major

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traction in other regions and is perhaps the most talked about technology trend of the decade, is the Internet of Things (IoT). With 50bn devices expected to be connected globally by 2020, the potential for IoT is enormous, and no more so than in Africa. In fact, International Data Corporation predicts Africa will be home to one billion connected devices by 2020.

IoT has the ability to transform industries as far and wide as utilities, defence, agriculture, power and mining, helping them to drive efficiency, control inventory and track assets. From connected cars and mines, through to connected vineyards and cargo containers, businesses are finding ways to expertly connect it.

Home to some of the region's most advanced networks, South Africa looks set to lead the way in Africa and is expected to have an IoT market worth US\$2bn by the turn of the century.

In Johannesburg, for example, there have been trials of smart metering that use a load-limiting model, which is designed to ensure households maintain power supply during rolling national blackouts. This demonstrates how there can be a very powerful business case for IoT across the region, which can help overcome the limitations of basic infrastructure.

Clouds forming on the horizon

Businesses in Africa are also pushing ahead with the migration of services to the cloud. Cloud traffic is expected to grow by 83 per cent in Middle East and Africa by 2019, Cisco Global Cloud Index predicts. Enterprise cloud computing on the



Kenya is currently the financial and manufacturing hub for the region and so possesses considerable demand from enterprise customers for data centre services (Image source: Oleksiy Mark/Fotolia)

continent has so far been driven by large enterprise and multinational organisations expanding their presence across the region. By migrating more of their IT infrastructure, applications and processes into the cloud, companies are recognising that it can help drive efficiencies and reduce costs.

Growing confidence from enterprises and governments in trusting the cloud with their mission-critical data looks set to tip cloud adoption into the mainstream. Early adoption could give businesses a competitive edge - helping to reduce costly infrastructure and increase data-driven decisions. Equally integral will be the development of more

sophisticated data centre facilities. Investment in local data centre facilities is rising across the region, as telecoms providers aim to improve internet access and open up new opportunities in cloud services.

A minority of content accessed in Africa is currently stored locally. Accessing content stored overseas increases latency, which slows down services such as video streaming and drives up pricing for customers.

Developing data centre facilities to international standards is the logical next step for the market, helping to improve quality of internet services, bring down costs and further attract major content players to the region.

Data centre hubs are beginning to emerge across the continent. Kenya is one of the region's more advanced markets and experienced early investment in its data centre facilities. The country acts as a financial and manufacturing hub for the region and so possesses considerable demand from enterprise customers for data centre services.

The East Africa Data Centre – part of the Liquid Telecom Group – was

opened in 2013 and has already played an important role in supporting banks, mobile network operators, ISPs and cloud solutions providers in the country and beyond. In 2014, the facility was chosen by the Telecommunications Service Providers Association of Kenya (TESPOK) to host the Kenya Internet Exchange Point (KIXP), helping Kenya ISPs to easily exchange traffic within the country without the need of multiple international hops.

Networks critical for Africa's digital transformation

Africa's digital transformation can only happen if the region's telecoms infrastructure keeps up with the pace of innovation. More reliable, secure and sophisticated forms of connectivity will only help African businesses grow faster.

Liquid Telecom has played a major role in deploying advanced fibre networks across Africa, building the continent's largest independent cross-border fibre network, which today stretches over 21,000km.

This is providing an IP backbone that is truly helping to keep regional

“ Investment in local data centre facilities is rising across the region, as telecoms providers aim to improve internet access and open up new opportunities in cloud services.

“ While Western companies wrestle with how to repurpose or overhaul legacy IT infrastructure, African businesses have an opportunity to leapfrog ahead with mobile, cloud and IoT adoption.

traffic within the continent - reducing latency and improving end user experience.

In African cities, businesses are looking for higher broadband speeds, as well as greater network resiliency and security.

Through deploying more metro networks, Liquid Telecom is already helping companies in nine major African cities, including Nairobi in Kenya, Harare in Zimbabwe and Kampala in Uganda.

This additional infrastructure is bringing the opportunity to deliver services using the latest standards and equipment, providing African enterprises with cost-effective, resilient and secure connectivity. It is empowering African business with dedicated and scalable bandwidth, which can be used to offer advanced services such as co-location, SIP, network security and cloud.



With 50bn devices expected to be connected globally by 2020, the potential for IoT is enormous, and no more so than in Africa (Image source: Blend Images/Fotolia)

While Western companies wrestle with how to repurpose or overhaul legacy IT infrastructure, African businesses have an opportunity to leapfrog ahead with mobile, cloud and IoT adoption. The most valuable start-ups globally have embraced a digital platform business model. Africa will be next. Be it across mobile banking, digital advertising or e-commerce – more digital businesses and innovation is on its way across Africa, and enterprises of all sizes must get on-board to stay ahead. ■

Nic Rudnik, CEO, The Liquid Telecom Group



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Testing times in shipping

As ships continue to grow in size and complexity, the power systems and testing equipment required will become more sophisticated

In recent times we have witnessed a massive growth in the size of seagoing cargo vessels. As these vessels continue to grow in size, their power needs grow too, as does the complexity of on-board systems. Modern sea vessels often contain complex propulsion, production and environmental support systems which must operate reliably for long periods of time, often hundreds, if not thousands of miles offshore. Ensuring the availability of power for these systems is a critical function to guarantee vital services can run uninterrupted, making pre-launch reliable testing of power supplies of particular importance. This is an area of increased focus for ship owners and offshore classification agencies as they seek to optimise safety and ensure power availability, driving continued growth in the use of specialist equipment for the robust testing of onboard power systems.

Since the 1940s, rapidly growing trade and the need for effective means of transport which was the first driving-force in the development of sea vessels. Fast forward 70 years and we now have different driving-forces in the growth and development of these vessels. For example, the reason behind the recent increase of the size of container ships is economy of scale. Fitting more products on container ships and making less journeys will inevitably save money. One of the world's largest container ships, MSC Zoe, is 396 metres long and can carry over 19,000 20ft equivalent units TEU. Simply put, it is a lot cheaper to transport cargo if you move large quantities at a time.

Any offshore power generation unit is a complex system, or series of systems, working together to perform several functions at once,



The reason behind the recent increase of the size of container ships is economy of scale

and at the system's heart is the generator. This could consist of several gas turbines and/or diesel generators. However, various discrete systems and components complete the total package, such as alternators, regulators, transformers and switchgear.

These additional components typically come from various manufacturers, and are usually designed to interface with a number of models and sizes of generators. As with any other mechanical or electrical components, all are potentially subject to failure, and have varying maintenance needs.

Ship categories and their power needs

Ships can fall into a number of categories, all with different uses and power needs. Cruise ships, for example, require massive electrical installations in order to power the shopping malls, entertainment centres, bars and restaurants on-board.

Military vessels also have high power needs in order to run complex propulsion, life support

and weapon systems. Failure of these systems in operation may have a devastating impact so it is extremely important to perform rigorous testing.

Other types of ships include car and passenger ferries, oil tankers, nuclear ships and fishing vessels, all with specific power requirements. These systems must be able to operate at full power even in the harshest conditions, with all components working together to do their individual jobs.

Issues by increased vessel size

Operating these huge vessels requires complex electrical systems which need to be correctly and thoroughly tested.

However, the stresses introduced by this level of operation cannot be simulated by discrete tests of a system's numerous individual components: automatic transfer switches, switchgear, load-sharing centres, voltage regulators, alternators, electrical cabling and connectors, ventilation, cooling systems and fuel systems.

While the generators may have been tested at the factory, the variables of their interaction with other parallel-connected power generation units, load profile, ambient temperature, humidity, fuel, exhaust and cooling systems can be significantly affected by the installation. A system-wide test is, therefore, the only way to ensure the individual components of any power generation system will work together harmoniously, whether for continuous production demands, or in emergency power outages.

Main engines and generators on board these vessels require a constant and reliable electricity supply to keep them going. Electrical power is vital for many operational functions - without it, ships literally come to a halt.

Large equipment such as propulsion motors and bow thrusters, requires electricity of high voltage. As for smaller machinery such as cabin lights, galley equipment, the electricity goes through transformer and is, thus, stepped down into lower voltage.

The role of resistive and reactive testing

A resistive-reactive load test of an installation's power system can accurately simulate the system's response to a changing load pattern and power factor (pf) demands, such as would be encountered during running conditions or in the event of standby genset having to operate.

Resistive-reactive load banks are used to test the engine/turbine generator set at its rated pf. In most cases this is 0.8 pf. The reactive component of the load will have a current that 'lags' the voltage. The resulting power is described in two terms, the kW (real power) and the kVA (apparent power).

The combination of resistive and reactive current in the load will allow for the full kVA rating of the generator windings to be tested. Even though the genset is producing more kVA, it is actually not

“ As ships continue to grow in size and complexity, the power systems will continue to develop and the need for testing will remain an absolute necessity.

PAUL BRICKMAN, SALES/MARKETING DIRECTOR, CRESTCHIC

producing more kW. The 'real' power (kW) required from the engine/turbine is the same. The inductive loads developed during reactive testing illustrate how any given system will handle the voltage drop in its regulator, paramount when paralleling generators.

The test will also verify that this regulator is working properly. If not, its magnetic field could collapse, rendering the generator useless and preventing other generators in the

system from operating efficiently in parallel. Resistive-reactive testing can also reveal additional stresses and help predict pending failures of a system's switchgear, alternators, and other systems that resistive-only testing cannot.

Commissioning aside, which is invariably performed onshore, loadbanks have other uses on large vessels. Permanently installed loadbanks allow for comprehensive testing to be integrated into the

maintenance procedures of emergency systems in particular. Oversized generators can be cleared of any carbon build-up with regular sessions of full load application, ensuring reliable performance when called upon for particular production cycles or an emergency.

What does the future hold?

All major ship classification companies will have a close eye on competent testing more so than ever before with the recent growth in the industry. Through all levels of the shipbuilding journey from the ship owner, the ship builder and the ship insurer all parties should ensure power on the ship has been tested adequately to guarantee efficient, reliable operation and security of investment. ■

Paul Brickman, sales and marketing director, Crestchic

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Doubling capacity without any new building

Dexion Speedlock pallet racking has increased capacity by 100 per cent in a warehouse facility in Kenya, and improved product and personnel safety



Original warehouse storage only two pallets high is possible

Stodec Trading Ltd has designed and installed high strength, galvanised pallet racking to fit into existing warehouses where only limited block stacking had previously been possible.

The packing and storage of tea after picking results in very heavy unit loads with 20 sacks each weighing 68kg being stacked onto a single pallet to provide a market sale unit weighing 1,360kg.

If stored in bulk the pallets can only be stacked two high as the loads are relatively unstable and risk toppling over with damage to the product and risk to the staff.

Safer storage

Headroom in the warehouses provided space for up to four pallet units but they could not be safely stacked and the combined weight

would risk crushing the lowest pallet. Manoeuvring and lifting with a fork lift in such an overloaded store would be unacceptably dangerous.

Working with the customers' Engineers and Project Team, Stodec Trading were able to design an adjustable pallet racking installation with the following features:-

- High racking frames so that beam levels could provide storage up to

the full height of the warehouse.

- Heavy duty beams supporting two pallets side by side to a combined load of 2,720kg per level.
- Beam spacing to fit with the unusual load height of 2.2m whilst providing lifting and positioning space.
- Individual access to every pallet load without needing to move any others.
- Aisle and gangway sizes to allow

for safe and fast access with improvements in picking and goods movement times.

All beam levels are fully adjustable so that any future change in the loads can be dealt with.

Increasing storage

No space is wasted as extra wide 3.3m beams are positioned over the main transfer aisles to store more pallets above whilst still allowing fork lift travel underneath. All the warehouses can now utilise the full height for storing four pallets high, only two pallets high was previously possible, so capacity has more than doubled with significantly increased safety and faster goods movement.

This installation was shipped in ready to install pre-finished, component form from the UK. A qualified Stodec Trading installation

“ No space is wasted ... the warehouses can now utilise the full height for storing four pallets high, so capacity has more than doubled with significantly increased safety and faster goods movement. ”

engineer supervised the installation working with a team of local Kenyan installers.

This installation now provides storage capacity for 3944 pallets, a total of 5,363,840kgs of tea (or enough for 214.5 million cups of tea). It includes over 5 miles of pallet rack beams and 5.63 miles of rack uprights.

A new installation

The existing installation has been so successful that a completely new major warehouse complex has been constructed and Stodec Trading are now supplying new Dexion Speedlock Pallet Racking which will store a further 16,684 pallet loads.

Racking and barrier rails for the three new warehouses have been shipped in 29 containers from the UK and the ready to install materials includes 22 miles (35km) of Dexion pallet racking beams and



There is now four-level storage, with bridge beams and rack protection barriers

12 miles (19km) of racking uprights with all associated bracing, bolts and floor fixings. This major installation in Mombasa will be

completed later this year and case study notes will be issued for what will be the largest tea storage facility in Kenya. ■

The Stodec Trading website www.stodec.com has further detail on all Dexion storage products.

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Both the 3000- and 4000-series pumps - powered by a John Deere 6.8L engine - are ideal for surface preparation and cleaning concrete surfaces

It's amazing how many product removal challenges can be resolved with high-pressure water jetting, which is increasingly being used by refineries, mining, offshore oil and gas companies, and even sawmills because it is quick, environmentally-friendly, and unobtrusive.

"The applications are endless; we're finding new ways to use it every day," said Bradley Storer of Total Blasting in Edenvale, South Africa.

The power of water

"High-pressure water jetting is a safer and more environmentally friendly alternative to mechanical cleaning and sandblasting. It can be used to clean large concrete surfaces, industrial pipes, sewers, boilers, and tanks. Water is propelled at various pressures and quantities, flushing away years of built-up sludge, grease, and other residue," Storer explained.

Total Blasting both sells and rents ultra-high pressure (UHP) water

blasting services and solutions. For cleaning heat exchangers, tanks, reactors, and pipelines, Storer recommends pumps in the 500- to 1,000 bar (7,252 to 14,504 psi) range. The company's 3000 and 4000 series feature 2,800-bar (40,611-psi) stainless steel alloy pumps used for surface preparation and cleaning concrete surfaces. All pumps can be customised to customer needs and come with expert backup service and training.

"Our customers are typically refineries, mines, offshore oil and gas companies; recently, we were pleased to add sawmills to the list," Storer said.

Clean energy

Storer continued, "The pulp and paper industry is one of the most energy-consuming industries worldwide. To remain competitive, sawmills are increasingly using thermo-mechanical pulp (TMP) re-boilers, regenerating low-pressure steam into on-site power. But residuals tend to clog up the boilers and pipes, and the sawmills don't usually have the appropriate equipment to clean them properly. Our high-pressure water jetting solutions are dust-free and dramatically reduce the waste stream. This means that operations can easily continue

during cleaning, keeping downtime and costs to a minimum."

Talking about clean, Total Blasting has been using John Deere engines to power its high-pressure pumps for over 10 years.

"We use three different displacements - 2.9L, 4.5L, and 6.8L - depending on the pressure and flow rate required for the application. We like the simplicity, reliability, and ease of installation of the engines; they've all been performing well for years.

"Plus, we can always rely on Power 02 (a John Deere engine distributor in South Africa) to keep plenty of stock on hand for quick delivery of engines and spare parts. By the end of this year, we expect to have installed between 20 and 30 John Deere engines."

With more and more companies wanting to become more environmentally sustainable, Storer and his team are finding even more applications every day. ■

“High-pressure water jetting is a safer and more environmentally friendly alternative to mechanical cleaning and sandblasting.”

BRADLEY STORER, OWNER, TOTAL BLASTING

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Construction to start on Kathu solar project in South Africa's Northern Cape

The Kathu Solar Park project in South Africa, owned by an **ENGIE**-led consortium with South African partners, has signed a 20-year Power Purchase Agreement (PPA) with Eskom - South Africa's state owned power utility - making it possible for construction at the site to begin shortly. The concentrated solar park, situated in the Northern Cape Province, 600 km South-West of the national capital Pretoria, is expected to be operational in the second half of 2018.



The Kathu Solar Park project in South Africa has signed a 20-year Power Purchase Agreement (PPA) with Eskom

Kathu Solar Park is a 100MW greenfield Concentrated Solar Power (CSP) project with parabolic trough technology and equipped with a molten salt storage system that allows 4.5 hours of thermal energy storage and thus limits the intermittent nature of solar energy. Bruno Bensasson, CEO of the ENGIE Africa Business Unit, commented, "This is an important milestone for our first Concentrated Solar Power project in the ENGIE Group. The Kathu Solar Park project supports South Africa's strategy of increasing the contribution of renewable power and also underlines our commitment to be a key partner in achieving sustainable energy generation in Africa."

The consortium, which is led by ENGIE (48.5 per cent), includes a group of South African investors comprising **SIOC Community Development Trust, Investec bank, Lereko Metier** and the **Public Investment Corporation**. The project is funded by a mix of debt and equity. The debt is funded from a club of South African banks, namely **Rand Merchant Bank, Nedbank Capital, ABSA Capital, Investec** and the **Development Bank of South Africa**.

REPORTING ON ACCESS TO SUSTAINABLE POWER

Energy transformation means the time is right for policymakers to reappraise their approach to energy access, according to a new report from **PwC**. On current trends, two-thirds of the world's population will remain without electricity by 2030, which is the target year to achieve the newly agreed post-2015 UN Sustainable Development Goal of universal access to energy. The PwC report - Electricity beyond the grid: accelerating access to sustainable power for all - says a new approach is needed that better recognises the part that off-grid technology can play. John Gibbs, Africa deals power & utility lead at PwC, said, "For the millions of people who don't currently have access to electricity, the old assumption that they will have to wait for grid extensions is being turned on its head by new technological possibilities. 634mn people without electricity are in Africa. Faster progress is needed, and we believe it can be achieved if national energy policies adopt a more comprehensive approach to energy access."

THE 'TIPPING POINT' FOR SOLAR POWER IN AFRICA

Under the theme 'Creating Power for Sustainable Growth' **POWER-GEN & DistribuTECH Africa 2016** will be staged from 19-21 July Johannesburg, South Africa, with a strong focus on renewable energy, sustainable power generation and distribution, pan-Africa power provision and smarter management and grids.

Speaking ahead of the annual exhibition and conference, advisory Board members said it had become clear that renewable energy is approaching tipping point across Africa and renewable energy sources hold the key to meeting future power needs across the continent.

Sindiswa Mzamo, chief operating officer of the **Edison Power Group**, commented, "We've reached a tipping point for the adoption of solar power. In the vast majority of African countries, solar is the solution for powering rural communities, because it is cost effective and does not need to be connected to a grid to power an isolated geographic area. In some



The main focus is on sustainable growth at **POWER-GEN & DistribuTECH Africa**

debates, it has been said that people might be overestimating the potential for solar power, but we believe the wave of solar adoptions might be one of the most important initiatives in African power right now."

Gilman Kasiga, CEO of **EA Power Limited**, echoes the view that renewable adoption is surging. He said, "We need to address Africa's huge energy shortage by being responsible global citizens. Technologies are getting cheaper

for renewables, and when we bring scale into the equation, the prices of renewables come down further. Fossil fuels may seem more cost effective, but when you factor in the long term damage, they are not necessarily cheaper. We need to maximise the natural resources we have to address our power shortfalls."

The event will see 3,000 attendees from 80 countries convene for three days of presentations, panel discussions,

workshops and comprehensive exhibition floor showcasing the latest technological developments. The event will also feature guided technical tours of **Eskom** calibration and plant facilities, targeted B2B matchmaking service and sponsored networking receptions which are open to all attendees. Student and young professionals will also be showcasing their entrepreneurial ideas at the **EON Gen-X Theatre** sponsored by **EON Consulting**.

The event has CPD validation and endorsement by SAIEE enabling delegates the opportunity to earn up to 2.5 CPD credit points. Exhibition entry is free and special delegate offers include 50 per cent discount for utilities, government and associations and free entry for municipalities.

To register or for further information, visit www.powergenafrika.com, follow on twitter @PGAFRICA, and find the event on Facebook at <https://www.facebook.com/POWERGENAFRICA>

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A new deal on African energy

The continent's energy deficit has been flagged again at recent African Development Bank meetings in Lusaka, but this time there is renewed determination to do something about it

Africa's power needs remain as urgent as ever. At the African Development Bank (AfDB) meetings in Zambia in May, bank president Akinwumi Adesina admitted that he too felt "ashamed" how so much of the continent still struggles to get any form of electricity, echoing an earlier sentiment made by Rwandan President Paul Kagame.

Currently, just 16 per cent of Africans are said to be connected to some sort of energy source.

The annual meetings included a sideline event on energy, also attended by Kagame, Kenya's Uhuru Kenyatta, and other leaders, where the bank unveiled its New Deal on Energy strategy.

It is a vehicle through which the bank will invest in delivering electricity for all Africans by 2025.

"I won't speak for other presidents, but I am ashamed that Africa doesn't have electricity," Adesina repeated president Kagame's statement made during the recent World Economic Forum on Africa held in Rwanda.

The bank believes Africa cannot wait for the best 'clean' form of energy generation but "simply needs energy now", Adesina added. "We're simply tired of not having electricity."

Mighty challenge

It's a challenge, however, that has confounded generations before.

Rwanda itself presents a fairly typical example with demand for electricity far outstripping supply.

Although one of Africa's smaller economies, with a population of just 12mn, it is similarly experiencing chronic and debilitating shortages.

Demand is expected to reach about 563 megawatts by 2018, against a current supply of less than 200 megawatts.



Rwandan president Paul Kagame seeks to address Africa's energy requirements

The deficit undermines industrial output and services, and pegs back quality of life for millions.

Progress has been made with grid connections up from just seven per cent to around 24 per cent, and off-grid rates rising from five per cent to 22 per cent in recent years.

But it's still way short of demand and expectations.

President Kagame told the Lusaka event that lighting up Africa means building more industries to power growth. "We won't be able to achieve that by just off-grid solutions," he said.

Rwanda recently inaugurated a new power plant that uses methane gas from Lake Kivu, adding an extra 26 megawatts to the grid.

The KivuWatt plant, developed by US firm ContourGlobal, is the first phase of a scheme to add more than 100 megawatts exploiting the lake's methane deposits.

A new deal

There is nonetheless growing momentum to make things happen.

Under the so-called New Deal on Energy, the AfDB has pledged to commit US\$12bn over the next five years to invest in energy alone to provide universal access to electricity within a decade, although Adesina insists that it is not just about providing financial support.

Key targets include expanding grid power by 160 gigawatts, connecting 130mn people to the grid, another 75mn people to off-grid sources, and providing 150mn households with clean cooking energy.

The bank also plans to leverage about US\$50bn in public and private financing for multiple energy sector investments.

"Money is not the key," said Adesina. "Political will is all we need to get things done."

But it's an enormous undertaking. Power consumption per capita in sub-Saharan Africa is the lowest of all continents, currently estimated at 181kWh per annum, compared to 6,500kWh in Europe and 13,000kWh in the USA.

The lowest rates of connection are in the east, west and central parts of the continent, while the south and north both fare better.

New generation

At present, Africa's power generation is dominated by thermal (coal and gas) and hydro sources, although there is also a rise in renewable capacity and even nuclear capacity in South Africa.

The total installed generation capacity of sub-Saharan Africa is approximately 70,000MW although more than half of this is located in South Africa, and, due to technical restrictions, not all of this is available.

Moreover, the region is characterised by ageing power infrastructure, which is no better evident than in South Africa itself, where a massive renewal and upgrade programme is now underway.

This is focused heavily on building new coal-fired base load plant, though the government is keen to exploit new and cleaner alternatives, including natural gas.

South African officials recently announced plans to create a new entity to import liquefied natural gas (LNG) for a new batch of gas-fired power plants.

The Gas Industrialisation Unit will oversee LNG imports for the country's gas-to-power initiative, which plans to add 3,126 megawatts of capacity between 2019 and 2025.

A number of international firms, including Cheniere Energy of the USA, are keen to work on the project, with gas potentially coming in from

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as far as Qatar, or African suppliers such as Nigeria, Angola and possibly neighbouring Mozambique, which has made a series of big offshore gas discoveries in recent years.

South Africa attempted to roll out a series of new-build gas power projects to the private sector a decade ago but was thwarted amid growing shortages and the urgent need to develop any capacity as soon as possible.

Power pooling

Cooperation, in the shape of electricity trading and power pooling, are likely to form an important part of the long-term solution, to avoid the high costs of building new generating plant in every country.

One of the AfDB's first moves on announcing the New Deal on Energy at the end of May was to pledge a US\$1.9mn grant to support the construction of a 330kV high voltage transmission line from Erukan in Nigeria, to Sakete in Benin, to enhance the West Africa Power Pool (WAPP).

The project will help to ensure stable integration of the national electricity networks in the Economic Community of West African States (Ecowas) region.

The WAPP seeks to establish a robust transmission link from Côte d'Ivoire to Nigeria passing through Prestea, Aboadze, Volta in Ghana, Lomé in Togo, and Sakete in Benin.

It's a comparatively small project in the grand scheme of things but one with immense implications for hundreds of millions of people across the region.

Earlier in May, the AfDB said it would also action studies financed by the European Union for a project to connect the grids across five Nile Equatorial Lake countries - Burundi, the Democratic Republic of Congo, Kenya, Rwanda and Uganda.

The Nile Equatorial Lakes Subsidiary Action Programme (Nelsap) Interconnection of Electric Grids Project aims to construct 927km of transmission lines and 17 associated substations to improve the region's power supply.

Off-grid solutions

As well as big investments in new generation and transmission, other solutions will be critical to reach out to some of Africa's more remote populations.

According to a new report by PricewaterhouseCoopers (PwC), a combination of renewable energy sources off the national grids could be a part of the solution to supply electricity to rural areas.

The vast majority of those without access to any electricity in sub-Saharan Africa live in remote areas.

"It is clear that grid extensions can't be seen as the sole, or even the primary, answer to the provision of electricity for all," according to the report, which was presented at

a conference in Johannesburg. Investors are certainly waking up to the continent's renewable energy potential, with Africa's year-round sunshine and thousands of miles of windswept coasts offering huge untapped opportunity. Moreover, many people could buy their electricity from generators using mobile money transfers on their cellphone, PwC said.

"We need to get out of the 'top down' mindset that everything needs to happen through grid extensions," said Angeli Hoekstra Hoekstra, PwC Africa power & utility specialist.

Off-grid solutions include standalone power systems such as portable lights, solar panels installed on homes or micro-grid companies that generate electricity from diesel or wind.

Renewable energy

Not that clean and renewable energy systems have to be small-scale, of course.

The so-called Desertec project, to harvest solar power from the Sahara and sell it to Europe as well as meet Africa's needs, is almost epic in its ambition although the projected costs and complexity - not to mention security issues - have held it back thus far.

Similarly, planners have long dreamed of harnessing the theoretical 40,000 megawatts hydro potential of the Grand Inga scheme in the DRC to meet the

continent's needs and export surplus power to Europe.

Still, there is plenty of encouragement elsewhere. In Ghana, headway is being made on an albeit more modest 100 megawatts solar power plant in the village of Nyimbale-Sankana, with developer Home Energy Africa Limited recently securing a US\$700,000 grant from the US Trade and Development Agency.

Home Energy Africa president, Charles Sena Ayenu, said the cash would support the company in bringing its solar power PV project to financial close. He said the scheme would help to "meet Ghana's goals for clean and sustainable energy, help create over 200 jobs to local communities and provide electricity to at least 80,000 average homes in Ghana."

The company has selected US firm GreenMax Capital Advisors to carry out technical assistance, including preparing power purchase agreements, services contracts and financing arrangements.

Ayenu said the project will also support Ghana's government in achieving its target of 5,000 megawatts of installed generation, including 10 per cent from renewable sources.

There is still a long way to go in providing power to all of Africa but at least there is now fresh momentum among business leaders, politicians, technology providers and financiers to make it happen. ■

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Working on opportunities in power production

Dr Reuel Khoza, chairman of Globeleq, outlines his personal vision for African energy, and the company's strategy for realising it

The appointment of Dr Reuel Khoza to chair Globeleq, about nine months ago, brought to head the company a businessman with huge experience and very clear pan-African principles. Khoza previously held chairmanships for Nedbank Group, GlaxoSmithKline SA, Corobrik (Pty) Ltd and Eskom. He currently also chairs Aka Capital (Pty) Ltd, an investment holding and private equity company.

Now owned by CDC Group plc, the UK's development finance institution, and Norfund, Globeleq aims to boost power generation to Africa by adding at least 5,000MW of generating capacity over the next 10 years.

This electricity will enable the creation of an estimated 1.5mn new formal and informal jobs across Africa. In order to achieve this, Globeleq will pursue earlier-stage development as well as other development and project expansion opportunities in power generation in Africa, including renewable projects.

African Review first met with Khoza at the 2016 Africa Energy Indaba in Sandton, South Africa, after he had spoken on an Indaba panel. A follow-up conversation then took place with the chairman at his Johannesburg office.

A vision for development

Khoza's vision is predicated by his belief that: "Africa's industrial development is dependent on the availability of electricity. One cannot

speak of mining, commercial agriculture and food security, ICT, or even health and education without energy. Electricity is, in very significant ways, a sine qua non for Africa's socio-economic development."

While Khoza had spoken of Globeleq's interest in three major gas-to-power projects in Mozambique (one of five Africa countries that Globeleq is operating in), they were essentially early stage and he could not give more details.

However, he did explain that Mozambique's hydroelectric potential was very attractive. "One of the projects that we are trying to pursue is hydro, specifically Cahora Bassa South Bank," Khoza said.

But he explained that the project's challenges would extend to the Kariba Dam upstream on the River Zambezi. "In order to develop Cahora Bassa North Bank, you actually have to do something about fixing the Kariba project upstream," he said.

"The good news," he added, "is that development finance institutions like the IFC and to some degree the CWC which is a Globeleq shareholder would be amenable to doing something about improving the fate of Kariba.

"Once you have attended to that, downstream there's an area called Mpanda Nkuwa where you could utilise the same waterfall to develop more hydro schemes."

Mozambique's Energy Ministry is on record as saying the Mphanda



Dr Reuel Khoza, chairman, Globeleq

Nkuwa project is due for commissioning late 2017 or early 2018. With an estimated cost about US\$4bn, it will consist of four turbines of 375MW each.

Eskom imports power from the Cahora Bassa and once the Mphanda Nkuwa project has been commissioned it will open up the way for the Cahora Bassa North Bank project to be initiated, adding a further 1,800MW to the grid.

Together, both projects would alleviate the electricity shortages of Southern Africa even as Mozambique's gas-to-power projects are completed.

The capital expenditure involved in these projects are substantial. This is where Khoza can leverage his banking experience – he had been a non-exec director of Standard Bank for 18 years, and had subsequently chaired the Nedbank Group.

While he said that a proper evaluation on the costing had to be made, he estimates a ball-park figure would possibly involve some ZAR16-20bn (US\$1-1.3bn) and while transmission lines are in place to export power from Cahora Bassa to South Africa, just outside Pretoria, the transmission lines to take power from the Tete area to Maputo would

have to be built from scratch. As desirable as that might be, Khoza doubts that Mozambique would have the financial resources to build the infrastructure south to the Mozambican capital.

But what makes this proposal so attractive is that the key foundations are all in place at Cahora Bassa, and building the grid south to Maputo would develop Mozambique, in Khoza's words, "big time".

He points out that such a transmission line "would be shorter than transmitting to South Africa and then re-exporting the power via Swaziland to serve the industrial areas around Maputo".

Prospects for power

Dr Khoza insists that Globeleq takes long-term investment commitments. In interview with *African Review*, commented, "We have positioned ourselves as an experienced developer, owner and operator of independent power projects in Africa. We believe in investing for the long term."

Globeleq is distinguished from developers who are either purely entrepreneurial and purely private sector in that its work is backed by equity partners. Dr Khoza said, "While a purely private sector player, in developing a power station, would be looking at a desirable minimum internal rate of return of around 20 per cent, we can consider projects a couple of percentage points lower as we mobilise development finance, or blended finance, as opposed to pure banking or equity.

"And for that reason, we believe we're slightly better and somewhat more competitive as a catalyst for developing power projects." ■

Stephen Williams

“Africa's industrial development is dependent on the availability of electricity.”

DR REUEL KHOZA, CHAIRMAN, GLOBELEQ

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Reducing costs with Jenbacher engines

Why Clarke Energy has been chosen to supply GE's gas engine technology to combined heat and power plant in Dar es Salaam, Tanzania



Clarke Energy secures its first project in Tanzania with Azam Flour Mill, deploying one of GE's Jenbacher J612 gas engines

GE's Distributed Power business announced recently that Clarke Energy, GE's authorised distributor of Jenbacher gas engines, is supplying one of GE's high-efficiency Jenbacher gas engines to Said Salim Bakhresa & Co Ltd (Bakhresa) for a combined heat and power (CHP) plant, which will support the Azam flour mill in Dar es Salaam, Tanzania. The deployment of this high-efficiency, gas-fuelled CHP plant will help Bakhresa reduce its yearly operating costs.

"We selected GE and Clarke Energy for our site in Dar es Salaam due to the efficiency performance of similar units in Tanzania and their service support available in the country," said Rajesh Nair, technical

manager at Said Salim Bakhresa & Co Ltd.

Tanzania has large domestic reserves of gas that are located in coastal waters off the southern part of the country. There have been two gas pipelines constructed in Tanzania to transport that gas from the site of production to the site of use. The first pipeline reached full capacity a number of years ago and supplied a limited number of industries with gas for self-consumption. The second gas pipeline has just been completed resulting in new supplies of gas being made available to industry.

"Bakhresa is one of the leading industrial houses in Tanzania, and this natural gas-fuelled power

generation has significant cost- and carbon-saving benefits," said Hugh Richmond, business development director, Clarke Energy. "As Clarke Energy's first project in Tanzania, it will help reduce the factory's operational costs and, in parallel, deliver reliable power."

Efficient and reliable

This installation for Bakhresa will utilise the newly-available gas to generate high-efficiency, reliable power in the form of electricity and heat. Clarke Energy will provide one of GE's Jenbacher J612 gas engines capable of generating 1.82 megawatts (MW) of electrical energy. The plant will be configured as a CHP plant, with heat from the engines being fed into a steam boiler that is able to produce 1,040 kilograms per hour of steam at 6 barg. The power plant also will operate in a grid-synchronous manner. Clarke Energy is delivering an integrated solution for the CHP plant. This will incorporate both mechanical and electrical installation works along with grid

connection support for the 33-kilovolt link.

"GE's Jenbacher J612 gas engine features lower emissions and increased efficiency," said Oluwatoyin Abegunde, sub-Saharan Africa regional leader for GE's Distributed Power business. "By combining our proven technology and Clarke Energy's expertise, we are able to provide a highly reliable, cost-effective solution for Bakhresa's new CHP plant and support the growth of Tanzania's industrial base."

Bakhresa Group, one of the leading Industrial Houses in Tanzania, East Africa, started in the 1970s. The group has now emerged as one of the prominent family owned business group in the region with its operations spread in Tanzania, Zanzibar, Uganda, Kenya, Rwanda, Burundi, Malawi, Mozambique and South Africa. There are several companies under its umbrella, and it has investments primarily in the food and beverage sector, packaging, logistics, marine passenger services, petroleum and entertainment. ■

“GE's Jenbacher J612 gas engine features lower emissions and increased efficiency.”

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Flexibility is key to stable power supply

Martin Kalter, vice president at MAN Diesel & Turbo and head of the company's power plant business in Sub-Saharan Africa, talks about the energy challenges on the continent and how best to resolve them

African Review: Senegal recently saw the inauguration of a new baseload power plant built by MAN. What can be said about this project?

Martin Kalter: The plant is located in Tobène in the region of Thiès, 90km north of Dakar, and offers a very substantial improvement to the overall energy supply in Senegal. Its electrical output of 96MW covers 15 per cent of the country's overall energy consumption and we will further increase the plant's capacity by another 20MW in the years to come. The plant is also interesting from a technological point of view, as it uses our Diesel-Combined-Cycle approach, where the heat of the engines is used to generate additional electricity via a steam turbine. This increases the output and lowers fuel consumption and emissions at the same time. We have already successfully applied that technology in Kenya, where we built the new Power Plant in Thika. So this is the second installation of its kind in Africa.

AR: What other projects are you currently working on in Africa?

MK: We are currently building plants in Gambia, Eritrea, Niger and Burkina Faso. Also we are busy expanding our local presence to be closer to our customers. The final addition to our African network has been our representation in Lagos, which opened its doors last year. All in all we are looking back at more than 50 years of history in the African power generation market, where we have installed around 3.2 gigawatts of generation capacity in 37 countries.

AR: The generation of and access to electricity is one of the biggest challenges the countries in Sub-



The new baseload power plant built by MAN, located in Tobène in the region of Thiès, 90km north of Dakar

Sahara Africa are facing. How best to resolve this?

MK: In many African countries the grid is not very well developed, so new plants should be able to work in captive mode as well as embedded. Also flexibility is essential on the fuel side: While natural gas clearly is preferable with regards to emissions, it is not available every-where. Again the grid connection may be missing, so generation solutions should be able to run on different fuels, depending on what is available and feasible. And finally one needs to consider that most African economies are still developing very dynamically. What is needed from a power plant today may differ substantially from the needs that need to be addressed in

five or ten years' time. Accordingly one should pay attention to operational flexibility as well and look for a solution that can provide efficient baseload power, but is also up to other tasks - eg peak shaving or partnering with renewables.

AR: Sounds like a strong case for engine based power plants?

Especially dual fuel engine technology does indeed provide a solution that offers an excellent potential for most markets in Sub-Saharan Africa. They are very efficient, can feed into the grid or operate in captive mode and switch from liquid to gaseous fuels seamlessly in mid operation. And this technology also works well with renewable energies, like solar or wind power.

AR: Many African countries intend to increase the share of renewables. Coming from Germany, which has already reached +25% share, any advice?

MK: One take away message definitely is: "Renewables alone won't cut it." You need to choose the right back-up as well.

AR: What would be the right back-up in your eyes?

MK: Natural gas, of course. In Germany, we have been facing the seemingly absurd situation of constantly rising shares of renewable energy generation and rising CO2 emissions at the same time. What this has taught us: Renewables need a fossil back-up that is low in emissions, which is why natural gas is essential when it comes to reaching our climate goals.

AR: MAN Diesel & Turbo is engaged in various fields, ranging from power generation and turbo machinery for the oil & gas industry to marine propulsion. For which segment do you see the biggest opportunities?

MK: Thanks to our 300 employees in six African countries, MAN Diesel & Turbo's complete product portfolio is available to our African customers. As mentioned before, our African journey started a long time ago when we installed the first engines in Mali and Senegal in 1951. We also have installed a substantial turbomachinery base with close to 800 casings installed to date. The low oil price is certainly giving our customers from the oil & gas industry a hard time at the moment, but next to the energy sector this is nevertheless an area where we see substantial growth potential in the long run. ■

Creating capacity, generating growth

An interview with Ann Brown, managing director of FG Wilson, marking five decades of global leadership in generator set production and supply

African Review: Tell us a bit about the history of FG Wilson?

Ann Brown: We were founded in 1966 by Fred Wilson. A true entrepreneur, Fred saw opportunity for generator sets amid the economic chaos of the early 1970s, and in the 1980s, under the leadership of his son Tom, FG Wilson was among the first to bring mass-scale production to generator sets, launching self-contained generator sets which were simple to buy, operate and easy to install.

They say it's important to be in the right place at the right time, but equally important is how you act when you see that opportunity. Both Fred and Tom had the vision and the will-power to make the most of the position they were in.

AR: What changes do you see coming in the generator set industry?

AB: Certainly over the last five to ten years, we've seen engines become more environmentally friendly and efficient and that has helped to drive down the cost per kVA of generator sets, which has been good for customers.

Twenty years ago, if you'd asked us about industry structure, we'd probably have said that the industry was likely to consolidate, with two or

three big global players, operating with economies of scale occupying the greater part of the world market and the rest of the business fragmented into many smaller players. Yes, today there are a handful of global generator set brands, of which FG Wilson is one, but there has also been an explosion in the number of regional players, packaging locally, and riding on the reputation of the engine brands which they package into their products. These local packagers can be very cost-competitive and it's given customers more choice.

But, in the next five to ten years, we see customer expectations rising in terms of product quality, performance and support. It's going to be common across all industries. The mentality of price-is-everything and sell-and-forget will always be there in a part of the market, but overall we see expectations rising.

AR: Is this where you are putting emphasis?

AB: Yes, very much. It's about more than just putting the metal together.

Since 1990 we've installed 600,000 generator sets with a total installed capacity of almost 90GW - more than the total installed mains electricity capacity of a country like the UK. In Africa, we've installed

over 130,000 units with a total capacity of over 12GW, double the total installed mains electricity capacity of Nigeria. With that number of machines operating across the world, we take no risks with quality or performance. Assembling a generator set isn't difficult, which is why we're seeing many new players today. The real value comes in the testing and validation before a product launch. We don't accept engine performance data without validating it ourselves in the environmental conditions which our products will see. When someone buys one of our products, we can safely say that wherever it will be operating, it will have been tested for that environment.

Also important is the way a generator set is sold. We've worked tirelessly to grow and develop a global network of over 300 distributors who offer automotive industry levels of service starting with product selection through to installation and a lifetime of support. They're trained by us and supported by our parts system which stocks over 11,500 parts and delivers three million parts a year, not only for our current products but also for legacy products.

Product testing, validation, establishing dealer channels and support are more difficult to do well and over the last 50 years we believe we've invested more time and resources in all of these than most other generator set brands.

The generator set industry isn't living on an island all on its own. More and more, it's feeling influence and behaviours from other industries. We all expect more from what we buy. And that is going to



drive change and scope for new products and services.

AR: You mentioned the environment earlier. Does renewable power enter into your plans?

AB: It's certainly in our thinking. Today, in terms of cost per kVA, flexibility and responsiveness, there's no better source of standby power than a diesel generator set. However, our parent company Caterpillar has entered the microgrid market and is actively selling integrated systems where you might have solar panels, batteries, wind turbines and generator sets all linked and capable of powering remote settlements. In regions like Africa and Asia, this has huge potential.

AR: And you see great potential for the generator set industry?

AB: Yes, definitely. All of us in the industry are feeling some economic turbulence right now, but there will always be a growing and insatiable need for electric power. As the world goes more digital, we're going to see exponential growth in demand for electric power and for systems which act as standby for mains failure. ■

“ As the world goes more digital, we're going to see exponential growth in demand for electric power and for systems which act as standby for mains failure

ANN BROWN, MANAGING DIRECTOR, FG WILSON

Energy industry insights with solutions on show

The key figures influencing the continent's power generation capabilities take advantage of networking opportunities and investment prospects at EnergyNet's 18th African Energy Forum



AEF enables developers and investors to build relationships with governments, utilities and regulators

Held in London, in the United Kingdom, 22-24 June, the 18th African Energy Forum (AEF) serves as a key networking hub for Africa's public sector energy entities and the key solutions providers working with them in 2016. Critically, too, the AEF is the global investment meeting of choice for the continent's power, energy, infrastructure and industrial operators. According to event organiser EnergyNet, around 2,000 investors, 500 public sector stakeholders, 300 technology providers and 270 developers are expected, representing 82 countries. The exhibition of international solution providers will be counterbalanced by four conference streams.

Knowledge exchange

A central source of knowledge, published annually at the African Energy Forum, The Africa Energy Yearbook offers 2016 articles,

industry insights and project updates about the future of Africa's economic, industrial and social development. A free copy is available for every delegate who attends the forum.

The knowledge in this publication is counterbalanced by speakers from a broad range of industries around the world. More than 190 speakers have been confirmed - coming from governments, utilities, regulators

and private sector organisations. Those scheduled to present at the event include: Mahamadou Guindo, director general of Énergie du Mali (EDM); HE Hon Spéro Mensah, former Minister of Energy, Petroleum and Mining Research, Water and Renewable Energy Development, of the Republic of Bénin; François Bangazoni, CEO of ENERCA, of the Central African Republic; Nestor Razafindriaka,

general manager at Malagasy Electricity and Water (JIRAMA) in Madagascar; and Kahenge Simson Haulofu, managing director of NamPower in Namibia. Also set to speak at AEF are: Jéroboam Nzikobanyanka, chief executive officer at REDIGESO in Burundi; Peter Graham, CEO of Liberia Electricity Corporation; Robert Dwamena, managing director of the Electricity Company of Ghana; HE Honourable Mohamed Salem Ould Bechir, Mauritania's Minister of Petroleum, Energy and Mines; and Dr Mohamed Salah El Sobki, executive chairman of Egypt's New & Renewable Energy Authority.

Education at AEF

The EnergyNet Student Engagement Initiative (ESEI) returns to AEF after a successful second year at the AEF in Dubai, in the UAE. This year, 32 students have been invited to attend the Forum from the fields of engineering, finance and law, to

“ The forum was a timely representative of African issues, and the networking opportunities were very constructive. I accomplished a year's worth of business trips in one week.”

DAVID BAXTER, VICE PRESIDENT, TETRATECH (AT AFRICA ENERGY FORUM 2015)

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engage with high-level policy makers, delegates and sponsors. The ESEI programme is a show case of Africa's home-grown talent to key energy organisations. Of the 32 students, three have been placed on an internship programme with Engie, formerly GDF Suez, four with Norton Rose Fulbright and several others in Ministries of Energy in Africa.

Energy sector opportunities

In addition to the knowledge-sharing opportunities, one of AEF's key selling points is that it enables European and African developers and investors to build relationships with governments, utilities and regulators from across the African continent. AEF participants are able to stay ahead of developments, meet industry decision makers, examine the major challenges facing the power generation and distribution across the continent, and discuss investment issues and business opportunities with established clients and new business prospects.

Companies actively participating at the 2016 Africa Energy Forum include ENGIE, which manages the development and operation of thermal and renewable power assets in several African countries. Also involved at the event is Fieldstone, an independent investment banking boutique, which has become involved in a number of major infrastructure and energy (power, hydroelectric, thermo-electrical, renewables) and governmental advisory transactions in Africa. Polycentric global law firm Dentons adds value to AEF, too. Dentons' African endeavours are



Around 2,000 investors, 500 public sector stakeholders, 300 technology providers and 270 developers are expected at AEF

led by Jeremy Cohen, UKMEA chief executive officer and partner, who has worked particularly extensively in the energy sector, and most of his practice is in cross-border business.

With particular interests in South Africa, Mainstream Renewable Power develops, constructs and operates large-scale wind and solar power plants. Eleqtra maintains offices in London and New York, as well as regional bases in Accra, Kampala, and Lusaka. First Solar specialises in challenging environmental conditions and an independently-verified energy yield advantage, in countries such as South Africa. Lekela Power aims to deliver approximately 1,000MW of renewable energy into operation across Africa. Lekela's project pipeline comprises: 610MW of wind projects in South Africa; 225MW wind project in Ghana, and 100MW

of wind and solar PV projects in Egypt. Standard Bank's Corporate and Investment Banking division specialises in power and infrastructure, with specialist teams in London, Accra, Lagos, Johannesburg, and Nairobi.

Also at AEF is METKA, which works with clients and partners throughout Africa on critical power projects. Additional participation comes from Globeleq's professionals, who are responsible for a diverse portfolio of independent power plants, which generate more than 1,200MW in eight locations across five countries. Currently developing power assets in over 20 countries in Africa and Asia is Access Power, which runs a portfolio predominantly consisting of renewable energy projects with a gross total investment cost of over US\$1bn. Another specialists in energy management, participating at

AEF, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in utilities and infrastructure, industries and machines manufacturers, non-residential building, data centres and networks and in residential.

Serving utilities, oil & gas enterprises and mining industries, SoEnergy International provides both permanent and temporary power solutions. Supporting the energy industry across the African continent, with offices in Nairobi, Maputo, Cape Town, Durban and Johannesburg, ERM provides environmental, health, safety, risk, social consulting and sustainability services. And MAN Diesel & Turbo will participate, too, demonstrating its manufacturing capabilities and provision of large-bore diesel engines and turbomachinery. ■

GENERATOR SETS AND LIGHTING TOWERS FOR THE RENTAL SECTOR

Standby power equipment specialist Himoina recently launched new gas and diesel generators and lighting towers. The expanded range now includes: the HRMW 1270 D5-6, which has an MTU engine and 1,270 kVA of power at 50 Hz and 1232 kVA at 60 Hz in PRP; HRGP 60 T5, a gas-powered generator with an integrated LPG tank, which supplies 60 kVA of continuous power; the

HYW 35 T5 generator set with Stage 3A Yanmar engine offering a power range of 34 kVA in PRP and 37 in standby; the AS4012 LPG lighting tower, powered by LPG cylinders, which offers a total of 384,000 lumens, illuminating up to 32,000 m² and guaranteeing autonomous operation for 24 hours - or three nights of continuous work; the APOLO BOX | LED, which operates autonomously

for 126 hours and has six 240 W LED bulbs, guaranteeing lower fuel consumption; the HFW 490 T5 generator set with an FPT_IVECO engine supplying a power of 489 kVA in PRP; and the HRFW 200 T5 generator set with an FPT_IVECO engine that complies with Stage 3A emission limits, supplying power of 200 kVA in PRP and 220 kVA in standby.

SDMO unveils new rental engine models at Bauma

French genset manufacturer SDMO returned to Bauma, the world's leading international trade fair for the construction and building sectors, where it displayed its latest line up of compact power products

Occupying two stands at the event, one inside the exhibition halls and another in the outdoor arena, SDMO used its presence at the show, held in Munich in April 2016, to introduce visitors to the latest products in the company's Portable, Rental Compact, Rental Power and Contenergy ranges.

At Bauma 2016, SDMO demonstrated the diversity of its power product offering, with previews of the R22C3 and R44C3 KDI models from the Rental Compact range, the R1400 from the Contenergy range and the RL4500-5 lighting tower.

Equipped with Kohler Diesel Engine Stage 3A engines, the R22C3 and R44C3 were on show and, along with the R33C3, represent the latest additions to SDMO's Rental Compact range.

Discussing these new products, SDMO communication department manager Philippe Forest remarked, "Our aim has been to continue integrating the Kohler Direct Injection (KDI) engines into our compact generators, because they require less maintenance.



The 22 kVA trailer-mounted model presented by SDMO at Bauma 2016

"The rental companies we sell these products to tend to use these gensets a lot and that means they want something with a lot of ability. Of course, they want to pay less to use it, so they want products with lower consumption and where the periods between maintenance are longer, and these really are the advantages of these engines.

"These machines have been designed for the rental market, for

the people that may not be experts on using gensets," Forest added.

"They're very easy to use and check, such as in cases where the oil level is low, for example. Their compactness and the fact they have low consumption levels makes them very attractive to rental companies and their customers. They also has lower emissions, which is a big draw for customers – especially in Europe."

While the machines have been configured for the strict regulations of the European genset market, Forest said that following the initial launch of the new models in January 2017, SDMO would shortly follow with the launch of non-certified engine versions for markets in the Middle East and Africa.

Also on show for SDMO at Bauma 2016 was the R1400, a container system that has been designed to meet the often gruelling demands of the construction and rental markets. Equipped with a Mitsubishi engine, the genset can be configured for 50 or 60 Hz operation, while the unit is entirely housed in a compact dry container.

"It is a simple engine without too many electronics and it's easy to maintain – even if the fuel used to power it is not of a high quality," Forest noted. "This unit is simple to use and has been adapted to suit the needs of the market. It has a capacity to generate 1.4MW in a 20-foot CSC container and, like our new Rental Compact models, it's easy to use, easy to maintain and easy to connect. We are very confident of this product." ■



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VisionLink redesign enables easier, faster, web-enabled access to information

Throughout 2016, **Caterpillar** is releasing updates to its VisionLink user interface, making it faster and easier to use with today's smartphones and tablets. Cat customers will continue to enjoy the value offered by more efficient management of their fleet:

- Tracking equipment location.
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- Identifying operators needing training.
- Planning and scheduling maintenance.

VisionLink is integrated with Cat Product Link hardware to create a powerful telematics system providing a wealth of information based on data from machine sensors and control systems. Product Link hardware is standard on most Cat equipment and can be used to retrofit both Cat machines and machines from other manufacturers.

The VisionLink redesign incorporates a number of refined features, yet none more important than easy-to-read and navigate screens whether using a phone, tablet, notebook or desktop. Whereas the legacy VisionLink had separate desktop and mobile versions, the new version of VisionLink incorporates a responsive design to ensure users experience a more intuitive transition between mobile and desktop user interfaces. The new version also includes a suite of apps enabling the customer to select a view and information based on the user's role or task needing to be performed. These apps can be easily accessed for quick reference and easy viewing. For example, equipment or fleet managers can access data related to asset hours, location and utilisation without having to sort through extraneous information, such as fault codes, maintenance schedules or productivity information that may not pertain to their responsibilities.

When the rollout is complete, the new VisionLink will offer a service layer called the VisionLink Services Platform which enables partners and third parties to extend the VisionLink products to fit their unique needs. The services layer will enable developers to create unique solutions using VisionLink data to offer solutions that go above and beyond the standard VisionLink offerings.



ANGOLAN CONSORTIUM GAINS BEIA AWARD

A co-designed city vision for the future has been awarded a Masterplan prize at British Expertise International Awards (BEIA) in London. The Masterplan Framework for the Province of Luanda, Angola received the top award for Outstanding Masterplanning Project of 2016. Designed by a consortium led by **Broadway Maylan**, Luanda 2030 is a 20-year strategic framework that outlines the transformation of the architectural and urban lines of the Province of Luanda into a "liveable, beautiful and international" city. Consortium partners included **Urbinvest**, **Aurecon**, **Deloitte**, **Mobility in Chain** and the **University of Lisbon**, with the project also shortlisted for the Outstanding International Leadership category of the BEIA awards.

Isabel dos Santos, director of Urbinvest, said that rehabilitation of Luanda will bring "clear improvements in the lives of city dwellers".

Aurecon was engaged as the engineering consultant on the project and carried out work that was key to the development of the Luanda masterplan. Aurecon used a design-led approach to plan for prevailing urban challenges around energy, sewerage, solid waste, water supply and telecommunications. This allowed the projects team to envision how people want to live, now and in the future, and dramatically improve conditions for economic and social life.

Through a cross-African business footprint, and its multilingual workforce, Aurecon was able to lead project partners to meet the challenge of providing on-site skills training and mentoring to empower the local workforce and communities working on the project.

"The significance of this project is that it took a strategic approach in developing a city vision for Luanda City Province and its municipalities," said Jamie Abbas, Aurecon's market director for government and transport. "This project is a wonderful example of how we can envision and co-design sustainable African cities of the future."



Jamie Abbas, market director for government and transport, Aurecon

SOURCE NEW MATERIAL AT INTERBUILD

In the wake of what has been one of the most challenging economic periods for the building and construction sector, small- to medium-sized building contractors are carving out niche opportunities that were previously more accessible to larger competitors. With competitive pricing and entrepreneurial drive, smaller building and construction companies are making a significant impact on market growth.

Taking place 17-20 August in Johannesburg, South Africa, building and construction trade exhibition Interbuild Africa is specifically targeted at the small- to medium-sized building contractor. The 2014 edition of the event brings almost 7,000 industry buyers under one roof for four days to source products and services from more than 300 exhibiting companies. Gary Corin, MD at **Specialised Exhibitions Montgomery**, said, "This year we've focused on increasing this number and we've placed great emphasis on attracting more international interest, particularly from other African countries."

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Building inclusive and safer cities of the future

Rapid urbanisation requires major African cities to become globally competitive, to deliver on infrastructure development, productivity gains, job creation and prosperity



If managed well, cities will continue to be engines of infrastructure development, productivity gains, job creation and prosperity. The African region is projected to account for one-third of the global increase in urbanisation from 2011-2050, according to Paris-based International Energy Agency (IEA).

With an average urban growth of four per cent, the continent's urban population is estimated to reach 750mn and 1.26bn by 2035 and 2050 - respectively, compared to 472mn in 2015. This means about two-thirds of all Africans will be living in cities, up from currently over 40percent. By 2025 more than nine megacities of 10mn-plus residents could appear on map compared to just two in 2010 (see Table1). Economic transformation is already taking place with cities

presently contributing more than 60percent of Africa's gross domestic product (GDP) as economies gradually shift from primary mostly agriculture to secondary (manufacturing) and tertiary (services) industries.

Rapidly urbanising environments is commonly accompanied by problems such as food and water shortages and depleting social infrastructure. However, with such a large proportion of urban areas yet to be built or regenerated, "African cities also represent an

unparalleled opportunity to avoid past mistakes and embed resilience in policies and planning," says the World Bank. Emerging urban centres offer a springboard for diversification. But they need better local and regional institutions for effective planning and coordination, which can raise urban economic density and productivity, and spur the region's transformation.

"Our cities are projected to play an increasing role in the economic transition," said Ato Deriba Kuma, Mayor of Addis Ababa (East Africa's

largest city). "Strengthening urban resilience to multiple shocks and stresses will therefore prove crucial to the success of this transition and to ensure improved living conditions for residents."

Motor of growth

Rising urban prosperity over the past decade is reflected in the growth of consumer and services industry. The consultancy PwC noted: "African cities, in the unusually robust diversity and adaptability of their economic environment, both individually and as part of broader urban networks, offer extraordinary opportunities in the short, medium and longer term and for virtually any kind of economic enterprise, from commodities to manufacture to consumer goods to telecommunications and high tech."

Table1: Typology of African Cities

	Number in 2010	Projected Number by 2025
Megacities (>10mn people) and Very large cities (5-10mn people)	2	9
Large cities (1-5mn people)	40	71
Medium-size cities (500,000-1mn people)	44	71

Source: The World Bank.

Of the 100 fastest-growing cities in the world, about quarter are in Africa, led by Lagos.

Through the phenomenal rate of urbanisation, Africa has a growing population of very young, often well educated, globally minded people who are increasingly moving into middle-income brackets. The food/drinks sector needs to expand to keep up with the robust rate of urbanisation and growing demands of new middle class, as does the retail sector. By 2030, the continent's 18 biggest cities could boast a combined spending power of US\$1.8 trillion according to McKinsey Global Institute.

As Africa undergoes strong urban growth, there is a window of opportunity to harness the potential of cities as engines of small medium-sized enterprises (SMEs), industrialisation and skills upgrading. The slump in oil and commodity prices has hit resource-rich countries and underscores the need for economic diversification in Africa. Rapid urbanisation of the East Asian region had contributed to higher productivity and entrepreneurial dynamic.

But African cities are currently not delivering economies of scale or reaping urban productivity benefits. Instead households, workers and firms suffer from higher urban costs. Housing prices are about 55 per cent more expensive in urban areas and transport, which includes prices of vehicles and transportation services, is about 42 per cent costly in African cities than cities in other countries, according to World Bank estimations. Cross-country analysis confirms that manufacturing firms in African cities pay higher wages in nominal terms than urban firms in other countries at comparable development levels.

Shrewd city planning

To cope smoothly with strong future demographics trends require major investments into electrification; mass transport networks, including paved roads, high and subways and railroads; affordable social housing; water treatment plants providing clean water; sanitation services; and public services in terms of hospitals, schools, universities, training institutes and recreation; as well as expansion of wireless and Internet connectivity. Far more labour-intensive industries, low cost housing and other physical structures are urgently needed for residents and new city dwellers in the coming decades.

Large-scale building of urban infrastructure demands continuous public and private financing. The United Nation's agency for the built environment, UN-Habitat, concluded in its

2014 State of African Cities: "Africa is transitioning towards a whole new socio-economic and political landscape through rapid urbanisation driven by massive population growth. But urban infrastructures, services, and land markets, as well as the urban economies, cannot absorb the newcomers to the cities, whether large or small."

Future city planning policies need to focus chiefly on ensuring stronger buildings; safe public transport systems; adequate energy generation, distribution and delivery; and efficient waste and water management. Energy saving technologies should be used in both new and existing buildings (private and public), including greater use of on-site renewable generation, through principally solar photovoltaic (PV) installations. Solar PV can be deployed more rapidly than other technologies and rolled out in a modular/distributed fashion. Investing in 'smart grids' can help smooth demand peaks and stabilise the electricity system, whilst delivering much-needed energy savings.

The IEA echoed: "Energy efficient buildings often yield greater year-round comfort levels, which in turn can be a low cost means to provide health benefits for its occupants. Reducing energy demand will lower pollution levels by cutting unnecessary power generation and reduce urban heat island effects. Public buildings should be energy efficient and use renewable energy where possible and local authorities should include the purchase of energy efficient products and services in their procurement rules."

Commercially viable centres need reliable public transport around them – in the form of trams, urban trains and dedicated bus lanes. Transportation policy to reduce energy consumption and pollution can be supported by safer non-motorised travel, such as cycle lanes and better footpaths as in many Western cities.

"Such policies not only reduce energy use and greenhouse gas emissions, but also bring substantial improvement in other environmental externalities, such as local air quality and noise," explained Maria van der Hoeven, executive director of the IEA. The latter also advised mixing shopping and workplace areas with residential areas, which can save energy by reducing the average distances city dwellers need to travel on a regular basis.

Transformative force

Cities lie at the centre of economic transformation agenda, hence making sound urban policy key to long-term prosperity in developing regions of Africa.



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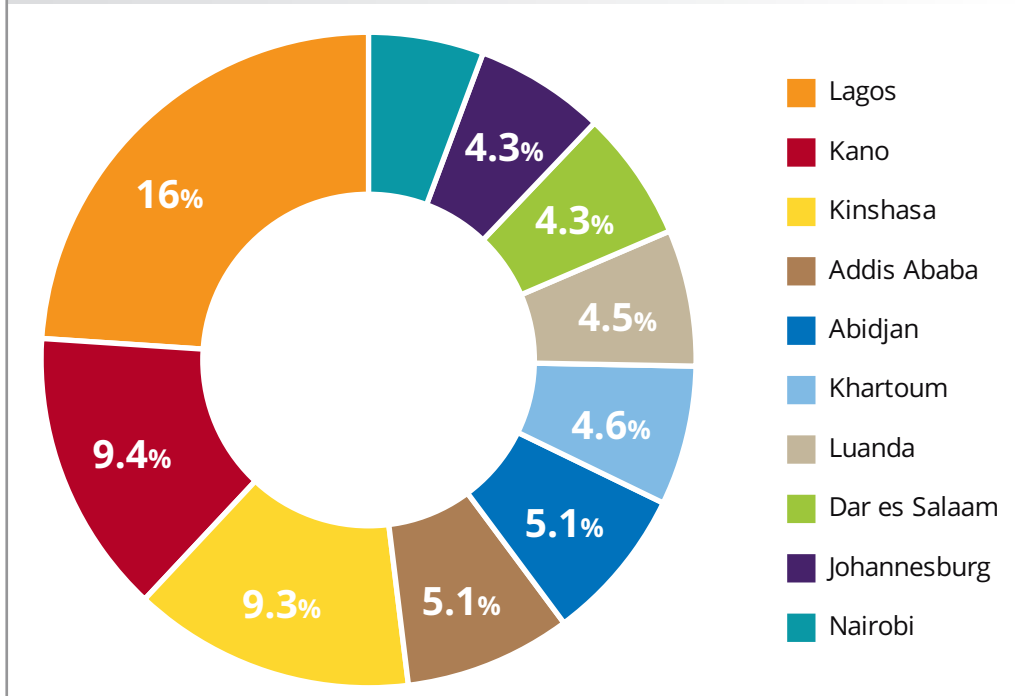
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“In an increasingly urbanised world, the major resilience challenges of this century - poverty reduction, natural hazards and climate change, environmental sustainability, and social inclusion - will be won or lost in cities. With commitment from leaders, partners, and citizens, African cities can lead the resilience agenda, and spearhead the economic and social transformations necessary for reducing poverty and boosting shared prosperity,” urged the World Bank. To build future cities that are liveable, connected, and affordable, thus economically dense, policy makers need to address deeper structural problems that misallocate land, fragment development, and limit productivity.

“To ensure growth and social development, cities need to become less costly for firms and more appealing to investors,” says Punam Chuhan-Pole, acting chief economist, World Bank Africa. “They must also become kinder to residents, offering services, amenities. All of this will require reforming urban land markets and urban regulations and coordinating early infrastructure investment.”

Urban development requires huge public and private resources within a system that works in an integrated manner. A new World Bank City Creditworthiness Initiative

10 BIGGEST CITIES IN SUB-SAHARAN AFRICA (BY ESTIMATED 2015 POPULATION, MN)



provides local authorities with long-term assistance to: (i) increase their creditworthiness by strengthening their financial performance; (ii) develop an enabling legal, regulatory, institutional, and policy framework for prudent sub-national borrowing through reforms at the national level; (iii) improve the “demand” side of financing by developing bankable, climate-smart

projects that foster green growth; and (iv) improve the “supply” side of financing by engaging with private sector investors. The initiative comprises two main components, credit worthiness academies and creditworthiness implementation programmes. The former are practical learning programmes that teach city leaders the fundamentals of creditworthiness and municipal

finance. They serve as the launching point for city creditworthiness implementation programmes.

In sum, investing in resilient infrastructure is critical for Africa, the world’s fastest urbanising continent. Cities are engines of industrial and technological advancements. ■

Moin Siddiqi, economist

CRANE EXPERT CALLS FOR INCREASED INFRASTRUCTURE SPENDING IN SA

While South Africa has enjoyed a period of sound private investment into large building projects, focus also needs to be placed on the civil infrastructure that is needed to support them. This is the view of SA French managing director Quentin van Breda, who is concerned that spending on important services has struck worrying lows in the country, and that this will eventually thwart existing and future building projects in the country. A division of Torre Lifting Solutions, SA French is the sub-Saharan African agent for the Potain range of tower cranes, which are operating on a number of building projects in South Africa.

“We have supplied cranes and turnkey support services to a host of private sector property development projects over the years. This includes the rapidly growing Sandton district, which is home to some of the most impressive international trends



Potain tower cranes have moved material on many important civil engineering projects in South Africa

in building designs and methods. However, we are not seeing adequate investment into the water,

sewage and energy infrastructure that is needed to support them, or any new projects in the pipeline,” said van Breda.

SA French has been involved in several public-sector driven infrastructure projects over the years. In particular, the company has supplied many cranes for important civil construction activities. More recently, the company supplied Potain units to the Clanwilliam Dam expansion programme, complementing its involvement in other such flagship projects, such as the De Hoop Dam and Eskom’s power station fleet expansion programme.

Mr van Breda praises the South African government’s National Development Plan (NDP), which has placed infrastructure development firmly on the agenda, but warns that the execution of these very important projects needs to be accelerated as soon as possible.

Enabling road access with asphalt equipment

The versatility of Linnhoff's mobile asphalt plant, for a wide range of projects in different locations - including urban areas and isolated islands

Linnhoff's Mobile Asphalt Mixing Plant (TSD series) is a versatile asphalt mixing plant that offers true mobility. Each module of the plant is fitted on chassis with axles and requires only a prime mover for easy transportation and low cost relocation of the plant on land. The capacity of Linnhoff TSD asphalt plant ranges from 60 tons per hour to 160 tons per hour. This Linnhoff TSD asphalt plant is suitable for short-term projects and projects in remote areas, such as airport runways, highways and local roads, in various locations including urban areas and isolated islands.

Unique technology

Each module of Linnhoff TSD asphalt plant is designed to conform to standard road haulage and axle loading requirements, allowing maneuverability on main and arterial roads. All Linnhoff asphalt mixing plants utilise the unique dual-purpose Screen Drum technology. This patented technology combines the drying and screening processes of aggregates in one single drum,

effectively reducing fuel consumption and maintenance cost. In turn, it maintains a low plant operating cost.

Over the years, Linnhoff TSD asphalt plants have been involved in airport projects, highway projects, as well as projects on remote islands and projects at difficult to access locations, in both private and government-funded road construction projects. These projects include Mactan-Cebu International Airport in the Philippines, Phuket International Airport in Thailand, Japanese International Cooperation Agency (JICA)-funded projects in Cambodia and Asian Development Bank (ADB)-

funded projects in Timor Leste, to name a few. Linnhoff TSD asphalt plants have also been set-up in Ethiopia for Harar By-pass project and other local road construction projects, as well as in Tanzania.

A road base specialist

Linnhoff is a German manufacturer of asphalt mixing plant since the early 1900's, founded by Eduard Linnhoff in Germany. Linnhoff Technologies Pte. Ltd. is based in Singapore and is marketing both Linnhoff asphalt mixing plants and Lintec containerized asphalt mixing plants in the Asia-Pacific regions. Linnhoff Technologies have also expanded into the Africa,

specifically in the Eastern, Central, and Western regions of Africa. Other than the Mobile Asphalt Plant, Linnhoff Technologies product range also includes the container-fitted modular CompactMix Asphalt Plant (CMX series) and TransitMix Asphalt Plant (TRX series), the Containerized Asphalt Plant (CSD series) built into 100%-ISO sea containers, as well as Recycling Plants (Hot Recycling Plant/HRC and Cold Recycling Plant/CRC) and Base Stabilization Plants (WM series) for road base construction. ■

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Cost-effective solutions for better buildings

Analysis of the continent's broad requirements for investment in infrastructure technologies, and the companies best-placed to supply to market

Rapid urbanisation and increased investment in infrastructure is accelerating the demand for more housing and office units in Africa, which in turn is creating a boom in demand for construction equipment. A strategic analysis into the construction equipment leasing sector in the top ten key African countries, available from ReportLinker, has established a six-fold increase from 2003 to 2015 in the unit shipment of construction equipment into Africa. By 2022, construction equipment will emerge as the top volume contributor - within the wider construction and mining equipment sector - in South Africa, followed by: Algeria, Angola, Egypt, Kenya, Nigeria, Morocco, Sudan, Libya, and Tunisia.

Hotels and housing

Deloitte Africa's annual Construction Trends report shows a similar big leap forward in construction last year, compared with 2014, with further rises expected in 2016. The total value of 'mega construction projects' in the continent stood at US\$357bn in 2015, a 15 per cent increase from 2014. Among the mega projects underway are the Ethiopia-Djibouti railway; Lagos Metro's 'Blue Line'; the Durban waste-to-energy project and the 425-bed Queen Mamohato Memorial Hospital in Lesotho. Head of capital projects at Deloitte East Africa, Mark Smith attributed the increase in Africa's large construction projects to the rapid urbanisation and an expanding middle class that has driven the need for infrastructural reform, expansion and upgrading. The promise of high yields has also increased investors' interests in retail, entertainment and lifestyle facilities such as modern offices, parks and hotel space.



There is a need for basic infrastructure investment of around US\$100bn per year on the continent over the next decade

But it is the demand for housing - particularly low cost units - that is the real engine of growth in Africa's construction sector. The World Bank notes that Africa is on course to overtake Asia as the world's most rapidly urbanising region by 2025. By 2020, Africa will have 36 cities with a population of over two million people. And the UN agency Habitat, says that the continent currently requires four million units per year just to cover its housing needs. However, the sector is being hamstrung by a lack of access to affordable technology. There are few local production sources for high quality construction materials and

the cost and availability of quality construction materials are a major impediment to reducing housing costs. According to some estimates, the cost of high quality construction materials in sub Saharan Africa (SSA) can be more than 60 per cent of the whole construction cost of a unit.

Material solutions

The expansion of cement production at Dangote Cement, controlled by Nigerian billionaire Aliko Dangote and Africa's largest cement producer is going some way towards addressing the construction materials shortfall. In 2015 the company invested over US\$5bn to

build its cement capacity to 44mn tonnes per year (tpy) in eight African countries: Nigeria, Cameroon, Ethiopia, Senegal, South Africa, Tanzania, Zambia and Ghana. In May this year, it also announced the start of construction of a new US\$1bn cement factory in Okpella, Edo state, in Nigeria's southern region that will produce six million tpy.

Alternative Building Technologies (ABTs) have been touted as a possible solution to Africa's housing crisis, although governments in the region have yet to embrace it. Shelter Afrique, which invests in housing projects, observes in a recent report, "Many people still prefer to use conventional 'brick and mortar' because most buyers associate ABTs with 'the poor' and that the end product is of inferior quality."

South Africa's Moladi Building Technology has shown what can be achieved with ABTs. The company has completed a number of affordable housing projects using the brick-less wall, reusable modular plastic formwork known as Moladi. And it is on course to deliver 1.5mn new homes in South Africa by 2019. The technology has also been unveiled in Nigeria which has a housing deficit of 17mn units.

Kenya is looking to boost its housing stock through the use of low cost technology. A regional centre for the production of Appropriate Building Materials (ABMT) has recently been set up by the Ministry of Housing in Mavoko, Machakos County to capitalise on South Africa's 'hydraform technology'. Expanded Polystyrene Panels (EPS) is another low cost building technology that is starting to take off in Kenya. Together, these emerging innovations are expected to help reduce the Kenyan housing deficit by providing 250,000

thousand housing units per year. However, quality control remains an issue in Kenya and right across the continent. Since the tragic collapse in May of the six-story Huruma apartment block in Nairobi that killed 19 people - as well as similar building collapses in Lagos - there have been calls for stricter quality controls to be put in place. The apartment block's Nairobi developer has now been arrested amid Kenyan media reports about foot dragging with regards to the implementation of recommendations from an audit carried out last year into sub-standard housing.

In Nigeria EPS has also made its debut. The pioneer investor in this technology in the country is the newly set up Polystyrene Industries Limited in Abuja. The company has now started to deliver building material made of polystyrene to several builders across Nigeria.



The promise of high yields has attracted investors to property development

Managing director Hamza Atta told the local 'Daily Trust' newspaper in April that the technology can deliver a two-bedroom flat "in less than two weeks" and at a far cheaper cost - 30 to 40 per cent - than

conventional cement dominated building. He said that the technology has the means to help reduce Nigeria's housing deficit.

The attention that construction is receiving in Africa from both

overseas and domestic companies is inline with the huge task that lies ahead. According to KPMG there is a need for basic infrastructure investment, including housing, of around US\$100bn per year on the continent over the next decade. But as delegates heard at the 2016 'African Construction and Totally Concrete Expo in Johannesburg, many innovative solutions to the problem of providing low-cost housing are increasingly becoming available to African governments and local property developers. The challenge now, said Hennie Botes CEO of Moladi Construction and Dr Amira Osman, associate professor of Architecture at the University of Johannesburg, speaking at the Expo, is to ensure that all parties become fully familiarised with the low cost potential of the new technologies. ■

Nnamdi Anyadike

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Bigger, better and more efficient than ever

Volvo Construction Equipment recently released a new hauler and a new excavator, enabling operators to become more productive and more efficient



Volvo CE has launched the Volvo A60H articulated hauler and EC950E crawler excavator in response to growing customer demand for equipment with larger capacities. The A60H is not just Volvo's largest ever articulated hauler, it is the industry's largest, while the EC950E delivers more tons per hour productivity than any previous Volvo excavator.

Volvo Construction Equipment's new ground-breaking machines aim to optimise production while minimising costs. Both models were unveiled to a worldwide audience at the 2016 bauma exhibition in Munich, Germany, in April and are destined to find an appreciative audience in Africa. The 55 tonne (60 ton) capacity A60H is the company's largest articulated hauler to date and the largest articulated hauler of any brand currently on the market. Designed for heavy hauling in

severe off-road operations, including quarries, opencast mines and large earth-moving operations, the A60H's long service life, quality, reliability and durability promise to make hauling easier and more efficient.

Bigger is better

A key attribute of the A60H is that it's always ready to work. It features

the latest innovations from Volvo and is engineered to increase uptime, thanks to its heavy-duty front and rear frames, hitch and wet disc brakes. It has a bigger payload for heavy-duty applications, delivering up to 40 per cent more productivity than Volvo's previous largest hauler. It also embodies the full articulated hauler concept, providing total versatility so

customers can access the entire jobsite and climb steep gradients. Using tailored machine configurations and tires, this 60 ton machine can work in all seasons, terrains and applications.

Thanks to its modern design and excellent fuel efficiency, the A60H helps move more for less. Powered by a 16 litre Volvo engine that delivers max power of 382 kW and 3,200 Nm of torque, the A60H increases profitability and improves return on investment. It is the ultimate hauler, featuring 100 per cent off-road performance, proven Volvo technology and impressive payload – all contributing to sustainable operations, year after year.

The A60H meets its match

Just as the A60H does the bigger jobs better, stronger and faster, so too does Volvo's new 90 tonne

“ We expect the machines to perform well in Africa, building on the proven reputation and track records of machines such as the A40 articulated hauler and EC750 excavator.

ILKAY FIDAN, BUSINESS DIRECTOR FOR HUB SOUTH (MIDDLE EAST AND AFRICA), VOLVO CE



weight class EC950E crawler excavator. Whether it's working alongside the new hauler or other large capacity machines, with over 424 kN of breakout force and 408 kN of tearout force, it offers the ideal combination of power and stability to handle high capacity duties in the toughest applications.

Powered by a 446 kW (606 hp) Volvo D16 engine, the excavator uses advanced technology that is built on decades of experience to ensure a highly productive operation. Cycle times are cut to a minimum with the power and massive torque of the Volvo D16 engine, combined with the newly developed, fully electro-hydraulic system.

The EC950E offers superior digging force, particularly when working with hard and heavy materials and delivers more tons per hour due to its larger bucket capacity, powerful performance and high durability. Its enhanced hydraulic system controls on-demand flow and reduces internal losses in the hydraulic circuit. Combined with Volvo's unique ECO Mode, the hydraulic system reduces loss of flow and pressure in order to achieve outstanding fuel efficiency.

A wide track gauge, long track length, a retractable undercarriage and an optimised counterweight, result in a well-balanced, solid machine. The heavy-duty design of the EC950E not only ensures the job is done quickly but that the machine

can be relied on for longevity and sustained uptime in demanding applications.

First customer: South Africa

So impressive are Volvo's latest machines, that important orders have already started to come in.

The first official order for Volvo was in fact placed by one of the long-standing customers of independent Volvo dealer, Babcock International Group. The South African company ordered not one but three Volvo A60H articulated haulers, as well as one Volvo EC950E crawler excavator.

Ilkay Fidan, business director for Hub South (Middle East and Africa) within Sales Region EMEA, Volvo CE, commented, "Both the A60H and the EC950E represent a new size class for Volvo. The A60H is the largest ever true articulated hauler available on the market, and is perfectly matched with the EC950E, which is the ideal size to load the new hauler.

"We expect the machines to perform well in Africa, building on the proven reputation and track records of machines such as the A40 articulated hauler and EC750 excavator." ■

“ Thanks to its modern design and excellent fuel efficiency, the A60H helps move more for less, increasing profitability and improving return on investment.”



Covering concealed fixed roofing

LCP Roofing and Safintra share knowledge on the latest roof truss technology at an interactive workshop in Johannesburg, South Africa

When Safintra approached roof truss technology company LCP Roofing management about hosting an information session for their staff on Newlok, a product specifically designed for use on low pitched roofs and to withstand high winds, they saw an opportunity not only to learn more about the product in-house, but to extend this to their clients and suppliers as well.

“It’s important to us that our clients know about new products on the market and that they understand how these can benefit their projects,” said Lyndsay Cotton, LCP Roofing general manager. “Which was why we thought it was a great idea to open this session to our valued clients and suppliers, so that they could really experience the product and engage directly with the manufacturer.”

A holistic approach

Safintra took a holistic approach to the information session and brought along their Newlok mobile mill, steel coil, mechanical seamer and 90° hand crimper, to showcase the production process of the Newlok sheeting – from roll forming the profile from coil to installation.

Mark Farrell, Safintra’s branch manager in Johannesburg, South Africa, demonstrated the roll-forming process using the Newlok mobile mill to produce the sheeting, pointing to its unique profile and clipping system. One of the characteristics that differentiate the Newlok profile is that it can be interlocked either with a snap or snap-and-seam mechanism. When either snapped together or snapped and seamed, the two-part clip allows natural thermal expansion and contraction without unclipping between purlin supports. This makes



The Safintra information session highlighted a number of practical scenarios and raised awareness of the unique roofing requirements presented by the South African landscape

Newlok a profile that qualifies as both a concealed fix (hidden anchoring system) when snapped together and a standing seam profile (snapped and seamed – either by hand crimping or mechanically), both methods allowing for thermal movement. However, the standing seam configuration provides hold-down strength in excess of 3kPa on negative wind uplift.

Industrial infrastructure

While Newlok is ideal for long spans on commercial and industrial buildings, due to the system’s ability to expand and contract as temperatures fluctuate, it also finds application in residential settings. It is specifically designed for low-pitched roofs, is fastened on the underside of the sheeting with clips and not pierced with traditional fasteners, resulting in completely watertight sheeting, even at very low slopes. The 50mm rib height also makes for optimal water shedding capabilities at slopes as low as 1.5 degrees.

LCP Roofing provided a sample roof structure onto which the newly rolled Newlok sheets were fastened

by the LCP Roofing sheeting team, led by Edward Chego and Thabo Tjale.

“The sample roof provided an interactive and tactile experience for our guests, who could experience the roof structure close to the ground and get up close and personal with the sheeting and clip system,” said Cotton. “The fixing of the sheets was a prime showcase of the Newlok profile in action. Guests could see how the male-female joints easily snapped into place and how the clips held everything together for a smooth, sturdy surface with no piercings. Safintra also demonstrated their hand crimper, for seaming eave and ridge sheets, as well as their mechanical seamer, which is ideal for seaming the entire length of the sheet.”

Practical scenarios

The Safintra information session highlighted a number of practical scenarios and raised awareness of the unique roofing requirements presented by the South African landscape. “Concealed fix roof sheeting has become a firm favourite among specifiers, but has, until now, not been well suited to

the high wind environments experienced in exposed, newly developed areas,” said Andri Pretorius, LCP Roofing Operational Director.

“Presently, most concealed fix offerings readily available inland are 700mm wide and, due to changing climatic conditions, need to be positively fixed on both apices and eaves, thereby negating the primary advantage and purpose of concealed fix roof sheeting. Typical residential applications make 700mm wide sheeting problematic to fix and finish off neatly as well. Fitting a 445mm wide sheet on a complex residential roof will also be easier from a labour perspective.”

Not only is steel roofing cost effective, but it also contributes to the overall sustainability of a structure, as metal roofing can be 100% recycled at the end of its useful life. Coupling a profile like Newlok with LCP Roofing’s offering enables both to better control quality, offer holistic ‘top of wall’ solutions and encourages the roofing system and other retrofits to be planned and viewed as a single investment by industry, instead of as separate components. ■

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Powerful machines on show

bauma 2016 welcomed a host of exhibitors at the exhibition grounds of Messe Munchen in Munich, Germany, to showcase cutting edge technologies and new equipment for the construction sector



Scania showcased its 6x6 all wheel mining truck at the show

The world's biggest trade fair for construction and mining equipment and services, bauma 2016, has overtime become an international hub for industry professionals in the construction sector to establish contacts and familiarise themselves with sophisticated technology.

Perkins offers adaptability

The Syncro 2.8 and 3.6 litres engines were launched by Perkins at bauma. The 3.6 litres engine offers powers up to 100kW with up to 500 Nm of torque, while the 2.8 litres turbo after-cooled variant delivers a maximum of 55kW with torque of up to 325Nm.

"We need to give our OEMs engines that can be easily adapted for both territories like Europe, Africa and India but the OEMs don't want to have two different complete different machine designs as its too expensive for them," observed Oliver Lythgoe, who is responsible for

product concept marketing .at Perkins, and was on hand to support the launch of Perkins unique diesel engine oil at the show.

"Automotive oils are not good enough for off highway machines. Our engines are used much harder for much longer life than on highway machines."

Himoinsa expands in rental

Himoinsa launched new gas and diesel generators and lighting towers at this year's edition of bauma.

Himoinsa has designed new generator sets for the rental sector with Stage 3A engines, with a power range of 20-550kVA in PRP offering higher power and special configurations and connections

The generator sets provide transportability, with all of the equipment featuring lifting points and forklift rails; they are also weather resistant, withstanding corrosion that builds up due to harsh temperatures; the generator is easy to use and can communicate with the new Stage 3A engine

protocols and Fleet Managers which enables remote monitoring and management of the rental feet. The AS4012 LPG is the first lighting tower powered by LPG cylinders on the market. With a total of 364,000 lumens, it guarantees autonomous operation for 24 hours.

Scania offers more

Five trucks were on display from Scania at bauma with three industrial engine platforms - 9-litre, 13-litre and 16-litre-for tier 4 final stage IV. A 6x6 all wheel mining truck was also on display at the show.

Orjan Aslund, head of product affairs at Scania, said, "We have a consultant company that sets up all the logistics - it organises a transport solution that makes it sustainable. We currently have a successful operation where we are helping out the customer with in East Africa.

"We can set up everything from providing spare parts and field

“ Himoinsa has designed new generator sets with Stage 3A engines, with a power range of 20-500 kVA in PRP offering higher power and special configurations and connections.

workshops, we can sell buses for transportation of workers but most of all optimising the transport solution. We also offer alternative fuels - gas engines, engines for HVO and for bioethanol.”

Terex delivers training

Over the last 18 months Terex has sold dual power machines into Africa, including a 873 Spaleck screener, j1175 jaw crusher and 1540 cone crusher. The company launched a range of six new mini excavators at the bauma show; the TC14-2, TC16-2, TC19-2, TC22-2, TC35-2 and TC37-2 mini excavators, followed by other models that will be launched over the next two years.

Commenting on the business, Brian Pauley, marketing manager at Terex, said, “Our partner in most of Southern African states is Bell Equipment. They are doing a lot of training on the ground and have



bauma 2016 took place in Munich, Germany

machines in stock so we are keeping the training focused on what they are selling.

Volvo meets demand

The A60 articulated hauler from Volvo, which was on display at the bauma, is a big product for the

African market. A number of mining companies in the continent use the hauler, with South Africa being Volvo’s biggest market.

Jonas Gardetun, vice president EMEA Hub South told African Review about the importance of supporting customers on service and parts

supply. “What we can make sure is that we have the best in the market for the customers that we have. We have independent distribution across all countries.”

MTG’s bucket solution

MTG showcased its innovations in wear parts for a complete protection of buckets

The StarMet Rope Shovels product range for electrical rope shovels, in addition to new designs for teeth, adapters and locking systems for mining and construction machinery and the new range of ProMet side and blade shrouds.

The ProMet system, developed specifically for construction machinery, includes the new range of ProMet wing and blade shroud, designed to ensure increased wear life and improved bucket performance in 20 to 85 tonnes excavator and loader buckets. ■



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Mist installation for Caledonian Mining at Gwanda in Zimbabwe

Zimbabwe's first-ever misting system is now in operation at the **Caledonian Mining Company** in Gwanda. The installation by **I-CAT** was on the mine's primary crusher and screening plant and will open opportunities for more misting projects in the region.

The crushing process at mines produces dust particles that are capable of entering the lungs and becoming a health hazard. It is therefore important to have control over the silica dust generated from the crushing units. I-CAT's water mist technology is used to capture the dust and ensure a visible and conducive environment.

According to I-CAT technical manager, Morne van Wyk, the project was secured by the Phumla Group, which is I-CAT Zimbabwe's agent. Mr van Wyk said, "Although not a large project, the installation consisted of a dosing unit and surfactant tank, an in-house manufactured control panel with filter and hydraulic flow control valves, some stainless steel piping and GTK nozzles."

As part of the process, a bracket was installed on site to facilitate the installation of nozzles on one of the conveyor transfer points. After the installation, testing was conducted on the system, before it was commissioned. It has since been running at optimal efficiency.

The mine management has decided already to expand on its current system and intends to use I-CAT's technology at its primary crusher plant and stockpile transfer points. Mr Van Wyk reported, "The solutions that I-CAT offers will be used by the mine above ground and there is a possibility of assisting the operation with road dust solutions underground in future."



VOLVO PENTA POWERS NEW TRUCK FROM SANDVIK

Engine manufacturer **Volvo Penta** has collaborated with equipment firm **Sandvik Mining & Construction** to develop an engine which is suitable for heavy-duty mining applications. The TAD1643VE-B, which was launched at Bauma 2016, has since been unveiled as the new engine for the latest underground mining truck by Sandvik.

"We've worked with Volvo Penta on other projects and have a close relationship with them," said Mark Ryan, product line manager for trucks, loading and hauling at Sandvik's mining division.

Mr Ryan added, "We needed a high horsepower engine of the right size and class, which is robust and more cost-effective to install and run than the previous engines."



The new 16-litre engine from Volvo Penta is installed in the latest TH663 underground truck from Sandvik, to provide enhanced performance and cost savings

The TAD1643VE-B is a compact, versatile and cost-effective off-road industrial powerhouse. In particular, the engine delivers an extended torque curve for better performance at a wider range of RPM, making it more powerful. Its rated power of 565kW at 1,900RPM represents the highest output per litre of displacement in its class. Naval Singh, Volvo Penta's global segment specialist in mining and construction, said, "After talking to them, we did some homework and found that there is huge possibility with our technology to replace bigger volume engines for the versatile application market today."

TEREX FINLAY LAUNCHES NEW LINE-UP

Three new **Terex Finlay** products at Hillhead 2016 represent the company's largest-ever presence at the show. The new portfolio includes the C-1540 direct drive cone crusher and 674 3-deck inclined screen, and the I-140RS impact crusher in advance of its launch in Q3 2016. "Literally every machine on display at the show is a new product introduction, been recently launched or a preview of another new model," said Nigel Irvine, the company's sales and marketing director.



The new C-1540 direct drive cone crusher and 674 3-deck inclined screen from Terex Finlay

Another feature of the Terex display at Hillhead is the T-Link telematics remote monitoring and fleet management system.

According to Terex Finlay, the T-Link system can help operators stay connected with and keep track of equipment, monitor work progress, manage logistics, access critical machine information, analyse and optimise machine performance and perform remote operator support.

► BRIEFS

TWS' new products at Hillhead



The new TWS modular unit integrates with AggreSand and AggreScrub

Terex Washing Systems (TWS) launches new product lines serving an increasingly diverse range of materials handling sectors at Hillhead 2016 in the UK. The new product line-up includes the Modular Scalping Unit, which is designed for C&D recycling applications as well as quarry and mine overburdens and integrates with other key TWS systems including AggreSand and AggreScrub.



Titan T1600 8 Truck Unloader barge loading, fed from a Cat 777 rigid haul truck

Telestack's new Titan

At Hillhead 2016 Telestack promotes the Titan 450-6, a fixed bulk reception feeder used primarily to handle aggregate, cement, biomass and other free flowing materials. The Titan range is available as static, wheeled or tracked versions.

Telestack's equipment on show at Hillhead also includes the LF520 and the new LF520 Radial low feeders, which enable discharge from loaders, cranes and excavators at a significantly lower feed in height compared to standard hopper feeders.

Mogalakwena gains from high-fidelity simulators

Employees of Anglo American’s Mogalakwena platinum mine in Limpopo Province, South Africa, as well as the surrounding community, are reaping the benefits of the mine’s high-fidelity, simulator-training programme. The mine has recently purchased another Cybermine Full Mission Simulator (FMS) from ThoroughTec Simulation, this time for the training of Caterpillar D10T dozer operators. This simulator compliments their existing system for the training of Taiyuan Heavy Industries, WK55 rope shovel operators, which was the first of its kind in the world.

The forward-thinking Mogalakwena mine is using performance and usage data, collected directly from its operational equipment, to boost productivity and drive down costs. Their Cybermine simulators form an integral part of this methodology of continuous improvement, providing optimised training, monitoring skills retention and correcting negative behaviours.



The Cybermine 4 Surface Base Unit, as used at Mogalakwena

“The Cybermine simulators provide us with an environment which is as close to the real thing as possible. It allows for a lot of practice, and mistakes to be made in a safe environment at zero risk,” said Richard White, HRD coordinator QA & learning delivery at Mogalakwena.

The mining of platinum is heavily mechanised and the costly equipment used can be dangerous. By the time the learner operators graduate from the simulator, they are already comfortable with the equipment’s controls and what they could expect in the mining area. White reported, “This minimises the risks when taking the trainee operator to the pit for the first time.”

Cost of ownership is also improved because more training is being done on the simulator, instead of the actual equipment.

“After evaluating the dozer simulator for a period of time and having proven its utility

and benefit to training, the mine decided to purchase it outright,” observed Adam Smallman, regional vice president for EMEA at ThoroughTec.

The simulator is not just providing safety benefits. White added, “There are also productivity upsides. We’ve found that now, after simulator training, a lot more ripping gets done by the dozer operators.”

The simulator is also used in Dozing to Success, a community development project. Stephan Voges, HRD trainer, said, “The dozer is our entry-level equipment for up and coming operators, therefore the D10T sim will be our primary tool in teaching community members who have no mining experience whatsoever, about the mining environment in a safe, realistic manner. ■

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Bell's new equipment for miners

The B60 E from Bell Equipment was showcased for the first time outside Africa at bauma 2016 attracting the attention of specialists in earth moving, quarrying and mining sectors

Bell Equipment displayed its complete E-series generation of trucks at bauma recently. Incorporating the latest E-series design and technology, the 4x4 crossover concept combines articulated off-road capabilities with the higher transport capacities of rigid trucks. This was the first time the machine will be exhibited outside Africa.

Improving on tradition

The Bell B60E is improving traditional rigid dump truck applications, while the 6x6 range from the B25E to B50E provide solutions for really soft underfoot conditions.

"Operators also need to understand that the move to larger sizes is nothing new for us with the 50-tonnes ADT having run effectively for the last 12 years and our 60-tonnes trucks being in real-life service for the last four years. A significant portion of our trucks have historically being sold into high production mining operations, which also helps us understand the requirements better," stated Tristan du Pisanie, Bell Equipment's product marketing manager.

Using Advanced Bell ADT technology, with the original B50E front chassis, the B60E is now powered by a EU4/Tier4 final certified 430kW Mercedes-Benz/MTU inline 6-cylinder engine. The new model offers exceptional standards in driving comfort, safety and fuel economy for the Bell B60E. The rear chassis has been redesigned and incorporates all practical experiences and analytical information obtained in the extensive four-year test programme with B60D prototypes and production machines operating in quarry and mining projects in South



The B60E meets a demonstrated need of operators in mining, quarrying and bulk earthworks

Africa. It now features a suspended 70-tonnes rear axle with 24.00 R35 twin tyres, the nominal payload is rated at 55.0 metric tonnes. Much

bigger than a conventional ADT bin, the flat-bottomed 35m³ body is completely compatible with existing loading equipment in mines and

quarries and assures an ideal 2:1-heap of coarse blasted material.

"We designed the Bell B60E to be able to run alongside rigid trucks within the 60- to 80-tonnes class, so under normal conditions of dry and well maintained haul roads we do provide an alternative," said du Pisanie.

The B60E concept is suited to mines, quarries and bulk earthworks that experience conditions that rigid dump trucks cannot withstand, such as rainy periods. When the 4x2 rigids are unable to function, the superior 4x4-traction, oscillation tube and retardation characteristics of the Bell B60E enables production to carry on.

Success at show

Gary Bell, group chief executive of the global ADT specialist, recently spoke of how the bauma show was a huge success, stating that it was 'the best bauma in years.'

"During the week in Munich we had large and steady visitor attendance, which was impressive due to the sheer numbers but also owing to the wide international spread and high calibre of our visitors, including decision-makers of small and medium sized companies through to multi-national organisations."

He added there were a number of potential buyers from many markets.

"For this reason this particular truck is booked for site demonstrations, starting in the UK, and then going overseas for its introduction to the North American market. In the meantime we continue to build D-series models for our customers in markets with lower tier ratings."

Also new from Bell Equipment is its four new large E-series ADT

“ Incorporating the latest E-series design and technology, the 4x4 crossover concept combines articulated off-road capabilities with higher transport capacities of rigid trucks. ”

models, which range from 33,5 to 45,4 tonnes payloads and are planned for launch in August.

"Our intention at Bauma was to show that we have delivered on the next evolution of our D-series ADT line, which successfully set industry standards and has led ADT innovation for almost 14 years," said du Pisanie.

"In fact looking at how many of the other manufacturers have only now adopted some of our features, and the length of time it has taken them to do so, is in itself testament to how we have in the past led, and will continue to lead, this particular industry."

Models ranging from the B40E upwards, feature efficient Allison 7-speed transmissions which, together with improved engine power through the range, offers efficient and productive driving performance in all ADT applications. The machine



The 41-tonnes Bell B45E represented Bell Equipment's E-series Large Truck range in Munich

is designed with full traction in heavy terrain as it features electronically activated inter-axle differentials.

According to Bell Equipment's team, controlled traction differentials, on all three axles, also provide safe cross-locking for

extreme conditions, while safe braking is assured through wet brakes with separately cooled and filtered oil circuits. ■

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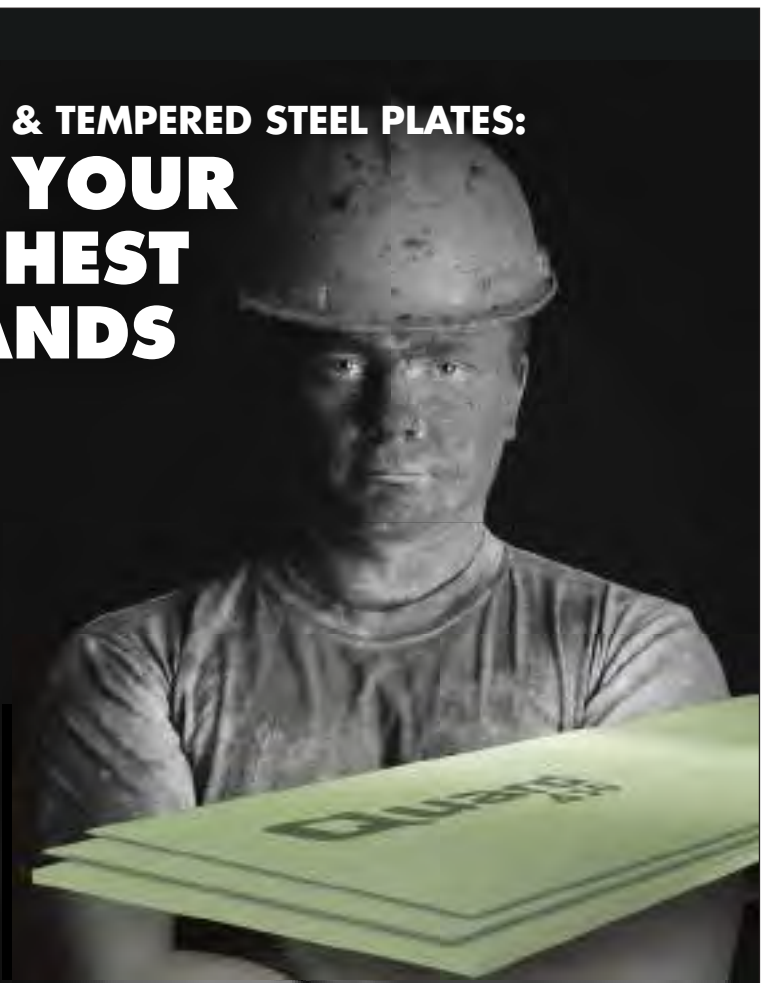
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Featuring a wide light band, the **Leuze RK 46C.DXL VarOS** retro reflective sensor is able to reliably detect both small and large objects.

Objects can be round, angular or both, with glossy surfaces, have transparent shrink-wrapped film or even be totally black, with gaps or with high ambient light levels. These Leuze sensors are ideal for when the objects to be detected or the associated environmental conditions deviate from the norm.

The Leuze RK 46C.DXL VarOS retro reflective sensor is particularly effective in this regard as it responds to objects with the entire width of its light band, which gives it the capability to be able to handle interruptions. The wide light band allows for detection over a 45 mm to 60 mm wide area. The sensitivity and/or



The Leuze RK 46C.DXL VarOS retro reflective sensor features a wide light band to reliably detect both small and large objects

resolution of the sensor can be adjusted easily by means of a button located on the rear housing. And this Leuze sensor features a handy 'teach me' function which allows it to be adapted easily between two object sizes greater than 8 mm at the touch of a button. This ensures optimum flexibility of application. The use of this sensor does away with the need for expensive light barriers or multiple individual sensors.

Other features include the ability to calibrate for detection of transparent, perforated or small objects as well as the ability to reliably detect even with depolarising media such as foil packaging.

The Leuze RK 46C.DXL VarOS retro reflective sensor is available from Countpulse Controls, the leading southern African supplier of sensing, measurement, counting, switching, monitoring and positioning instrumentation. The company offers a complete technical advisory service for the most effective use of its products in automotive and other branches of engineering.

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