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Editor's Note

This issue of African Review profiles HE Olusegun Obasanjo, former President of Nigeria, who is promoting the Africa Food Prize for agricultural business. Finance and technology are represented with an assessment of digital initiatives for rural banking, an exposition of investment in telecommunications and media technologies at TMT Finance Africa, technological solutions for the retail sector, and analysis of the satellite infrastructure deployed for African telecommunications and broadcast services. These pages carry articles also on logistics - with engineering and operational support for vehicle use in remote locations, and the integration of technology networks into automotive environments - and transport - with digital technologies and modular trailers for the shipping industry. The power industry is covered here with reports on decentralised energy architecture and financing. The construction business is addressed with a look at a new motor grader, a study of the use of fuel emulsion for St Helena's airport, the machinery on show at ConMin West Africa and the construction of tall buildings in Ghana. The mining sector is heavily promoted in these pages through our preview of Electra Mining Africa.

Dr Andrew Croft, Managing Editor

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Orascom Construction expands its fleet with 24 Grove rough-terrain cranes

Egyptian construction and engineering company **Orascom Construction (OC)** has expanded its **Manitowoc** fleet with the order of 24 new **Grove** rough-terrain cranes. The sale was finalised at the end of 2015. The company is a sister company of Orascom Trading, Manitowoc's main distributor in Egypt for Grove mobile cranes. The cranes in this order include ten Grove RT650Es, six RT765E-2 models, six RT890E models and two RT9130E-2s. The majority of new purchases have been sent to work at power plants and oil refineries.

"We work to tight schedules on many different projects so we needed the best cranes on the market," said Mamdouh Fahmy, equipment director at Orascom Construction. "The main reason we selected these Grove rough-terrain cranes was because they are designed to handle the tough desert conditions found on job sites and provide excellent maneuverability when working in confined spaces."

The 50t capacity Grove RT650E rough terrain crane has a four-section main boom which extends to 32m with optimal fixed and telescoping boom extensions, while the RT765E-2 has a 60t capacity with a 33.5m main boom. The RT890E can handle lifts of up to 80t, while the RT9130E-2 is one of the largest rough terrain crane with a maximum capacity of 120t with a 48.8m five-section full-power telescoping main boom.



Orascom Construction has expanded its Manitowoc fleet with 24 new Grove rough-terrain cranes

Orascom Construction is primarily focused on infrastructure, industrial and high-end commercial projects around the world. Founded in 1950, OC has grown from a small family-run business to be one of the largest construction companies in the world.

SCHLEMMER MOROCCO WINS TECHNOLOGY AWARD

The Schlemmer production plant in Morocco has received a Technology Pinnacle Award for Supplier Excellence from Delphi Automotive, recognising Schlemmer Morocco's ability to focus creative resources and help Delphi deliver globally relevant solutions that capitalise on the megatrends of safe, green and connected.

The Delphi Pinnacle Awards have been presented annually since 2004. Mohamed Slimani, general manager of Schlemmer Morocco, accepted the award on behalf of the team of about 100 employees at the North African production plant.



Holger Zacher, key account manager business unit automotive at Delphi, presents the Technology Pinnacle Award to Mohamed Slimani, general manager of Schlemmer Morocco

SENNEBOGEN CRANES WORKING FOR SAPTA

Algerian bridge construction specialist **SAPTA** is now using four **Sennebogen** cranes near Algiers. Its crawler and telescopic cranes are lifting heavy construction parts weighing up to 60t, the latest of which is a Sennebogen 6113 telescopic crawler crane with a capacity for 120t.



Four green cranes working on bridge construction in Algeria for SAPTA

As a long-standing customer, SAPTA has trusted the reliable cranes from Sennebogen for many years. Previously, the company had held on to its traditional concept when it came to machinery and had purchased two 80t Sennebogen 2200 crawler cranes. During the past two years, sales and service partner **EURL SM Maintenance** supplied the construction company with a 683 telescopic crane and lately a 120t telescopic crawler crane of type 6113. All four machines have now been utilised simultaneously during a bridge building project.

During the construction phase, structural parts up to 40m long and weighing up to 60t needed to be lifted into place. Able to travel and move easily under load, the telescopic cranes proved their worth. With a maximum load capacity of 120t and a maximum reach of up to 40.2m, the full-power boom of the Sennebogen 6113 clearly shows its capacity here. Thanks to joystick control, telescoping even under load is fast and easy. And the multi-cylinder system ensures that any boom position can be approached smoothly and without interruption.

► BRIEFS



MBK has held numerous product demonstration and training sessions for leading Egyptian and North African system integrators, colocation operators, consultants, contractors and end users

Siemon equips Egyptian partner with data centre demo unit

Network Infrastructure Specialist **Siemon** has supplied its distribution partner **MBK** with fully-equipped VersaPOD data centre cabinets, now installed at MBK's training facility in New Maadi, Cairo, to help educate and train end users, consultants and channel partners on Siemon's comprehensive WheelHouse advanced data centre solutions.

The VersaPOD cabinets demonstrate the ability to address critical aspects in the data centre, including the need for increased equipment density, ease of installation, accessibility and thermal efficiency. Featuring shared Zero-U space between bayed cabinets that can be

used for patching, power distribution and cable management, the cabinets enable moving cabling into vertical patching fields to free up valuable horizontal mounting space inside the cabinet and enable higher active equipment density. They also reduce stranded power and offer significant savings by sharing power distribution units (PDUs) between adjacent cabinets.

Iyer Sivakumar, sales manager EMEA-Africa for Siemon, said, "The VersaPOD demo unit allows our partner to show the quality of our comprehensive data centre offering and affords customers the chance to both see the systems in operation and experience them hands-on."

THE VOLVO A60H SETTING NEW RECORDS IN HAULING...



...AND PRODUCTIVITY

With a payload of 55 tonnes, the Volvo A60H is the largest articulated hauler ever to go into production. Powered by a 16 litre Volvo engine that delivers 495 kW of power, 3,200 Nm of torque and exceptional fuel efficiency, the A60H is designed to bring your cost per tonne crashing down as it powers its way through even the most forbidding terrain. The On Board Weighing System ensures you're achieving the optimal load every cycle; and when it comes to customer support, Volvo is the best in the industry: always there to help guarantee you obtain optimum machine availability. With the Volvo A60H, you'll be smashing all productivity targets. Talk to your dealer.

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Djibouti becomes 14th AFC member state

The **Government of Djibouti** has committed the East African country to membership of the **Africa Finance Corporation (AFC)**, an international investment grade multilateral finance institution investing in key infrastructure projects across Africa.

Ali Guelleh Aboubaker, Minister of Investments in the Office of the President, said of his country's AFC membership, "The government of Djibouti is committed to proactively investing in essential infrastructure to drive economic growth and doing what we can to attract international private investors to infrastructure investment opportunities. We look forward to working with AFC to deliver projects with real and positive economic and social impact across the country."

Andrew Alli, AFC president & CEO, welcomed Djibouti to the Corporation, remarking, "Djibouti is a small but important market, with natural strengths as a transport and logistics hub thanks to the government's successful free trade policies and its location at the gateway to the Red Sea. Djibouti offers some great investment opportunities and AFC is delighted to be assisting Djibouti to meet its full growth potential and to create jobs for its citizens."

Djibouti is the 14th country and the third east African country to join the AFC. The corporation's other members are: Cape Verde Chad Ghana Guinea Bissau Guinea Liberia Nigeria Sierra Leone; The Gambia; Gabon; Côte d'Ivoire; Rwanda; and Uganda.

As with all other members, Djibouti's membership enables AFC to receive preferred creditor status within the country, the benefits of which reduce AFC's investment risk, enabling the corporation to provide more competitive financing solutions.



(Left to Right): **Tope Akinmade** (senior associate country & investor relations, AFC) **Dawit Michael Gebreab** (senior director strategic planning, Djibouti Ports & Free Zones Authority) **HE Ali Guelleh Aboubaker** (Minister of Investments in the Office of the President) **Sanjeev Gupta** (executive director financial services, AFC) **Aboubaker Omar Hadi** (chairman, Djibouti Ports & Free Zones Authority)

KENYAN PASTORALISTS GAIN WB FINANCING

The **Government of Kenya** has launched the nation's component of the US\$197mn **Regional Pastoral Livelihoods Resilience Project (RPLRP)**. Over 93,000 households whose livelihoods rely mainly on pastoral activities in the 14 participating counties are expected to benefit directly from the project.

Supported by the **World Bank Group**, RPLRP is designed to help manage climate risks, and develop coping mechanisms against drought and animal diseases.

"Our main focus is on livestock, which we all know, is the single most important asset and the key source of food and income for pastoralists," said Diarietou Gaye, World Bank country director for Kenya.

The project aims to reduce the death rate of cattle by 30 per cent; increase the value of livestock traded in selected project markets by 10 per cent; reduce the number of livestock traded in drought years by about eight per cent; increase the number of livestock traded in normal years by about six per cent, and to also halve the time lapse between early warning information and the response.

A vaccination campaign saw over 15,000 heads of cattle, 10,000 sheep and goats vaccinated during the launch which took place at Muwarak/Posta (PND) in Laikipia County. Major livestock routes converge in the PND area in search of pasture and water in times of drought, and as they head to Rumuruti livestock market. As a result, it is an area that is prone to livestock disease outbreaks.

"The focus on livestock corridors like in Laikipia is based on the reality that seasonal and cross-border movements are a crucial feature of pastoralist livelihoods and coping mechanisms against droughts and conflicts," said Philip Jespersen, senior social development specialist and co-task team leader for the project.

WORLDREMIT MARKS A MILLION TRANSFERS

Kenyans living abroad have now sent one million money transfers with **WorldRemit**. The remittances technology company now sends more than 50,000 transfers to Kenya every month, with over 90 per cent going to mobile money accounts such as **MPesa** and **Airtel Money**. Customers also send transfers direct to bank accounts, for cash pick up from **KCB Bank Kenya** and **Upesi Money Transfer** branches, or as mobile airtime top up.

Around three million Kenyans live abroad with large communities in countries such as the United Kingdom, United States and Canada. The contribution of the diaspora including remittances is recognised as a critical component in the growth of the Kenyan economy and achieving Vision 2030. Inward remittances reached a record value of US\$146.76m in May 2016, according to the **Central Bank of Kenya**, making it one of Kenya's top earners.

▶ BRIEFS



Tigo Tanzania general manager **Diego Gutierrez** (left) in discussion during the **GSMA Mobile 360-Africa** conference in Dar es Salaam, Tanzania, with **Bradley Shaw**, founder of **Continuum Consulting**

Tigo Tanzania demonstrates digital transformation at GSMA M360 Africa event

Millicom subsidiary **Tigo** outlined a number of strategic priorities at the **Global System Mobile Association (GSMA) Mobile 360-Africa** Conference in Dar es Salaam. Tigo general manager **Diego Gutierrez** cited the telecom company's core social priorities as digital inclusion, education and business entrepreneurship. He said, "Creating positive change is part of our DNA as we bring the digital lifestyle to our customers and communities."

Mr Gutierrez explained that in the mobile telecom industry, there was a need to change the goal-posts through innovation

and synergy to leverage diverse models of doing business. Giving an example of Tigo's mobile money service, Tigo Pesa, the GM alluded to its dramatic growth, noting that currently, it has the largest network with over 50,000 merchants across the country. He also noted, "Tigo was the first telecom in Tanzania to introduce free **Facebook** and affordable Smartphones whose interfaces are fully embedded in Kiswahili, the country's national language so as to open the doors to our customers to access our products and services in a language they can easily understand."



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Chryso adopts global standards for SSA chemicals business

Construction chemicals company **Chryso Southern Africa** has become the first South African company in its field to adopt the Global Harmonised System (GHS) for standardising safety communication around chemicals. The GHS, which has already been adopted by the **European Union**, is expected to boost the South African construction chemical specialist's export drive into the rest of sub-Saharan Africa (SSA). The company will now have a formidable competitive edge when entering into business with international construction contractors and consulting engineers who already have a significant presence on the continent.

The system, which was implemented by the **United Nations**, harmonises the classification and labelling of all chemical products. It is a direct response to the challenges created by differing safety communication standards from one country to the next. Some states even have more than one standard for the classification and labelling of chemical products, which restricts trade, increases costs of doing business and, at times, hampers compliance. The GHS will also improve and promote consistent hazardous information; encourage safe transport, handling and use of chemicals and promote better emergency response to chemical-related incidents. Importantly, Chryso Southern Africa will also communicate important product information on all of its material data sheets (MDS), over-and-above replacing all existing labels and transport classification signage and documentation requirements.

Andries Marais, general manager: operations at Chryso Southern Africa, describes the MDS as the "bible" of the GHS. He said, "It is a very thorough document that details everything the consumer needs to know about our products. This is very important to Chryso Southern Africa as we have always held the view that all producers have a responsibility to communicate openly with their market. By adopting the GHS, we are reaffirming this belief, and our customers - whether large builders on a construction site or do-it-yourself enthusiasts in a retail outlet - know that they are protected when they choose to use our products."



CHRYSO Southern Africa has adopted the Global Harmonised System (GHS) making it the first construction chemicals company in South Africa to comply with an international attempt at standardising safety communication around chemicals

MERCEDES-BENZ OPENS COMMERCIAL DEALERSHIP

Less than six months after inaugurating a regional centre for Southern Africa, **Mercedes-Benz South Africa (MBSA)** has opened a new commercial vehicles dealership for in Rustenburg, in South Africa's North-West province. The dealership, Maemo Motors, offers a comprehensive sales and after-sales service for **Daimler Trucks & Buses (DT&B), Mercedes-Benz Trucks, Vans and Buses, as well as FUSO Trucks.**

"The North-West province is known for its mining activities and we are anchoring the newly-inaugurated Maemo Motors as the foremost commercial vehicles dealership to support this function. DT&B vehicles are firmly-established in this region, and this step will further ensure we remain leaders. As DT&B as well as our dealer, this is our way of confirming our confidence in the local industries and the long-term economic outlook in this particular region," said Kobus van Zyl, executive director at Daimler Trucks & Buses (DT&B), Southern Africa.



Maemo Motors is situated just outside of Rustenburg's main central business district

With a number of the mining houses and other related industries being situated in Rustenburg, there are thousands of employees who are in constant need of transportation - and, with this in mind, the facility is specially-designed to focus on buses.

ABSA, UPI ENABLE EASIER BANKING FOR CHINESE



Larry Wang, chief business development officer at UPI, with Craig Bond, chief executive of Absa Retail and Business Banking

China UnionPay subsidiary **UnionPay International (UPI)** has partnered with **Absa Bank Limited**, a Barclays Africa company, to allow UPI cardholders living in or visiting South Africa to transact at any of Absa's point-of-sale (POS) terminals and withdraw cash at Absa's 9,153 ATMs in the country. The partnership with Absa substantially expands UPI's presence on the continent, with local ATM and POS acceptance of UPI cards rising to over 75 per cent.

Larry Wang, chief business development officer at UPI, said, "Given the growing financial ties between China and Africa, this partnership will facilitate payments by our UnionPay cardholder base."

BRIEFS

SMEC leads on Lusaka water infrastructure



SMEC has been appointed programme manager for Lusaka's water infrastructure upgrade

Consultancy services firm **SMEC International** has been appointed by the **Millennium Challenge Account - Zambia Limited (MCA-Zambia)** to manage services for water supply, sanitation and drainage improvement works in Lusaka.

"This project will increase access to a reliable water supply, and improve sanitation and drainage services in selected urban and peri-urban areas of Lusaka," said Pula Herath, general manager, water & environment, Africa Division, at SMEC.

IFC invests in ADvTECH fo education

International Finance Corporation (IFC) has acquired a 2.5 per cent equity stake in **ADvTECH Ltd**, a South African private education provider. IFC's R190mn (US\$13mn) investment in newly-issued shares to support the company's plans to increase its schools and tertiary education programmes in sub-Saharan Africa. IFC has also acquired a further 1.6 per cent of ADvTECH's stock in the market, raising its combined investment in ADvTECH to R320mn and its total holdings to around four per cent of the company. The investment is intended to lead to better educational access for at least 30,000 additional students, many of whom would not otherwise have had the opportunity to access quality education or vocational training. It will also provide new learning options for students leaving high school.

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A new platform to improve business regulation in Côte d'Ivoire

Côte d'Ivoire's **Public Private Concertation Committee (CCESP)** and the **World Bank Group** have launched the Joint Inspection Management System IT Platform. The platform is an online service that increases the speed and efficiency of inspections and helps companies comply with norms and standards, thus improving their performance.

"The benefits we have received through the implementation of the Joint Inspection System project are impressive," said Fadiga Fofana, CCESP executive secretary. "Indeed, beyond the strengthening of the current norms, this initiative helps to improve the quality of health services and restaurant performance, helping to improve Côte d'Ivoire's image internally and externally."

The new tools have been piloted amongst 49 enterprises from the tourism and health sectors in the districts of Marcory, Treichville and Plateau. Data from the tool reveals that most of the enterprises that have used it are in compliance with official standards. Furthermore, most of the restaurants, "maquis" and cafe-bars inspected have implemented good practices in enterprise license, staff awareness of first and fire safety, sanitation, cleaning, housekeeping, food protection, and access to clean water and sanitation system.

Beneficiaries from private and public sectors have already expressed their appreciation.

"Previously, the system was disorganised, based on sanctions rather than providing guidance, with little information to enterprises on check-lists and the dates for inspections," said business owner Brou Jeanette, from Maquis Duval. "Now, I have received advice in hygiene control and food security norms that has helped me to improve the quality of my services. I welcome inspectors to my premises to share good practices and to learn how I can better meet my customers' needs."

However, the news was not positive for all participants. Less than half of all enterprises in the pilot districts are in compliance with the standards and need improvement. Key areas that need to be addressed include: storage management for materials and chemical products. A particular issue of concern is ensuring that expiration dates on stock remain visible.

The Côte d'Ivoire Business Regulation programme under which the new platform was developed aims to improve the business enabling environment for small and medium enterprises (SMEs) in the country. To this end, the programme: provides reform advisory service interventions; reduces the compliance cost of business licensing and inspection regimes in two priority sectors; recommends legal reforms aimed at giving women equal rights in doing business; and reinforces commercial justice by implementing a mediation mechanism and strengthening the commercial court.

PROMOTING UK BUSINESS IN NIGERIA

The **UK Foreign & Commonwealth Office (FCO)** and **PricewaterhouseCoopers** have launched a report, 'Seizing the Opportunity: An economic assessment of key sectors of opportunity for UK business in Nigeria', during a four-day visit to in Lagos by the UK Prime Minister's trade envoy to Nigeria, John Howell MP.

Mr Howell joined PwC country senior partner Uyi Akpata to present the report, describing it as "useful in the UK's bid to strengthen trade relations with Nigeria and other countries". Mr Howell also added that he was determined to ensure that the UK becomes Nigeria's number one trade partner by talking to both British companies and companies in Nigeria about how they can do more business together. He is also committed to raising awareness of the opportunities highlighted in the report, alongside UK government efforts to build on its current working relationships with the Nigerian government, and with the country's businesses and local stakeholders.

SKYRIDERS MAINTAINS TOWER AT MALI GOLD MINE

A gold mine in Mali requiring maintenance on a critical telecommunications tower has turned to rope access specialist **Skyriders** to provide a safe solution and also to carry out and supervise all necessary work.

Skyriders already undertakes yearly inspection and maintenance on the main smokestack at the gold mine. But it has also been approached by the electronics and instrumentation team from the mining company to provide an appropriate solution for the telecoms tower project.



Skyriders provides customised solutions for unique projects such as its recent work at a gold mine in Mali

Skyriders undertook the once-off project in a record six days, deploying a two-person team of Level 3 IWH technicians, which is the highest level of rope-access training.

"Access to the top of the telecoms tower is not that restricted, but you are limited as to what you can do up there safely," said Skyriders marketing manager Mike Zinn.

The scope of work for Skyriders consists of replacing lightning rods, installing a new cable all the way up the telecoms tower, removing antennas, and welding on brackets where necessary. Mr Zinn said, "We have the necessary training, expertise and equipment to come up with total solutions for all our clients' requirements, in the safest and most cost-effective manner possible."

► BRIEFS

FAO presses for vigilance over H5N1

The **Food and Agriculture Organization (FAO)** reports that countries across West and Central Africa are on alert as the highly pathogenic avian influenza virus H5N1 continues to spread across the region. The latest H5N1 outbreaks were confirmed on chicken farms in Cameroon, bringing the number of countries that have battled bird flu in West and Central Africa to six - including Burkina Faso, Cote d'Ivoire, Ghana, Niger - and Nigeria, which continues to be most affected with the total number of outbreaks exceeding 750 with nearly 3.5mn birds dead or culled. Abebe Haile Gabriel, FAO deputy regional representative for Africa, said, "H5N1 causes major losses of nutritious food and threatens farmers' livelihoods, particularly in resource-poor environments where governments have difficulty providing financial compensation for losses."

Mali opts for OT electronic passports

Embedded security software supplier **Oberthur Technologies (OT)** has signed a contract with the **Government of the Republic of Mali**, following an invitation to tender, to supply a complete solution for issuing electronic passports which meet the strictest international security standards. The public-private partnership (PPP) grants OT a contract for 10 years, during which time the Republic of Mali will benefit from a comprehensive and innovative hi-tech industrial solution for its latest generation passport. The Republic of Mali has given OT, via **Mali Solutions Numériques (MSN)** and its partner **Afritek**, complete responsibility for Malian passports, from collection of payment from citizens to registration and validation of applications, through to production, personalisation and distribution of the passports.

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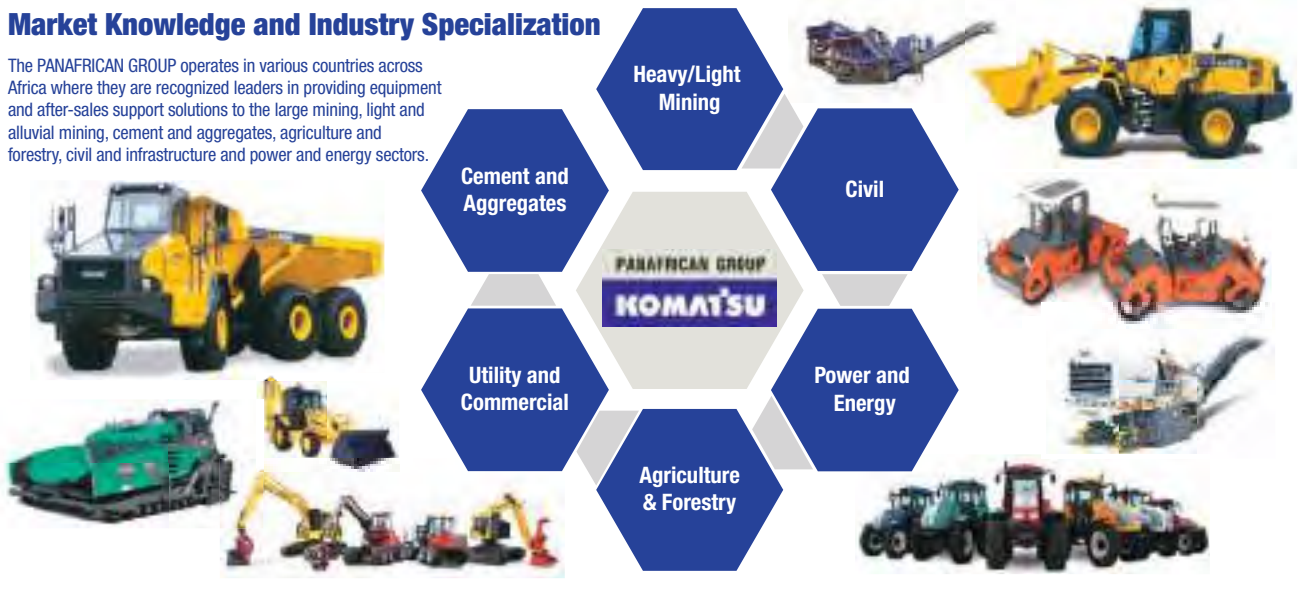
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The four airlines comprising the **Lufthansa Group - Lufthansa, Austrian Airlines, Brussels Airlines, and SWISS** - have integrated Africa's most important growth markets into their worldwide route network, covering the continent with more than 35 destinations and over 600 connecting weekly flights; the group also offers free participation in a 'PartnerPlusBenefit' membership scheme, helping to cut the cost of



Lufthansa Group's African network

company travel when flying with any of 10 airlines - including not only the Lufthansa Group flyers, but also **Air Canada, All Nippon, Eurowings, LOT, TAP Portugal, and United Airlines** - serving over 500 destinations globally.

UNCTAD ADVISES ON NEW WAYS TO FINANCE DEVELOPMENT

African governments should add new revenue sources to finance development, such as remittances, public-private partnerships, and a clampdown on illicit financial flows, according to the 2016 edition of the **UNCTAD Economic**



The 2016 UNCTAD Economic Development in Africa report

Development in Africa Report, which also warns that debt looks unsustainable in some countries; the report argues that African countries should look for complementary sources of revenue, including remittances, which have been growing rapidly, reaching US\$63.8bn to Africa in 2014, and that Africa must also tackle illicit financial flows, which can be as high as US\$50bn per year.

INTERTEK ACHIEVES FIRST SANAS ACCREDITATION IN SA

Quality assurance provider **Intertek** has achieved its first industry accreditation in South Africa for flow metering verification, enabling the company to provide assurance to South African National Accreditation System (SANAS) industry standards that its clients' flow metering equipment is operating as accurately as possible; specifically, the company has been awarded the SANAS 10378 accreditation, allowing it to carry out verification services on the liquid-measuring flow meters that form part of larger oil and gas metering systems.

PAYFORT ACHIEVES PCI SECURITY STANDARDS

Online payment service provider **PAYFORT** has been certified as Payment Card Industry Data Security Standard (PCI DSS) 3.1 compliant by PCI-qualified security assessor **NCC Group** on behalf of the **Payment Card Industry Security Standards Council**; PAYFORT is the payment platform for hundreds of ecommerce websites across the Middle East and North Africa including **Souq.com, Dubizzle.com, Landmark, Jumbo Electronics, flynas, Air Arabia, Flyin, Musafir and bayte**.

IDC REPORTS ON SA DATACENTRE TRANSFORMATION

Expenditure on information and communication technology (ICT) is currently being driven in the main by investment in software, IT services and mobile devices, with the South African experience particularly characterised by data centre infrastructure spend that is geared



IDC's South Africa CIO survey finds that 16 per cent of CIOs have already implemented a software-defined network, while 38 per cent are planning to implement an SDN before the end of 2017

towards virtualised servers and the transition of computing, storage or network resources and workloads to converged systems; research conducted by **International Data Corporation (IDC)** indicates, hence, that line of business or decision-makers from departments other than information technology will rise to become major influencers of IT spending, making the role of the chief information officer (CIO) even more complex and demanding.

SOCIETE GENERALE ACQUIRES A STAKE IN THE FINTECH TAGPAY

As it seeks to develop its profile in mobile banking, the **Societe Generale Group** has acquired a stake in the share capital of **TagPay**, a French FinTech specialised in mobile digital banking; TagPay is now being rolled out in several of the group's African subsidiaries - specifically, a mobile recovery solution implemented by **Manko** in Senegal, merchant payments in Cote d'Ivoire tested at **Shell** service stations, as well as mobile banking projects in several countries in Sub-Saharan Africa.



TagPay mobile transaction in Senegal. (Photo: TagPay)

SACMI OFFERS AUTOMATION AND FLEXIBILITY AT CIBUS TEC

The **Sacmi Group** is preparing for participation in the biennial Parma fair - held 25-28 October 2016 - with its latest technologies, ranging from bag-in-box filling systems to its new range of Kube modular labellers; the fair is one of the world's key technological innovation events for the food industry and is expected to attract at least 30,000 visitors from 35 countries.



Sacmi's new Kube modular labeller



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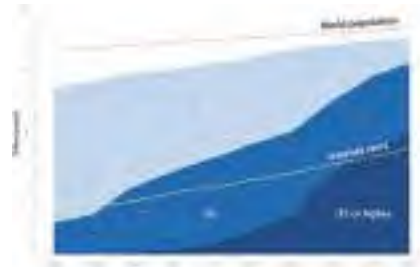
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MAINONE WINS WEST AFRICAN SAP HANA CERTIFICATION

Connectivity solutions company **MainOne** has confirmed that its data center subsidiary **MDXi** is now an **SAP**-certified provider of infrastructure services for SAP solutions, enabling MDXi to host and manage SAP applications utilising the company's enterprise cloud platforms; MainOne chief executive officer Funke Opeke said, "We are pleased to receive the SAP certification for Infrastructure Operations Services, as it validates our commitment to providing world-class data center and cloud solutions in Nigeria."

ICT IS MORE AFFORDABLE, BUT STILL MOSTLY UNUSED

International Telecommunications Union (ITU) research indicates that 3.9bn people remain cut-off from the Internet, despite falling prices for ICT services; while almost a billion households now have Internet access - of which 230mn are in China, 60mn in India and 20mn in 48 least developed countries (LDCs) - figures for household access also reveal the extent of the digital divide, with 84 per cent of households connected in Europe, compared with 15.4 per cent in Africa.



Mobile network coverage and evolving technologies (Note: * Estimates. Mobile network coverage refers to the population that is covered by a mobile network. Source: ITU)

UGANDA HOSTS INTERNATIONAL ARBITRATION CONFERENCE

Now in its fourth Edition, East Africa International Arbitration Conference (EAIAC) has grown to become an authoritative platform in East Africa promoting the region's legal capacity, and highlighting arbitration as an alternative investment dispute mechanism; organised by **GBS Africa**, EAIAC 2016 will take place on the 8-9 September at the Serena Kampala and will be addressed by government ministers from the region, with support by regional law societies, private sector bodies, development agencies and the investment community.

IFC, EXIMBANK CONTINUES NORTH AFRICAN PARTNERSHIP

A development partnership between **IFC** and **Eximbank** is continuing to provide innovative

financial products for Egyptian farmers, and help smaller businesses in Egypt as well as North African and Levant countries adopt sustainable energy technologies to drive economic growth and development; Xavier Reille, manager of IFC Financial Sector Advisory Services - Financial Institutions Group, said, "Helping financial intermediaries provide new and innovative financial products will facilitate access to finance, a strategic priority for IFC across the region."

A TEMPLATE FOR A CONTINENTAL FREE TRADE AREA

Experts from the **African Union Commission (AUC)**, supported by the **Economic Commission for Africa (ECA)** and the **United Nations Conference on Trade and Development (UNCTAD)**, met on the sidelines of the recently-held UNCTAD14 to work on the draft text of the Continental Free Trade Area (CFTA) Agreement; with the CFTA, which is scheduled to be implemented by October 2017, African leaders aim to create a single continental market for goods and services, free movement of business persons and investments and expand intra-African trade.

MODULES FOR EGYPTIAN HEAT RECOVERY STEAM GENERATOR

The modules for the first heat recovery steam generator (HRSG) for a **Siemens** mega project in Egypt are being shipped from South Korea to the Beni Suef power plant; **NEM**, as part of Siemens, is working to a project scope for three combined cycle power plants that includes engineering, manufacturing and delivery of 24 vertical triple-pressure reheat once-through HRSGs, which includes three 4.8 gigawatt turnkey combined cycle power plants in Beni Suef, Burullus and New Capital, powered by a total of eight eight Siemens SGT5-8000H gas turbines, selected for their high output and efficiency.

INTASAVE ENERGY PURSUES IMPACT INVESTMENT FOR KENYA

Villagers in Lemolo B and Echareria in Nakuru County, Kenya, now benefit from a new model for clean, affordable and reliable energy where a central solar hub provides both commercial energy for new village enterprises and household energy using up-cycled laptop batteries, thanks to an initial installation by the **Intasave Energy** solar nano-grid (SONG) initiative; Intasave Energy is in the process now of augmenting US\$600,000 of initial research and development funds provided by the UK's **Engineering and Physical Science Research Council (EPSRC)** and the **Department for**

International Development (DFID) with a US\$30mn impact investment programme to roll out the technology to around 1,500 communities in Kenya, South Africa and Mozambique over the next two years, with the ultimate aim of benefitting over 450,000 people across the globe.

UN SURVEYS E-GOVERNMENT SUPPORT FOR SUSTAINABLE DEVELOPMENT

A report published by the **United Nations Department of Economic and Social Affairs (UN DESA)** indicates that governments are increasingly embracing information and communication technologies (ICTs) to deliver services and to engage people in decision-making processes. The headline news for Africa is that Mauritius and Tunisia are the continent's best performers, with global rankings of 58 and 72 respectively.

State Rank	Country	AGDI Level	SDG Global Average (2015)
1	Denmark	High	2.500
2	Japan	High	2.411
3	Belgium	High	2.389
4	Sweden	High	2.351
5	Malta	High	2.291
6	Norway	High	2.281
7	Canada	High	2.279
8	Canada	High	2.271
9	Canada	High	2.271
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11	Canada	High	2.271
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57	Canada	High	2.271
58	Mauritius	High	2.271
59	Canada	High	2.271
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69	Canada	High	2.271
70	Canada	High	2.271
71	Canada	High	2.271
72	Tunisia	High	2.271
73	Canada	High	2.271
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The 2016 UN E-Government Survey provides new evidence that e-government has the potential to help support the implementation of 17 sustainable development goals (SDGs) incorporated into the UN's 2030 Agenda, which motivates governments to promote prosperity while protecting the planet through economic strategies and societal initiatives. It reveals, also, that one of the most important new trends globally is the advancement of people-driven services - that is, services that reflect people's needs and are driven by them.

AFRICAN REVIEW / ON THE WEB

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Full information can be found on www.africanreview.com

KIIRA MOTORS LAUNCHES SOLAR POWERED BUS



The bus is run on a traction motor powered by a battery linked to the solar panel on the roof (Photo: Kiira Motors)

Kiira Motors has launched the Kayoola, claimed to be Africa's first solar powered bus, in Kampala, Uganda. The bus is run on a traction motor powered by a battery linked to the solar panel on the roof. photovoltaic (PV)

KENYA HOSTS EAPIC

The energy ministries of six East African countries - Kenya, Somaliland, South Sudan, Sudan, Tanzania and Uganda - have been confirmed to attend the opening address at the East African Power Industry Convention (EAPIC), scheduled for 21 September in Nairobi, Kenya. Rwanda's former minister of state for energy, water and communication Albert Butare will be the session chairman at the opening to the 18th edition of this long-running power conference and exhibition. The ministerial opening session EAPIC will be themed, "From Strength to Strength: Building an Enabling Business Environment".

DR CONGO POWER PLANT FUNDING SUSPENDED



The hydropower project is eventually expected to produce 44,000MW (Photo: Vattenfall/Flickr)

The World Bank has reportedly suspended funding to help develop the US\$14bn Inga 3 hydropower project in DR Congo, following a disagreement with the nation over implementation plans.

PLANT FUNDING SUSPENDED NIGERIAN GOVERNMENT LOOKS TO NUCLEAR ENERGY



The Nigerian Government is working towards generating 4,000MW from nuclear sources (Photo: mucorales/Pixabay)

The Federal Government of Nigeria has announced that it has been exploring options to generate electricity from nuclear materials in a bid to exploit available resources in order to meet its power needs.



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▶ QUOTES

“The recent relations between China and Africa are a clear indication of the continent’s untapped potential to be a world power.

FRANCIS GATARE

chief executive officer,
Rwanda Development Board (RDB)

“Investing in Sub-Saharan Africa does come with risks, just as anywhere else in the world; understanding these risks and how to manage them is the critical difference between success and failure.

EDWARD GEORGE

head of group research, Ecobank

“A good training strategy will help harmonise your skills base thus ensuring that your employees feel empowered to work on their own without constant help and supervision from others.

SANDRA SWANEPOEL

managing director, Sage HR & Payroll

“Helping micro and small merchants connect to electronic payments will accelerate adoption and usage of new financial tools for the unbanked and will have a true impact on people’s daily lives.



AJAY BANGA

president and CEO, MasterCard

“As the world of cybercriminality continues to evolve, it’s important that businesses continually review their IT security measures.



PATRICK MATU

compliance, forensics and cyber expert
for East Africa, Control Risks Group

“It is encouraging to see South Africa starting from a reasonably strong position in its readiness to adopt connected digital technologies that will ultimately drive transformation.

NTUTULE TSHENYE

chief executive officer,
Philips South & Southern Africa

“It’s now possible to introduce a cloud-hosted, scalable and adaptable mobile banking solution within a matter of weeks, if African banks can find the right partner.

BRIAN RICHARDSON

chief executive officer,
WIZZIT International

“The underlying investment theme across sub-Saharan Africa over the next decade will undoubtedly be driven by substantial allocations of equity into JVs with successful local partners.

PETER WELBORN

head of Africa, Knight Frank

“Some of today’s risks - including cyber, political risk, and terrorism - are evolving so fast that at times the insurance markets struggle to come up with appropriate solutions to address them.

CHRIS LAY

president, Marsh Captive Solutions

“Currently, more than 60 per cent of individuals in Sub-Saharan Africa have access to a mobile phone; as the adoption of mobile technology and increasing internet penetration in these countries continue to grow, so does the opportunity for retailers to reach new customers in the region.

HENNIE HEYMANS

chief executive officer,
DHL Express-Sub Saharan Africa

“Without any doubt, the world has gone the digital direction, becoming more focused on the customer experience while trying to map customer interactions and generating useful information that will increase satisfaction, leading to continuous business growth.



KHALED MKAHAL

vice president of CEM & digital practice,
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Why agribusiness is our best economic opportunity

HE Olusegun Obasanjo, former President of Nigeria, explains what the Africa Food Prize means to African youth, and why we need a renewed focus on sustainable practices

For some decades, a former President of the Federal Republic of Nigeria has promoted sustainable opportunities in infrastructure, power, agribusiness, tourism and natural resources. His Excellency Olusegun Obasanjo holds a number of progressive positions on investment. In particular, he seeks "to support Africa's growth and develop its workforce" by facilitating and encouraging entrepreneurship. Amongst his current concerns is the African Entrepreneurship Programme (AEP), launched in 2015 with the former Nigerian president's support and with backing from Aliko Dangote, one of Africa's most successful businessmen. Since its launch, AEP has sought to realise investment objectives by affording opportunities to connect financial stakeholders and potentials.

HE Obasanjo spoke to *African Review* about agribusiness, arguably his greatest passion - and about the Africa Food Prize, which acknowledges individuals and institutions for their efforts towards changing the perceptions of agriculture and agribusiness. He explained why farming needs more than money. It needs leadership and structure. It needs enterprising individuals, and support networks at all levels of society and economy.

HE Obasanjo stressed to *African Review* that he understands the farmers are struggling with the consequences of climate change, with the costs of production, and the obstacles in delivering produce to market. He knows that farmers can be forced to sell their produce at low prices, and often at the farm gate, before the products spoil, because roads are in states of disrepair or the cost of tractor fuel is prohibitive. However, he knows also



HE Olusegun Obasanjo, former President of Nigeria

that, when there is provision of opportunity, when farmers are given a wider range of seeds to plant, or a greater choice of fertilisers to use, or more agricultural markets to sell to, the potential for progress is massive, and the opportunity for "equitable, long-lasting growth across Africa" is a reality.

Sustainable, productive, and profitable

The key to continued progress in farming is innovation. Across Africa, this will continue to mean adoption of 'climate-smart' practices like planting drought-resistant seed varieties, participation in crop and livestock insurance programmes that compensate farmers when weather conditions deteriorate, and managing soil to improve water retention and prevent run-off and erosion. HE Obasanjo is most concerned that agricultural endeavours are geared to be sustainable, productive, and profitable, and he is keen to reinforce the message that "the continent is well-placed to provide innovative solutions".

The former President of Nigeria speaks with qualification and from experience. In conversation with *African Review*, he drew on his

personal experience, as the son of a farmer in Nigeria's Ogun State - and in his current role as an Ogun State farmer himself. His insights, gained from years of experience in government and from experience working the land, informs his approach to food security. In his point of view, agriculture alone does not present Africa with opportunities to end hunger and malnutrition. Farmers must focus on agribusiness to achieve change, creating employment and generating income, addressing climate change and many other issues impacting African nations.

Agribusiness is the prime component of the continent's economy. HE Obasanjo remarked that the business of farming has not received the attention needed. Many farmers are correctly concerned with agricultural techniques, but they do not also concern themselves with profitability, with sustainable commercial practices. He spoke freely of how his return to farming at Obasanjo Farms has afforded him with a more refined understanding of ways in which farmers can change, can reframe agriculture so that their farms become true agribusinesses. Profitability means provision of employment

opportunities to youth. When African people under 25 years of age, half of whom are reckoned to be unemployed, see that money can be made from the land, there is a greater chance that they will stay in the village and on the farm. It is more likely that they will help develop local communities through business practices. It is more likely that Africa's "cycles of food crises" will cease.

Acknowledging agricultural entrepreneurs

HE President Obasanjo has preferred at times to describe his my return to farming in terms of his "coming full circle", returning to a path he left as a youth for success in the city, the professionalism of the army, and the ultimate position in political leadership. However, he disowns this stance for *African Review*. He values his past achievements, but he has no need to return to the past. He wants to empower African youth to create a better future for all. He wants to help create agricultural and agribusiness opportunities that lead Africa's youth to "lucrative, exciting entrepreneurial pursuits" and to help reward young people for aspiring to be farmers because it is "a rewarding career". To that end, the Africa Food Prize has been created to recognise outstanding contributions to the continent's agricultural agenda. Above all, the Africa Food Prize has been created to signal to the world that agriculture is a priority for Africa that can and should be embraced. It spotlights those who can inspire innovation, and spread best practices across the continent. The new goal for HE President Obasanjo is that the Africa Food Prize "becomes a symbol of all that agriculture in Africa can offer". ■

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Yokogawa improves web and data analysis functions for plant operations

Industrial technology company **Yokogawa Electric Corporation** has updated its Exaquantum plant information management system (PIMS). Release R3.02 provides improved web and data analysis functions that will enhance plant operations.

An ever increasing amount of plant data is being collected, stored, and analysed to understand what is happening within a plant so that appropriate operational improvements can be made, and this is resulting in a rising need for PIMs with advanced capabilities.

Enhancements to Exaquantum to address such developments include improved web-based functionality, support for Windows 10, and new data analysis functions.

Users can add annotations to trend graphs that provide additional information, detailed analysis, and links to documents and web pages that can be accessed using Exaquantum/Web. These can be shared with others, including Exaquantum/Explorer users.

To aid in the identification of relationships between data, Exaquantum/Web users can now make use of X-Y Plot controls to create trend graphs that can be used within the Internet Explorer or Safari (tablet) browsers. These graphs can be utilised for such purposes as predicting compressor surges and analysing PID loops.

New optional functions are also available to evaluate and draw insights from the large amounts of process data, alarm and events, and other types of data collected and stored by Exaquantum PIMS. These include an ISA-18.2- and IEC 62682-compliant alarm management function, a safety management function, and a manufacturing information function.



To improve visibility of significant plant events, users create trend graphs and add annotations

GOETZPARTNERS JOINS SAMENA COUNCIL

The South Asia - Middle East - North Africa (SAMENA) Telecommunications Council has taken **goetzpartners** - an independent advisory firm for key issues driving entrepreneurial activities in strategy, mergers & acquisitions and transformation - as a member.

Erik Almqvist, managing director Middle East at goetzpartners, commented, "Digital transformation, innovation and agility are the very heart of our DNA. Having served some of the world's largest corporations in Strategy, M&A and Transformation, we are thrilled to serve the Middle East with SAMENA Council as a key strategic partner.

"SAMENA Council has an excellent track record in bringing the leaders of the telecommunications sector together. We see a number of challenges and opportunities for the Middle East Operators to evolve in the fields of digitalisation, cost and process efficiency, customer experience and sustainable value delivery."

ITU FOCUSES ON DIGITAL FINANCIAL SERVICES

Further to published research into financial technology (fintech), the **International Telecommunication Union (ITU)** Focus Group on Digital Financial Services (DFS) is developing a framework of good practice guidelines for industry stakeholders in telecommunications and financial services. As ITU Secretary-General Houlin Zhao commented recently, "Given the complexity of the regulatory environment, it can often be a challenge for telecom and financial services regulatory bodies in many emerging markets to collaborate in developing national guidelines."

'Regulation in the Digital Financial Services Ecosystem' identifies categories of regulation and addresses a number of issues relating to managing the regulatory environment. It includes an analysis of how regulators work together and provides a model memorandum of understanding that regulators can adopt to formalise collaboration and interaction in view of co-regulating the DFS marketplace.

Sacha Polverini, chairman of the focus group and senior programme officer of the **Bill & Melinda Gates Foundation** Financial Services for the Poor programme, commented recently, "The move away from cash will only work if the solutions and processes being put in place to replace it are reliable, trustable and easy to use."

'Commonly identified Consumer Protection themes for Digital Financial Services' identifies four themes that policy makers or regulators may want to consider when developing laws, regulations or guidelines around consumer protection. This includes provision of information and transparency, fraud prevention, dispute resolution and data privacy and protection.

The Focus Group publishes its next set of research papers after its meeting in September 2016 in Tanzania.

► BRIEFS



The Opera 600 60T, as supplied by Sacmi

NBL chooses Sacmi for Heineken

Heineken regional partner in Southern Africa, **Namibia Breweries Limited (NBL)** has decided to entrust **Sacmi** with the renewal of its labelling machines downstream from the bottling line. The supplied machine - an Opera 600 60T - is equipped with three labelling modules for cold glue application and three modules for self-adhesive labelling - allowing, respectively, output rates of 62,000 and 60,000 applications per hour.

Sage offers business management solution for SMEs

Accounting, payroll and payment systems company **Sage** has launched Sage 50 Accounting for small and medium enterprises (SMEs) in East Africa and West Africa. Sage 50 Accounting empowers firms to manage operations, draw reports, and identify trends and opportunities from one interface. All components in are fully-integrated and share a common interface, while data integrity is ensured and maintained in a central database. "The future is mobile and we are giving our customers the power to control their businesses from the palm of their hand with solutions like Sage 50 Accounting. We connect our customers to accountants and partners with real-time and intuitive information about their business," said Anton van Heerden, executive vice-president and managing director at Sage South & Southern Africa.

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Trading on the future of machine tool construction

A global innovator in machine tool construction offers ways of achieving digital transformation with its DMG MORI Software Solutions

Traditionally, DMG MORI showcases a cross-section of the most innovative technologies when the AMB opens its doors to trade visitors from all over the world. With around 30 exhibits from the fields of turning, milling and advanced technologies on an exhibition area of over 2,000 m² the machine tool producer will be giving visitors a glimpse into the future of production from 13th to 17th September 2016. The innovations on show during the trade fair will include the third generation DMU 50, for example, and the Robo2Go automation solution - this can be used on several machines without any knowledge of robots.

DMG MORI Software Solutions – Products and solutions for digital transformation

A key building block in DMG MORI's customer-oriented digitalisation strategy is the app-based CELOS® system, that the machine tool manufacturer first presented around three years ago and which it has consistently continued to develop in a targeted manner ever since. Using this uniform user interface for machine and office PC, employees in shop floor and job scheduling can manage, document and visualise all job order, process and machine data. Thanks to its open architecture, CELOS® allows the exchange of information with higher-level structures in addition to the impact it has in the shop floor area. So CELOS® offers customers complete integration of their machines in the company organisation while simultaneously creating today the interface of metal cutting production in the cyber-physical production system of the



A 30 per cent time saving in tooling times and 50 per cent less time and effort for the calculation of technology values or the search for important information are just a few of the effects that can be achieved with CELOS®



The large variety of DMG MORI technology cycles contributes to process reliability in workshop-oriented programming, improves component qualities and enables integration of technology

future. The benefits in day-to-day operation are convincing: a 30 per cent time saving in tooling times and 50 per cent less time and effort for the calculation of technology values or the search for important information are just a few of the effects that can be achieved with

CELOS®. Customers also profit from the continuous further development of the CELOS® system, because with every new release DMG MORI implements 50 enhancements. In addition, DMG MORI will be presenting ten new CELOS® APPs at the AMB. These will include the new

CELOS® DEVELOPER APP, with which partners will be able to develop their own APP for the very first time.

Workshop-oriented programming is still of great importance, especially in single item production and the production of small and medium-sized quantities – and it will remain just as important for a long time to come. Working with cycles is state of the art in this respect and the reason why standard cycles in turning, milling and drilling have long been part of the scope of performance of modern controls. Based on its decades of application experience DMG MORI has gone far beyond the standard and currently has 24 exclusive DMG MORI technology cycles for the fields of turning / turning-milling or rather milling / milling-turning in its portfolio. These enable operators in the workshop to programme even complex machining tasks themselves directly on the machine via a dialog using parameterised context menus up to 60% faster. Outstanding examples here include the machining of free-form surfaces using 5-axis interpolation or various cycles for gear cutting or gearwheel production. Other cycle highlights include the MPC (Machine Protection Control) for the protection of machines, workpiece and tool, the 3D quickSET® toolkit for checking and correcting the kinematic accuracy of 4 and 5-axis machines or the Application Tuning Cycle for the process-oriented tuning of feed drives in relation to the table load at the push of a button.

World premiere: DMC 160 U duoBLOCK® - maximum productivity in heavy-duty machining

DMG MORI has always responded to growing demands on components

with future-proof CNC technology. The latest example of this is the new DMC 160 U duoBLOCK®, which will be available as of this year's AMB. The 5-axis universal machining centre with pallet changer is based on the proven duoBLOCK® principle and in its 4th generation offers 30 per cent more stability and accuracy while at the same time reducing energy consumption by 30 per cent. Innovative highlights of the world premiere include the new 1,800 Nm 5X-torqueMASTER® gear spindle and a travel path in the Y-direction that has now been lengthened from 1,250 to 1,600 mm.

Heavy-duty machining is now part of routine work in the field of mechanical engineering generally – in the aerospace branch, for example, or the automotive industry for the production of chassis parts and engine blocks. In this respect the sturdy construction of the patented duoBLOCK® concept offers the perfect basis for both productive and high-precision machining on the DMC 160 U duoBLOCK®. Its extensive cooling measures in the machine bed and base plus its wide linear guides, drives and the spindle also boost the long-term accuracy of this universal machining centre. The pallet changer of the DMC 160 U duoBLOCK® can handle workpieces weighing up to 4,000 kg, while travel paths of 1,600 x 1,600 x 1,100 mm mean the workpieces can also have extremely large dimensions.

World premiere: 2nd Generation DMC 210 U - productive heavy-duty machining with pallet changer

Maximum rigidity and long-term accuracy have always been the outstanding features of the portal machines from DMG MORI. The machine tool manufacturer has optimised these even further in the second general of this successful series. With a large cube-shaped work area and a high-performance spindle programme plus CELOS® in the standard version, the new DMU 210 U is perfectly equipped for the



Proven duoBLOCK® concept in its fourth generation: the DMC 160 U duoBLOCK®



Thanks to its diverse optional equipment, the DMU 210 P 2nd Generation is optimally equipped for manufacturing large deep-drawing moulds, bearing blocks and integral components



The DMU 90 P duoBLOCK® allows an economical entry into heavy-duty machining

rising demands on the market. Thanks to its numerous equipment options this machine, which will be available just in time for the AMB, is ideally suited for mechanical engineering in general and in particular for sectors such as tool and mould making and aerospace. The large cube-shaped work area

with travel paths of 2,100 mm in the X and Y directions and 1,250 mm in the Z-axis offer ample space here. The fast and innovative wheel magazine can hold up to 303 tools (SK50 / HSK-A100) with lengths of maximum 900 mm despite its minimum space requirement. The standard chain magazine has 60 tool

pockets and offers the option of holding a 30,000-rpm pick-up motor spindle. With a torque of 1,800 Nm, 52 kW output and 8,000 rpm the 5X torqueMASTER is a special highlight among the other available spindles. Thanks to its extended swivel range and optimised interference contour, this gear spindle enables the heavy-duty machining of complex 5-axis components. In addition to its equipment and performance, DMG MORI has also improved the efficiency of the DMU 210 U thus reducing energy costs and making a significant contribution to environmental friendliness.

DMU 90 P duoBLOCK® – heavy-duty machining with an attractive package price

5-axis machining of the highest level is also the trademark of the fourth generation of the successful duoBLOCK® series. Outstanding features here include the highly stable design of the universal machines, long-term accuracy and highest precision with up to 4 µm positioning accuracy even in the standard version. With its DMU 90 P duoBLOCK® DMG MORI now presents a machining centre that will continue the triumphal march of the series. This latest model is designed as a package machine with a 430-Nm and 52-kW motor spindle, space for 60 SK50 tools plus an IKZ coolant unit and guarantees an economical entry into heavy-duty machining.

Applications in tool and mould making as well as in general mechanical engineering call for investment in reliable, high-performance production equipment. DMG MORI has included the attractively priced DMU 90 P duoBLOCK® in its range with universal machining in mind. With an X-axis travel path of 900 mm and a workpiece weight of 1,800 kg, it outperforms the smaller DMU 80 P duoBLOCK®. Where its technical equipment is concerned, DMG MORI has concentrated on heavy-duty machining and offers the DMU 90 P duoBLOCK® as an appropriately equipped package machine. ■

The digital evolution of banking channels

Consumer-facing financial institutions are developing alternative operating models to extend reach to rural populations

For years, banking penetration within sub-Saharan Africa (SSA) has remained well below the global regional average. The International Monetary Fund (IMF) Financial Access Survey (FAS) database points to an average number of commercial bank branches per 100,000 adults in SSA of 5.1. This compares with the World Bank estimated global average of 11.7. The average number of commercial bank ATMs per 100,000 adults is also small. At 10.4 it compares poorly to elsewhere in the developing world, much less the OECD nations. Historically, Africa's banking sector has been hamstrung by the fact that commercial bank branches and ATMs are costly to run. The inevitable result is that outside of the major urban centres vast swathes of Africa's largely rural populations have been basically left 'un-banked'.

But change is on its way. Banks have started to explore alternative operating models, including mobile banking, mobile branches and using third-party agents. African policymakers are also looking into how best to develop their financial sector. Much needed legal and regulatory frameworks, information systems - together with regulatory institutions - are being introduced. And the growing presence of major pan-African and global banks has improved the availability and quality of financial services in recent years. The international banks with the greatest presence originate mostly from the UK, France and the US. And many have started to expand beyond their previous colonial territories.

Regional retail presence

According to a study commissioned by the Association of African Central



South African banks plan to augment traditional service with digital distribution (Photo: demerzel21/Fotolia)

Banks, the German Federal Ministry for Economic Cooperation and Development and the International Bank for Reconstruction and Development (IBRD), the US' Citigroup located in 15 African countries has the largest presence. This is followed by the UK's Standard Chartered with operations in 14 SSA countries and BNP Paribas with a presence in 13 African countries. African cross-border banks domiciled within the SSA region are even more widely spread. Ecobank, has the biggest presence, rendering banking services in 32 countries while the United Bank for Africa, domiciled in Nigeria, has operations in 19 countries across Africa. Nigeria boasts the second

largest banking sector in the SSA region, with total assets reaching roughly US\$156bn.

Unsurprisingly, South Africa's retail banking sector leads the way. South African Reserve Bank (SARB) data puts total banking sector assets at US\$361bn. And a PwC report speaks of South Africa's retail banking industry entering 'a dynamic era of change' that is likely to substantially alter the operating landscape by 2020. Tom Winterboer, PwC leader of financial services for Africa, said, "The evolution of technology and heightened customer expectations combined with the emergence of disruptive competitors...creates new pressure to deliver higher levels of service."

Johannes Grosskopf, PwC head of banking and capital markets for Africa, added, "Enhancing customer service is an investment priority for banks, globally and in South Africa."

The evolution of distribution

The greatest evolution is taking place in the banking channels. Over the next five to 10 years, South African banks plan to place emphasis on digital distribution, with a stronger focus on transitioning more customers to self-service channels. By 2020, banks could well be defined by their brand rather than their physical presence. This would mean that any competitor with a banking license could build a brand - even in the absence of a physical distribution network.

So with the retail banking focus shifting away from costly physical infrastructure, Africa's banking sector now finds itself in the global digital vanguard. In the West, just 30 per cent of payments come from mobile devices. But in Africa, it is closer to 60 per cent. Simon Pont, chief executive of ECR Retail Systems says that mobile phones "have effectively provided African customers with high-street banking 'on the doorstep'".

With 735mn on the continent at the end of last year, Africa is the second-largest mobile market by connections after Asia, and the fastest-growing mobile market globally. Mobile banking that has been a key driver of this growth.

"While consumers in the western world may take the benefits of smartphones for granted, for Africans they represent a whole way of life...Banking plays a vital role in that mix," said Pont.

It was the launch of Safaricom's M-Pesa six years ago, a service that

allows users to store money on their mobiles and then use it to pay their utility bill or send money to their friends via text that heralded the beginning of Africa's banking evolution. Since then the concept has been rapidly embraced across the continent. First National Bank, Ghana's premier savings and loans bank has recognised the need for a handheld mobile point of sale solution. It equips agents on the ground with an ECR XPDA - a handheld terminal with on-board banking software, built-in printer, barcode scanner and GPRS connectivity. Since the introduction of this solution, the bank has seen transactions increase by 10 per cent. Indeed, the system is now increasingly being used by Ghana's street market vendors.

But the reality is that even as Africa's population is becoming increasingly 'banked' Africa's

“ While consumers in the western world may take the benefits of smartphones for granted, for Africans they represent a whole way of life.

SIMON PONT, CHIEF EXECUTIVE, ECR RETAIL SYSTEMS

commercial banks are under tremendous pressure to stay relevant. Ndubuisi Ekeke, founder of the non-profit African Institution of Technology and chairman of Fasmicro Group, says that in Kenya M-PESA services are dislocating the traditional banking architecture. Similar dislocation is taking place in Nigeria where Interswitch, a fintech, is said to have a valuation of US\$1bn, which easily eclipses most banks in the country. Last year

alone, Nigerians spent US\$610mn via their mobile phones through Paypal, on international shopping, thereby depriving local banks of forex fees. Although most banks are trying to mitigate their lost revenue by redoubling their efforts in retail and corporate banking, they no longer control the rules of engagement as much as they did in the past. “Customers now have more choices and are more fragmented, and disintermediation by fintech is

making it harder to earn fees. Legacy infrastructures, like banking branches, are doing lesser activities and continue to depress margins because customers have moved to new channels,” said Ekeke.

These are indeed exciting times for Africa's retail banking sector. As Ekeke observed, “The old banking order is failing in Africa and central banks are losing their powers with all the disintermediation. Africa has to innovate...to expand their businesses and make them more appealing.”

And although the revenue from digital banking may not be dominant at the moment, it is growing faster than branch channels. Only those banks that are able to internally mutate and meet the new challenges are likely to survive for very much longer. ■

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Dealmakers meet at digital event

Executives entertain the future of telecom, media & technology investment at pan-African TMT summit, held in Lagos, Nigeria, this September

A finance and investment focused executive only event, TMT Finance Africa 2016 brings together international investors, bankers and advisers, private equity professionals, governmental representatives and regulators. Held in Lagos, Nigeria, on 20 September, the event bears a comprehensive pan-African focus.

TMT Finance Africa in Lagos features more than 50 speakers addressing 200 delegates. There will be six leadership panel debates and four keynote presentations. The event is also structured around 10 peer-to-peer round table sessions. All are supported by five hours of networking breaks.

The event is focused on key themes affecting strategic decision-making in African finance and technology today. Delegates will discuss: telecoms leadership infrastructure investment mergers and acquisitions data centres and the cloud mobile banking private equity digital content strategies and regulation and policy.

From London to Lagos

TMT Finance Africa has been held in London, in the UK, for the past six years. For the Lagos event, the organiser has partnered with African mobile infrastructure provider IHS Towers to bring Africa-focused finance and industry together in Nigeria.

TMT Finance is renowned for bringing together key decision makers from telecoms, media and technology, with engaging international and local financiers and investors to discuss and progress key development narratives. Specifically, TMT Finance Africa will be attended by: CEOs; CFOs; heads of strategy; infrastructure owners and equipment providers; regulators



Key speakers at TMT Finance Africa include Issam Darwish, CEO of IHS Towers

and advisers from government departments; and regional and sector heads from financial institutions and advisory firms.

“We are excited to have the opportunity to partner with IHS, and bring the conference series and our global network of industry and finance executives to Lagos for the first time,” said Dominic Lowndes, managing director of TMT Finance. “Lagos has become a critical hub for investment in telecoms infrastructure and services across Africa and the event will assess some of the most exciting opportunities for partnership and investment worldwide.”

Impacts and opportunities

Key conference topics at the Lagos event include: the impact of consolidation and convergence; ownership and operation of communications infrastructure; content delivery and monetisation; investment in innovation and market opportunities; the impact of mergers and acquisitions, and initial public offerings (IPOs); governmental and regulatory support for sustainable telecoms investment; datacentres and Cloud investment opportunities; and the ways in which universal mobile broadband is likely to impact service delivery. ■

NUMEROUS LEADING INDUSTRY FIGURES ARE SET TO SPEAK AT TMT FINANCE AFRICA, INCLUDING:

- **Issam Darwish**, CEO, IHS Towers
- **Segun Ogunsanya**, CEO, Airtel Nigeria
- **Vuyani Jarana**, CEO: Enterprise Business Unit, Vodacom
- **Karl Olutokun Toriola**, VP, West and Central Africa, MTN Group
- **Funke Opeke**, Founder & CEO, MainOne
- **David Venn**, CEO, Spectranet
- **Christof Kern**, CEO, Fibersat
- **Andile Ngcaba**, Founding Partner & Chairman, Convergence Partners Investments
- **Nina Triantis**, Global Head of TMT, Standard Bank
- **Ifeanyi Amah**, Group Executive Director, ipNX Nigeria Limited
- **Aniko Szigetvari**, Global Head of TMT, IFC
- **Cordel RobbinCoker**, Vice President, The Carlyle Group
- **Nana Dankwa**, Private Equity, Africa, Standard Chartered
- **Ted Manvitz**, Chief Investment Officer, IHS Towers
- **Iyabo SojiOkusanya**, Group Head of Telecoms, Access Bank
- **Jerome Claraz**, Director, JumiaPay Africa Internet Group
- **Seyi Owodunni**, Managing Director, Emerging Capital Partners
- **Lexi Novitske**, Principal Investment Officer, Singularity
- **Laurence Hainault**, Head of EMEA Telecoms, Credit Suisse
- **Jason Njoku**, Founder and CEO, Iroko Partners
- **Biola Alabi**, Founder & Managing Partner, Biola Alabi Media
- **Tunde Kehinde**, Co-founder & CoMD, ACE
- **Shola Akinlade**, Co-founder / CEO, Paystack
- **Chioma Viola Opara**, Regional Sales Director, Flexenclosure
- **Elizabeth Rossiello**, CEO and Co-founder, BitPesa
- **Mohamad Darwish**, Interim CEO, IHS Nigeria
- **Leonard Stiegeler**, General Manager, Ringier Africa AG
- **Ebi Atawodi**, General Manager Nigeria, Uber
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- **Eghosa Omoigui**, Founder, Managing General Partner, EchoVC Partners
- **Eyitayo Onadipe**, COO, Afro Technologies
- **Stéphane de Vaucelles**, Managing Partner, Cadmos
- **German Cufre**, Team Leader Africa TMT, IFC
- **Jurgen Hepp**, Managing Director, Standard Bank
- **Olufunso Fasetire**, Investment Officer, IFC
- **Biyi Oloko**, Independent, Adviser
- **Ayodeji Aladejebi**, CEO, Dabar Objects Solutions
- **Samar Singla**, CEO, Jugnoo
- **Obi Asika**, Industry Expert & Entrepreneur
- **Nana AppiahKorang**, Director, Emerging Capital Partners
- **Raj Kulasingam**, Entrepreneur, Independent

Delivering the retail technologies of tomorrow

The retail and distribution sector could be one of the major beneficiaries of Africa's growing confidence in technology - but what does the continent need for the likes of delivery drone technology to really take off?

Tomorrow's technologies are arriving quicker to the retail sector than even the science fiction movies from the eighties could have predicted.

A world where businesses market their products via augmented reality then deliver them via a drone does not seem light years away in 2016. Maybe *Back to the Future II* wasn't so far off the mark after all (it had pencilled in 2015 for virtual reality, tablet computers and video calls, although we are yet to see an appearance from a hoverboard).

But for now, the retail sector in Africa is less *Blade Runner* and more daytime TV shopping channel.

According to the United Nations Economic Commission for Africa (UNECA), 90 per cent of transactions occur through informal channels in the African retail market. Formalisation of the sector is expected to gather speed over the coming years, with IT and connectivity providing the platform for it to flourish.

Moving fast with perishables

The groceries segment is expected to be a major driver of Africa's overall retail growth. Choppies Enterprises is Botswana's leading supermarket chain and is ranked as one of Africa's fastest growing retailers by Deloitte. According to Choppies CEO Ramachandran Ottapathu, IT and connectivity has helped strengthen the distribution of its products across Botswana and surrounding countries.

"Technology has helped us a great deal in improving our distribution capabilities. Particularly in preserving the quality and lifespan of both fresh and wholesale long-life products," he said.

In 2014, the company opened a distribution centre in Zimbabwe

as it looks to grow its presence across East Africa, and Ottapathu is keen to see more technology deployed throughout border controls across Africa.

"Technology can help make clearance at borders more efficient," he said. "Full scanning of trucks and electronic clearance will really help to improve speed and delivery of products."

Local expertise counts in Africa's retail sector, where knowledge of supply chains and local suppliers can give local retailers a strong advantage over multinationals. However, one of the biggest brand names in the world, Coca-Cola, has been bringing its innovative thinking to Africa, and has started a pilot project to introduce Wi-Fi enabled coolers.

"We have inserted LED displays on our coolers which enhance product visibility and improves shopper engagement," said David Visser, IT director of Coca-Cola Southern & East Africa.

"We have also launched a project to embed Wi-Fi into some of our coolers."

Automation across the supply chain

Advancements in connectivity and IT are playing a major role in helping Coca-Cola drive efficiency across its distribution and supply chain.

For example, the company assists its bottlers with a process called Right Execution Daily (RED), which ensures that its products are displayed in the correct manner in a range of outlets - from supermarkets and petrol stations to small 'spaza' shops.

Previously, Coca-Cola's sales teams would identify manually if stock was priced at the right point or if it was displayed correctly.



Technology has helped a great deal in improving distribution capabilities

"Now the sales rep just has to take a picture of the cooler or point of sale and upload it onto the photo recognition app," said Visser. "Automatic retail pricing reading, recording and reporting is critical for price communication and price recommendation. Automatic retail pricing recognition also provides great competitive pricing insight. It has assisted our system in eliminating human errors, inconsistency and inaccuracy."

Drones take to the air

Looking into the not-so-distant future, some African markets could also be the perfect testing ground for drone technology.

Amazon has publically begun showcasing the potential of its conceptual drone-based delivery system, Amazon Air Prime, in Northern American and Europe, but due to a lack of transport infrastructure and more liberal air regulations, there are some very compelling use cases for delivery drones in Africa.

Rwanda, for example, looks set to launch the world's first airport for drones later this year, which will eventually be home to a delivery

network of drones that will help deliver medical and emergency supplies as well as commercial products, such as electronics and e-commerce.

"With delivery drones, a hospital that requires a certain blood type for a transfusion or certain medications to treat an outbreak, can message through to a larger urban area and the equipment may be delivered quickly and safely," said Dr Linda Seward, communications officer for the National Centre of Competence in Research (NCCR) in Robotics.

"But while medical supplies are the obvious target for this, there are plenty of other means - for example if an area doesn't have good transport links then it makes it hard for people who live there to trade - delivery drones can change that."

From inventory management and automatic retail pricing to futuristic delivery drones circling the skies, connectivity is the critical and underlying platform for the retail technologies of today and tomorrow. ■

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Satellites are delivering more telecommunications and broadcast services than ever before, to cater to increasing adoption of personal and corporate connectivity



Eutelsat aims to support data/telecom needs for markets across Africa

If you're sitting watching Citizen TV in Kenya or TV Miramar in Mozambique you probably have little interest in how the service has reached you. That it relies on one of 15 Eutelsat satellites for the provision of that service is neither here, nor there, as long as the picture stays stable. But with an Africa hungry for the most up-to-date broadcast services, a digital broadcasting revolution is underway together with an anytime-anyplace demand for mobile communications and broadband Internet. So, it makes sense to understand a little bit about how and who is delivering the service and while many providers and satellite operators are in the mix, a look at one, Eutelsat, gives a clear picture of satellite provision across the African land mass.

Eutelsat already provides an almost Africa-wide C and Ku-band coverage footprint and expects about a quarter of its satellite fleet will be delivering services of one

kind or another to markets throughout sub-Saharan Africa by year end. Those services in turn will be distributed even further using terrestrial infrastructure. The company, which has its main African HQ in Johannesburg, has been operating in Africa for more than 16 years and with such a huge land mass and a population fast approaching the one-billion mark, its global satellite infrastructure is likely to play an increasingly pivotal role in Africa's broadcast, data and broadband network development. Being able to reach such growing end-user potential, no matter where an urban or rural user group may be, should prove immensely profitable for the company. It already offers several, what it terms, 'premium video neighbourhoods', in the broadcast sector providing more than 750 channels from its satellites at 7, 16 and 36 degrees north. It also provides communications capacity and satellite backhaul to mobile

network operators (MNOs) enabling them to deliver their personal mobile services and wireless broadband to remote and isolated rural regions for both community as well as remote enterprise use.

Extensive service

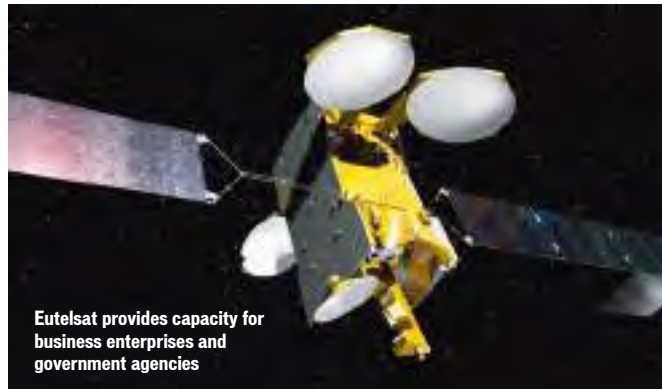
Eutelsat operates a fleet of 40 geostationary satellites with a combined footprint that covers two thirds of the globe. It provides capacity on those satellites for users such as broadcasters and pay-TV operators, video, data and Internet service providers, as well as business enterprises and several government agencies - many such end users are spread across Africa.

Serving this vast continent are nine of its satellites located at orbital slots from 5° West to 70° East, which offer Ku and/or C-band capacity for video and IP services in sub-Saharan regions. These satellites are: Eutelsat 5 West A (C-band), Eutelsat 3B, Eutelsat 7A and 7B,

Eutelsat 10A, Eutelsat 16A, Eutelsat 36A and 36B, Eutelsat 70B. All but two of these - the 16A and 36A - also offer telecom services. Off the east coast of Africa, six satellites - the Eutelsat 5 West A (C-band), Eutelsat 7A, Eutelsat 10A, Eutelsat 16A, Eutelsat 36A and B provide a similar range of services covering the Indian Ocean region. In August last year, a high capacity satellite, Eutelsat 8 West B (set in orbit at 8° West), was launched. This C-band space segment with 10 transponders has now connected and overlapped with other Eutelsat footprints covering the African continent in the east and Latin America in the west. The new satellite also has 40 operational Ku-band transponders, which will serve Direct-To-Home (DTH) markets in North Africa, the Middle East, and certain other regions.

The company also has infrastructure leasing plans for the use of capacity on non-Eutelsat equipment to bolster, as necessary,

capacity in other regions should its customers need it. The Russian Satellite Communication Company (RSCC) satellite, Express-AMU1, is a case in point. Launched in December 2015 into orbit at 36° east, it's now providing Eutelsat with fresh on-call capacity for its 36A satellite; this lease capacity is intended to guarantee service continuity and scale for Eutelsat's developing broadcast markets in Sub-Saharan Africa.



Eutelsat provides capacity for business enterprises and government agencies

Communications capacity

On the data and telecoms side of things, Eutelsat's satellite capacity aims to support all the data/telecom needs for markets across Africa, whether for backhauling and trunking in the C-band capacity, or for corporate networks, which use its Ku-band resources. The company's high power spot beams also play their part in delivering broadband. It also provides bespoke corporate/government Internet services with much higher speeds using these two satellite bands. Using both its own and partnered ground earth stations/teleports in Africa and Europe, it delivers Internet services up to 10Mbps for consumers and small to medium sized businesses, service delivery which is supported by its teleports

being connected to its own ground fibre network.

Its satellite space segment not only supports mobile network roll-out and mobile backhauling to connect remote community and enterprise 2G/3G/LTE sites to core networks, but it also provides a much-needed IP trunking facility for regions without access to coastal fibre networks.

TV broadcasting

Multi-channel viewing in Africa is booming and satellite is a key factor playing its part in delivering these popular services. Eutelsat satellites provide both signal distribution to transmitter head-ends and bolster already effective urban DTH coverage with similar services to more remote regions. The company

claims to be 'the leading operator' for DTH broadcasting in Africa, with allegedly one in every two channels broadcast being broadcast via a Eutelsat satellite; almost 650 channels are said by the company to be delivered through two of its flagship satellite neighbourhoods, the 36° East (Eutelsat 36A and 36B) and 16° East (Eutelsat 16A). The company's current DTH reach in French-speaking Africa alone is to over one million homes.

Eutelsat also provides TV distribution and radio capacity from 7° East in the Ku-band, with the company suggesting that this orbital position is fast becoming a new DTH hotspot for Eastern Africa. Indeed, more than 130,000 subscribers are now tuning into Azam TV, which was only established towards the end of

2013 and now serves customers in Kenya, Uganda and Tanzania with multi-channel delights from more than 60 channel choices. (Satellite capacity for TV distribution services, as well as some telecommunications and Internet applications, has also been made available by Eutelsat in the C-band from its 5° West and 10° East orbital locations).

How satellite can enable a digital future

So whether you have just tuned into Miramar TV's latest Balanço Geral show in Mozambique, or the news on Muvi TV in Zambia, Eutelsat's infrastructure is behind your service delivery. And if you're updating your facebook page at home in Nairobi, making a mobile phone call on a remote community mobile network deep in the heart of Niger, even here there's a good chance that Eutelsat might have something to do with how you received your service, your signal and your lifeline to the outside world. Satellites not only have a role to play in Africa's digital future, they are perhaps the most important enabling technology that will allow that digital future to progress at a desirable pace. ■

Tim Guest



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Cars, communities, and commercial concerns

Conrico International MD Gareth Beacham discusses the expertise that makes the company a vital strategic partner for humanitarian agencies and for businesses



Conrico supplies Suzuki's vehicles so its clients can operate safely and flexibly

For more than five decades, Conrico International has operated in the automotive industry, engineering vehicle solutions and distributing vehicles through specialist dealer networks. Its first successes were achieved through exporting Land Rovers into Africa. As Gareth Beacham, Conrico's managing director, notes, the company's success and global growth has been achieved because of the trust it has earned from customers in its ability "to deliver the right product with exceptional service". It now operates globally as a subsidiary of InterAmericana Trading Corp (ITC) - but Africa remains a critical market, where it works in with key actors in the humanitarian arena, including the United Nations, and also supports commercial concerns in agriculture

and mining. The company also deals in much more than automotive matters, as it also specialises now in the preparation and provision of capital goods and power generators, and associated after-market services, to private sector entities as well as the aid and development sector.

Mr Beacham met recently with African Review to highlight company's expertise in engineering and export, and how its commercial ventures impact the markets it serves. He stresses that the company seeks "to listen to the client to understand what the real value proposition is". In fact, Conrico's presence at events such as AIDF Africa 2016 in February and DIHAD 2016 in March offered a clear indication of the company's tenacious, ethical and professional approach to market.

For example, Conrico used the AIDF Africa event in Addis Ababa, Ethiopia, to discuss vehicle, power and export requirements across several regional scenarios. Conrico was focused, particularly, on how its engineering and export practices could enable East African aid delivery and development strategy. At this and other events, the company entertains representatives from non-governmental organisations (NGOs), governments and private sector entities - to discuss strategic partnerships aimed at engaging with communities and improving livelihoods. It participated at DIHAD in Dubai, in the UAE, to foster partnerships and share knowledge with humanitarian organisations, and to showcase its product portfolio and expertise in service delivery.

The aim is to understand better what the company's customers need, as they serve communities and commercial operations. As Mr Beacham observes, "There is no such thing as a typical project, so we must be flexible."

Specialist vehicle solutions

The team at Conrico understands that customer needs will vary, and that it can be difficult to obtain the equipment and levels of service required to complete a job. So, Conrico offers an extensive range of vehicles, and offers also the engineering and logistical support to match machines and markets. It is determined to get an correctly-configured product on site, in any location - whether the order is for a small car or sedan, a utility vehicle or a bus, a truck or a tanker, a

tractor or a crane. And it can supply a diverse range of range of equipment and supplies such as tyres and workshop tools.

As Mr Beacham says, "We will find the solution to ensure a vehicle is ready to put to use immediately."

With respect to vehicle solutions, a great deal of Conrico's business comes from distribution of Suzuki machines through its dealer networks in South Sudan, Sierra Leone and Liberia. The vehicles it offers include the Vitara, Grand Vitara and Jimny. The first thing to note about the Vitara is that is extremely safe. Sophisticated integrated technology from Suzuki - including hill-descent and hill-hold controls, radar brake support and adaptive cruise control - make it easier to act quickly and decisively on any surface. The Grand Vitara features an even greater range of active and passive safety features to



Conrico's engineering base in Chertsey, in the United Kingdom

help drivers handle harsh conditions, but it also offers greater comfort, more flexible seating, more powerful engines and superior transmissions. The Jimny is one of the most economical four-wheel drive vehicles around. And it is both compact, versatile and tough, renowned for being both rugged and manoeuvrable while offering plenty of cargo space.

Suzuki is one of a number of trusted manufacturers to partner with Conrico for emerging market opportunities. It is typical of the kind of partnerships the company commits to: brands which are well-established and focus only on producing quality products; established enterprises that include not only Suzuki, but also JCB. One of the world's top three manufacturers

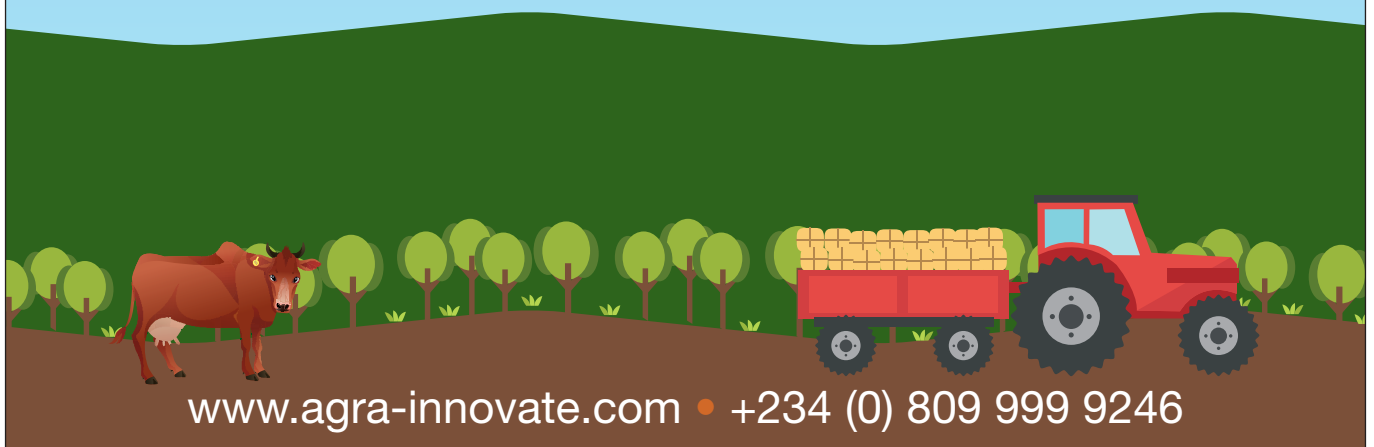
of construction equipment, JCB partners with Conrico to ensure the humanitarian community has access to pre-positioned stock for emergency despatch during post-conflict and disaster relief scenarios. Conrico can avail NGOs and rapid response teams with JCB excavators, backhoes, forklifts, skid steers, telehandlers, compaction equipment and generators. Both JCB and Conrico are experienced in and are adept at supplying specialist vehicle solutions to enable and ameliorate disaster relief efforts around the world.

JCB vehicles and power units have been used for every application imaginable, from clearing debris on roads to rebuilding houses and providing power to hospitals and local authorities - and much of the company's equipment is in place and is working as a result of Conrico's distribution. ■

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Connecting the car, the home, and the company

How devices, machines and premises are integrating with increasingly secure, scalable, and extensible technology networks

We are locked into a never-ceasing journey - one where technology plays an increasingly central role in our lives.

Already, the humble phone can now monitor our blood pressure, connect us to the office, make payments at checkouts, power up in 30 seconds, hail taxis, unlock doors, stream entertainment from around the world, and regulate the temperature in our houses.

The list goes on...

But all of this is just the prelude to a thrilling story that will unfold over the coming years. Energised by high-speed connectivity, smart sensors, and Cloud-based computing, we'll see these innovations meshing together - enhancing every aspect of our daily lives.

At the centre: the smartphone, the connected car, and the connected home operate in a symbiotic trinity - the nexus of what we'll soon start calling "the connected life".

Vehicle manufacturers are already rolling out technology-augmented services from cruise control, to self-parking, collision warnings, infotainment, and even self-driving capabilities.

By building on this, car producers can provide a layer of new connected services that improve the convenience of our day-to-day lives. At recent technology and auto shows, we've seen examples of what's possible:

- Mobile ordering of groceries or other shopping items, which can then be delivered to your car by the retailer, by using a passcode on a mobile app to unlock the car. This solves perhaps the biggest challenge of home delivery: that people are very often not at home or physically available to receive deliveries.



Michael Frans, head: business development: business operations automotive, T-Systems South Africa

- Controlling aspects of the home, from your car or smartphone - including things like heating, air conditioning, security, lighting sprinkler systems, or even recording that important sports match that you realise you're going to miss!
- Automatically transmitting information back and forth between the car and city authorities, to warn you of accidents or delays, and automatically re-route you to the fastest route.

The digital value chain

Connecting our phones, cars, and homes to a bigger network of transport providers, city officials, retailers and shops, airports, schools, and other service providers can literally create hundreds of small improvements to our lives, and shave hours from our daily routines.

Think of an example - for which the technology already exists - of the smart fridge which knows which groceries are running low, queues

up an order for you to approve with a tap of your smartphone, and then generates a passcode for the retailer to deliver to wherever your car is parked - tracked by geolocation.

By the time you're finished with your workday, or meeting, or whatever you're busy with, the goods will already be in the boot of your car waiting for you. This is just one illustration of what's

possible with the convergence of connected devices.

The foundation for all of this to become reality is a secure, scalable, and extensible technology platform. It would enable various roleplayers and connected devices to transmit information and integrate their services to form a new digital value chain.

Automotive manufacturers are particularly well-poised to benefit from this ecosystem. Most of us use our cars on a daily basis - and many people spend hours each day in the car. This relationship with the customer, this daily touchpoint, positions vehicle makers at the centre of the connected life revolution.

By forming new relationships with players outside the automotive sector, vehicle manufacturers can evolve their businesses in exciting new ways. By providing new services to enhance customer convenience, they can create new streams of annuity revenue and form lasting customer relationships. ■

Michael Frans, head: business development: business operations automotive, T-Systems South Africa

WTO DG promotes e-commerce

At a roundtable event held by the **International Chamber of Commerce (ICC)** at the headquarters of **Facebook** in San Francisco, in the USA, **World Trade Organization (WTO)** director-general **Roberto Azevêdo** spoke of "reducing the trade costs associated with physical distance" through e-commerce allowing "businesses to access the global marketplace, reach a broader network of buyers and participate in international trade". He added that, although "Africa and the Middle-East share less than two per cent of the world e-commerce market", stakeholders "must ensure that e-commerce works as a springboard for smaller companies to compete and reach new markets".



WTO DG Roberto Azevêdo with Mark Zuckerberg at Facebook's HQ

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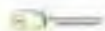
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Sophisticated systems for digital seafaring

Over the next few years, the digitisation of vessels and fleets set the route for innovations in the shipping industry. This results in an ever-growing use of computer systems. But how can these newly required systems be stored and operated? And how can you provide maximum protection for these systems?

KVM systems have long been considered as standard equipment in classical IT applications. Now that more and more computer systems find their way into maritime applications, manufacturers G&D have devoted their developments to the specific requirements of this industry. The devices of the German company have a reputation for being extremely robust and, thanks

to their many features, ideal to be applied in typical control rooms. For several years, specific attention has been paid to the requirements in the maritime field.

The units take the signals from the computer interfaces that are actually used to connect keyboard, mouse and display. From here, they distribute and amplify these signals to allow users to flexibly access their computers from everywhere. Thus, computers can be stored in a central, access-protected equipment room, which leaves the crew more space on the bridge or in the control room. But users get even more advantages to operate these systems. For example, multiple computers can be operated from one workplace. Here, it is possible to

either access only one system or a number of computers distributed on multiple displays or via MultiViewers. The special feature: It requires only one operating set to ensure perfect control.

The IT specialist's presentation at SMM includes several innovations. From further improved cross display-switching for intuitive switching by mouse or trackball - for example, without the explicit manual operation of the KVM system, to scenario switching - G&D have clearly put their focus on optimal operation. The latter function - scenario switching - allows users to store the switching states for different tasks. With one single command, they can now access the computer set for



Cross display-switching has been improved by KVM

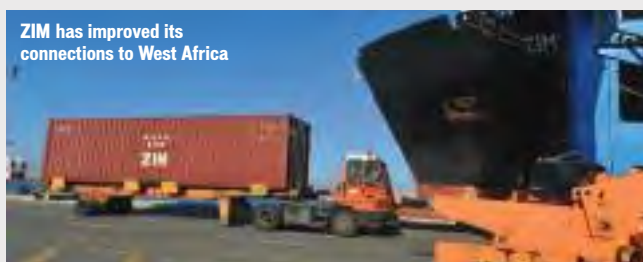
recurrent or quickly emerging tasks, for example, at harbours, at sea or in an emergency at man-overboard manoeuvres. Support for touch functions and DDC-CI, which lets you adjust the brightness of monitors of some systems to external conditions, further complete the systems. ■

SUPERIOR SHIPPING SERVICES WITH WEST AFRICAN CONNECTIONS

This has been a busy year for **ZIM Integrated Shipping** - and a successful one. ZIM is committed to providing its clients with reliable, flexible shipping solutions based on expertise gained from over half a century of experience. The company has continued to cultivate long-term partnerships with its customers in order to deliver a range of services adapted to meet specific needs.

ZIM seeks to adapt to commercial developments and emerging markets.

ZIM was recently named in the Seaintel Global Liner Performance Report as best performing carrier in 2016 Q2 with a score of 87.8 per cent schedule reliability among the Top-19 companies reviewed. Throughout the first half of 2016, ZIM outperformed the industry, showing constant improvement and reliability levels above and beyond the industry average. In response, Rafael Ben-Ari, ZIM VP shipping, "Improved service levels and increased



ZIM has improved its connections to West Africa

schedule reliability for our customers is a strategic goal for ZIM; the results of our focused efforts are reflected in the reports."

Before winning this accolade, in July ZIM committed to adopting the **INTTRA** eVGM service, the compliance tool for the new international container weight requirement.

The INTTRA eVGM Service provides the operational capabilities for digital submission, receipt, processing and auditing of SOLAS-compliant VGMs for shippers and carriers. ZIM customers using INTTRA e-commerce solutions will be able to submit VGM information through

a variety of channels, including EDI, XML, the web, mobile devices and e-mail. Dudi Avni, ZIM VP customer service, said, "The eVGM solution now made available to our customers is part of our ongoing efforts to provide first-rate customer service, as part of our strategy and vision.

"We are pleased to extend our growing e-commerce partnership with ZIM," said INTTRA's President and Chief Operating Officer Inna Kuznetsova. "Joining the INTTRA eVGM network will further ZIM's impressive efforts to leverage IT in order to provide great customer service."

At this time, too, ZIM has endeavoured to upgrade its

Mediterranean West Africa service (MAF) to improve its commitment to customers in the region. The restructuring and the MAF service started at the end July 2016. The new structure offers significant improvements, including: wider ports coverage; efficient transshipment arrangements; USA, Canada, Central America and Med Southbound via Tarragona, South America via Tangier; NB from West Africa via Valencia; direct service to the Italian market with two direct calls - La Spezia & Genoa; vastly improved transit time to Abidjan, Tema & Takoradi; tailor-made solutions for Dangerous Cargo, Out of Gauge and break bulk; and inland locations in Ghana and Mali.

The service will deploy 5X1850 TEU vessels with an 8-day frequency at first stage, with the following port rotation: La Spezia - Genoa - Tarragona - Castellon - Valencia - Algeciras - Tangier - Dakar - Abidjan - Lagos - Tema - Takoradi - Abidjan - La Spezia.

Cometto's commitment to capacity and quality



Cometto helps companies form a transport system for roll-on/roll-off (ro-ro) operations and heavy cargo projects

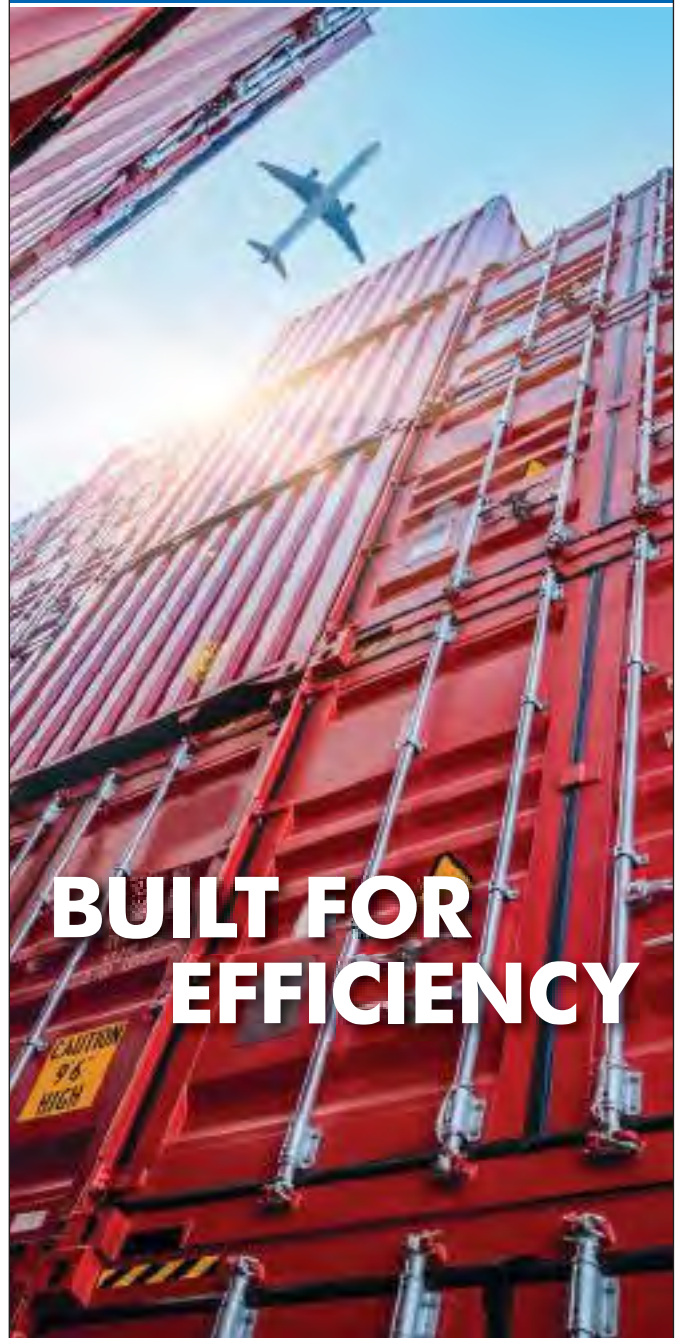
Transportation system specialist Cometto manufactures self-propelled electronic modular trailers (MSPE) that help logistics companies form a complete transport system for roll-on/roll-off (ro-ro) operations and heavy cargo projects. The company's MSPE portfolio encompasses several product ranges with different characteristics, dimensions and payloads, while maintaining core commonalities that allow full interchangeability among the different product lines. Whilst Cometto's new series of modular self-propelled transporters with electronic steering (MSPE Evo3) reaffirms the company's commitment to performance and quality, the established MSPE Evo2 model line continues to deliver distinct gains to operators globally. Evo2 boasts: outstanding frame capacity, which grants high strength; air inflated tubeless tyres; dual link suspension; and of course compatibility with all previous Cometto MSPEs. The wide choice of payloads and layouts available to Evo2 operators is a definite advantage, especially when the full interchangeability among models is combined with the extensive range of power packs designed for the system.

The MSPE Evo2 has been deployed for specialised transport in locations as diverse as Panama and Italy. Most recently, an Evo2 fleet was deployed in South Korea, where it was used the first-ever attempt at transporting a gigantic ship block (approx 14,750 tons) at Goseong. The ship block was manufactured by Samkang MNT for the Japanese company IHI-B/W Catcher FPSO FTB Transport, which awarded the transport project to KCTC International Ltd, which provides air and ocean logistics services. KCTC in turn subcontracted the project work to Anjeon, Dae Myung and Global - three Cometto customers, each with Evo2 fleets.

Each company contributed 108 axle lines, amounting to a total of 54 units of Cometto MSPE Evo2 six-axle transporters (or 324 axles) driven by 12 power pack units (at 335kW each), putting into operation an impressive total gross weight technical capacity of 19,440 tons.

Cometto demonstrated its commitment to success by providing personnel to support Anjeon, Dae Myung and Global in its work for KCTC. The project itself received a great deal of attention from the shipbuilding industry because of its significance, and also because of the excellent performance of the MSPE Evo2 transporters. ■

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Lumax Energy supplies Renusol mounting solution for ABB solar microgrid installation

South African wholesaler Lumax Energy has equipped the national headquarters of power and automation technology group ABB with a mounting solution for its 756kWp solar microgrid installation. This is a world premiere for the innovative solution with fully grid-connected and off-grid functionalities designed to maximise the use of renewable energy and ensure uninterrupted power supply to keep the lights on and the factories running during any planned or unplanned power outages on the main grid supply.

“This microgrid installation is indicative of our ability to provide electricity to remote or isolated areas, integrated with traditional and renewable generation”, said Leon Viljoen, managing director, ABB South Africa Pty Ltd.

“They can also serve as a flexible backup source for industrial and commercial facilities and help address power disruptions while minimising environmental impact. ABB partnered with Lumax Energy and Renusol for planning and designing the module mounting solution and the teams worked well in successfully delivering the project.”

Renusol supplied the mounting system for the large-scale project. The German specialist in photovoltaic (PV) mounting systems entered the South African solar market recently.

“Using high quality seam clamps with Renusol rails we achieved a solution that is good for both the panels and the roof. The clamps ensure the roof sheeting warranties are honoured while the rail system elevates the panels to a good height for ventilation purposes. The ease of use of the system allowed a fast installation time, it took approximately two weeks to install all the mounting kit,” said Frans-Willem Vermaak, business development manager at Lumax Energy.

“The conclusion of this project is a big step forward for us as well as a great reference. Additional projects with Lumax are already in the pipeline,” reported Sven Künzel, Renusol’s managing director.



Lumax Energy has supplied a Renusol mounting system for ABB’s solar microgrid

DYNASET’S THREE DECADES OF POWER PROVISION

Power equipment manufacturer **Dynaset** recently celebrated its 30th anniversary with customers, dealers and co-operation partners in Ylöjärvi, Finland, simultaneously holding its annual dealer meeting, which included technical training and information about new products, alongside an open house event with factory tours and product and application demonstrations.

Dynaset was founded in 1986. The company’s founder and general manager, Reijo Karppinen, an innovative engineer, had an idea of utilising a hydraulic system of carrier machines for powering generators, magnet generators, welders, power washers and compressors. This “Powered by Hydraulics” concept has been the main principle in Dynaset products ever since.



Dynaset celebrates 30 years in power equipment manufacturing

“Dynaset was established for producing a wide range of hydraulic equipment and applications. There was an obvious need for these products right from the beginning at least from my engineer perspective. Already then I was confident that these products would be in demand internationally,” said Mr Karppinen on establishing Dynaset.

Dynaset’s range of equipment and applications has grown rapidly, serving a vast number of industries. Thanks to high quality hydraulic equipment with hundreds of applications and excellent dealers, the company has expanded its business worldwide.

ADDRESSING SOUTH AFRICA’S ENERGY SUPPLY

During South African Public Enterprise Minister Lynne Brown’s address at the PowerGen & DistribuTECH Africa conference, held recently in Johannesburg, she focused her attention on the current difficulties faced in keeping the country powered. As part of her speech, she highlighted the long-term need for the Integrated Resource Plan for Electricity, which would see 9.2GW of electricity being generated by wind, 8.4GW from photovoltaic sources (solar panels) and 1.2GW from concentrated solar power by 2030.

Paschal Phelan, chairman of **Solar Capital** - which recently launched the largest solar farm in the Southern Hemisphere - supports the minister’s call for greater focus on renewable energy sources. Support has also come from **South African Wind Energy Association** chief executive Johan van den Berg, who said that “wind power is now 40 per cent cheaper than new Eskom coal power and cheaper even than the average price Eskom is selling power at from its predominantly old and amortised fleet of coal plant.”

▶ BRIEFS

Avon Peaking Power adds 670MW to SA’s grid



The Avon Peaking Power facility will provide much needed power and energy security

South Africa’s largest independent power producer (IPP), **Avon Peaking Power** has started full commercial operation of its 670MW power plant, located in Shakaskraal, 65km North of Durban in KwaZulu-Natal Province. The open cycle gas turbine plant consists of four units and is jointly-owned by **ENGIE, Legend Power Solutions, Mitsui** and the **Peakers Trust** representing the local community. The plant lay-out allows for future conversion using gas-fired technology.

AFD finances Kenya Power mini-grids

The **French Development Agency (AFD)** has strengthened its support of the Kenyan electricity sector by signing a 33mn euro (Ksh3.7bn, US\$36.6mn) financing agreement to enable the installation of renewable energy generation units (primarily photovoltaic, but also wind turbine) in 23 mini-grids currently powered by diesel generators. This operation will be implemented by **Kenya Power**, which is 50.1 per cent owned by the **Government of Kenya**.

It is expected that around 9.6MW of solar photovoltaic and 0.6MW wind capacities will be installed. The project is also expected to reduce the average cost of electricity production of mini-grids by an average of 20 per cent.

Power Nigeria generates growth opportunities

Electricity delivered safely, reliably and affordably is commensurate with the growth of a nation and the single, most impactful element when it comes to personal comfort. In March 2016, Nigeria produced about 5,000MW of power on the National Grid for about 180mn people, falling short of expectations. Government incentives have made Nigeria a highly competitive destination with massive untapped resources in power (generation to distribution).

The Power Nigeria exhibition and conference has become the platform where the who's who of the Nigerian power industry - from decision-makers and industry leaders to experts and engineers - gather to collaborate towards a brighter future for the country. The 2016 edition of Power Nigeria will be the brightest yet, with over 70 exhibitors from 12 countries and a special country pavilion from Turkey featuring 27 companies.

The exhibition and the conference

The exhibition will be held in conjunction with the three-day Power Nigeria conference, which starts with presentations by the Government and distribution companies (DISCOs) on day one, with delegates hearing from: Olawale Oluwo, Hon Commissioner, Ministry of Energy & Mineral Resources, Lagos State; Dr Anthony Akah, acting CEO of the NERC; and many others. The second day will focus on key finance issues of the Nigerian power sector. There will also be a gas to power workshop conducted by Wale Shonibare, managing director, Shonibare Consulting, on day three of the conference.

Confirmed keynote speakers at Power Nigeria include: Dolapo Oni, head of energy research at the Ecobank Group; Batchi Baldeh, director & head - power investments division at AFC; Patrick Okey Mgbenwelu, director & head, debt

solutions, FBN Capital; Wale Shonibare, managing director, Shonibare Consulting; Yusuf Hamisu Abubakar, board chairman, Kaduna Electricity Distribution Co; Dr Anthony Ikenna Babatunde Akah, acting CEO/head of the Nigerian Electricity Regulatory Commission (NERC); Engr Oladele Amoda, managing director & CEO, Eko Electricity Distribution Co; Dr Abubakar Tambuwal Atiku, deputy managing director, Transmission Company of Nigeria (TCN)/chairman, West Africa Power Pool (WAPP); Engr John Ayodele, deputy managing director, Ibadan Electricity Distribution Co; Brian Baltimore, lead transaction advisor, Power Africa Transactions and Reform Program; Sylvia Chahonyo, head of relationship management - Africa, Moody's Investors Service; Robert Dickerman, managing director/CEO, Enugu Electricity Distribution Company; Olawale Oluwo, Hon Commissioner, Ministry of Energy & Mineral Resources, Lagos State; Tope Shonubi, executive director, Sahara Group/board chairman, Ikeja Electricity Distribution Co; and Eme Essien Lore, country manager, IFC.

Highlights from the exhibition will include Centrax Gas Turbine's launch of their CX501-KB5 and CX501-KB7 generator sets, Sara Group's Steel Energy Transmission Line Towers, TPN's portfolio in the Maritime Sector, and Smart Grid Solutions from the Sacem Group, amongst others.

Learning, liaising, doing business

Over the years, Power Nigeria has grown to become the place where the Power Industry's who's who comes to learn, liaise, and do business. Consistent growth has made Power Nigeria a must attend event in the country's energy industry. Come discover the latest services and innovations at Power Nigeria on 27-29 September 2016, at the Eko Hotel in Lagos. ■



This is the meeting place for the power industry in Nigeria



Power pooling for improved rural distribution

Reporting on the requirement for new techniques and technologies to enable decentralised energy architecture amongst African utilities



Aggreko's gas-fired power plant in Ressano Garcia, Mozambique

Africa is a continent of contrasts. It is currently home to ten of the world's fastest growing economies, with many flourishing industries, falling child mortality and rising life expectancy rates. However, approximately 621mn Africans live without access to electricity, creating inequalities across a range of socio-economic issues, including access to healthcare and education.

When it comes to power, Africa's challenge is not just about keeping the lights on from one day to the next. Improving access to affordable and reliable power sources would also help eradicate some of the fundamental contradictions and improve the competitiveness of many nations in the region.

However, this is no small task. The International Energy Agency has estimated Sub-Saharan Africa will need more than US\$300bn of capital investment to extend electricity

access to everyone by 2030, which accounts for 64 per cent of the total fund required to achieve this goal globally.

Only 10 per cent of rural Africa has access to electricity and the Power Africa Initiative has recognised that to provide these populations with reliable, sustainable power, a large grid system will need smaller frameworks to complement it. Its

'Beyond the Grid' sub-initiative is working with investors and facilitators across the continent to develop 'off-grid and small-scale solutions' to help homes and businesses gain improved access to reliable and sustainable electricity.

Distributed power solutions

Decentralised, distributed generation is the key to this initiative. Distributed generation is

also an attractive option for power producers facing a replacement cycle of currently-installed capacity alongside a need for increasing overall capacity. Additional power negates additional transmission and consequently lowers the capital investment needed.

Off-grid solutions could become increasingly prevalent in Africa. It has been suggested that 'mini-grids', involving smaller renewable or fossil-fuel based plants or generators, could help to connect rural African communities before they are able to secure wider grid connection.

Distributed power could be a stepping stone on the road towards integrated African power pools, and if nothing else, help to increase access to electricity for those communities suffering from poor connectivity with the major African power grids.

Regional power generation and interconnection projects can play a

“Distributed power could be implemented as a stepping stone on the road towards establishing integrated African power pools, and help to increase access to electricity for communities affected by poor grid connections

major role in improving the reliability of power access. Cross-border power pool projects help to resolve issues with power shortages. In its report on regional power structure, the Infrastructure Consortium for Africa found that African power pools are “experiencing concrete achievement in the process of implementing interconnection projects and generation projects with [a] regional dimension.”

Among the many benefits of regional power pools, are reduced operational and maintenance costs and a reliable supply of power. They also provide a more economical source of emergency power during disruptions, whether unplanned or scheduled. However, it could be argued that the biggest advantage to utilities is the opportunity to trade power internationally and reap the commercial rewards.

The benefits of trade

Cross-border power trading has the potential to contribute to the cost of domestic power, and increase GDP and economic growth. A 2012 report on the cost of supplying electricity across Africa found that regional energy trade would save an estimated US\$5bn annually in emergency generation costs alone. However, some projects seem to be more fruitful than others. Only one per cent of electricity is traded within the Eastern Africa and Central Africa Power Pools (EAPP & CAPP) compared to the Southern and Western Africa Power Pools (SAPP & WAPP), which trade around seven per cent.

The Aggreko power plant at Gigawatt Park in Ressano Garcia, Mozambique, has the capability for a total generation output of 232MW and in 2012 was the realisation of a ground-breaking initiative to build



The Mossel Bay project in South Africa

the world’s first interim cross-border Independent Power Producer (IPP) project. It directly supplies the SAPP and now provides for three national utilities in Mozambique, as well as others in Namibia, located more than 1,500 kilometres away on the other side of the continent, demonstrating the strength of infrastructure in the SAPP.

We recently started working with a utility in Zimbabwe to provide 200MW to help overcome the country’s power shortages caused by intermittent renewable infrastructure, and the impact this has on the economy and living standards. This increased reliability allows it to trade on the SAPP, which contributes to the national economy and helps it become self-sufficient.

Particularly in the CAPP and EAPP, insufficient transmission capacity - likely a result of limited and aged infrastructure or extreme environments - is a hurdle that

utilities will need to overcome to take advantage of the financial and practical benefits of power pool projects.

They are a valuable asset to the African power structure and, as more of these challenges are resolved, they will have the ability to transform African power supply in the future. Even more so as new innovations in generation technology are brought to market.

Investing in distributed generation technology and building on Africa’s power pool network now will improve access to affordable, reliable power in both rural and city environments, creating significant economic benefits in the future. Cross border power trading will contribute to GDP, industries will flourish and inequalities across key socio-economic indicators will lessen. ■

Jamie Shepherd, managing director, Aggreko Africa



Aggreko at work in Tanzania



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The private sector investment potential

Financing requirements for Africa's power sector are far beyond the scope of most of the continent's countries, but the funding gap can be addressed by bilateral and multilateral donors and small-scale investment

Among the numerous developmental challenges facing Sub-Saharan Africa (SSA) is the need for huge investments in power generation capacity, especially in view of strong economic and demographic growth on the continent over the last decade. The financing requirements of the power sector are far beyond the scope of most countries - hence leaving large funding gap, which can only be filled by bilateral and multilateral donors and private investment.

The International Energy Agency (IEA) projects electricity demand in SSA rising at a compound average annual growth rate of 4.6 per cent and by 2035 will be more than double its current electricity consumption (Chart 1). The World Bank estimated that SSA in last 10 years added only 1-2 gigawatts (GW) of new generation capacity each year through 2015, against annual requirement of 8GW. The annual cost of addressing SSA's power sector needs is estimated at US\$40.8bn; approximately two-thirds of which is

for capital investment (US\$27bn/year); the remainder operations and maintenance (O&M). Of capital expenditure, about US\$14.4bn/year is needed for new power generation and the remainder for refurbishments and networks. Existing investment by state-owned utilities falls well short of their power needs. Thus, private participation in infrastructure is pivotal.

Independent power projects (IPPs) constitute the primary vehicle for privately developed, constructed, operated, and owned generation plants that sell electricity to public utilities, end-consumers, or wholesale power traders; and as non-utility generators have long-term power purchase agreements (PPAs) with off-takers (including parastatals). IPPs are structured on build own operate (BOO) model, which is popular in Arabian Gulf countries.

Since their inception in mid-1990s, IPPs have spread across 18 sub-Saharan countries, all with varying degrees of sector reform and

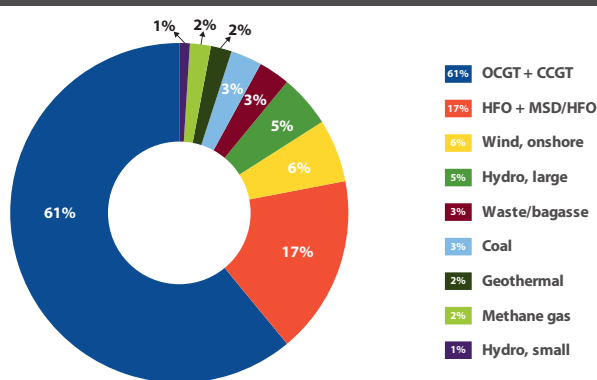
Table 1: IPPs in Sub-Saharan African Countries (excluding South Africa), 1994-2014

COUNTRY	No. of projects	Capacity (MW)	Investment (US\$Mn)
Kenya	11	1,100	2,400
Uganda	11	490	1,300
Mauritius	6	290	510
Senegal	5	390	600
Tanzania	4	435	598
Ghana	4	1,050	1,700
Nigeria	4	1,500	1,750
Zambia	2	190	340
Cameroon	2	310	500
Angola	2	N.A.	190
Cote d'Ivoire	2	895	990
Togo	1	95	280
Rwanda	1	100	300

Sources: World Bank & Private Participation in Infrastructure.

*IPP= independent power project; MW= megawatts.

Pie-chart. Independent Power Project Capacity (% of MW), by Technology in Sub-Saharan Africa (excluding South Africa), as of 2014



Source: World Bank & Private Participation in Infrastructure.

Note: Solar and biomass, each represent less than 1% of the total; OCGT= open-cycle gas turbine; CCGT= combined-cycle gas turbine; HFO= heavy fuel oil; MSD= medium-speed diesel; MW= megawatts.

private participation (Table 1). Currently, 126 projects greater than five megawatts (MW), totalling US\$25.6bn in investments, with an overall installed capacity of 11GW, account for over 13 per cent of sub-continent's total installed generation capacity. South Africa alone accounts for two-fifths of IPP capacity. Most of the remaining projects are in Kenya, Nigeria, Uganda and Tanzania. Together, these countries (with South Africa) account for 77; 71; 79 per cent, respectively, of existing projects, cumulative capacity and total IPP investment in SSA (Table 2).

Though comprising a minority of total generation capacity, IPPs provide an important source of new investment in some African countries, thus complementing state-owned utilities. For example, in Togo, Centrale Thermique de Lomé (CTL), the country's first IPP, boosted installed capacity from 149-249MW; Bujagali hydro project raised Uganda's installed capacity by about one-third (250MW) when it

came online in 2012. Excluding South Africa, total IPP investment that reached 'financial close' between 1990 and 2014 stood at US\$11bn, based on megawatts installed. Of the 59 IPPs (outside South Africa), Kenya and Uganda have the highest number, each with 11, followed by Mauritius (six); Senegal (five); and four in Tanzania, Ghana and Nigeria, respectively.

Energy mix

IPPs (outside South Africa) range in size from a few megawatts to 600MW (Table 3). There are about five mega projects exceeding 300MW (mostly in Nigeria, Ghana and Cote d'Ivoire), and a dozen sized 100–300MW. Two-thirds of such projects are smaller than 100MW; these are distributed across three size categories, of less than 20MW; 21–50MW; and 51–100MW.

The majority of IPP capacity (four-fifths) in SSA is thermal (fossil fuels); one-fifth is fuelled by renewable energy sources (Chart 2). Open- and combined-cycle gas turbines are the

Table2: Countries with the most IPPs, Capacity and Private Investment, 1994-2014

COUNTRY	No. of projects	Capacity (GW)	Investment (US\$Mn)
South Africa	67	4.31	14,435
Kenya	11	1.07	2,400
Nigeria	4	1.52	1,750
Uganda	11	0.45	1,300
Tanzania	4	0.43	598
TOTAL	97	7.78	20,483

Sources: World Bank & Private Participation in Infrastructure.

*IPP= independent power project; GW= gigawatt.

most dominant, though there is a marked diversity within technologies. The second chief source of capacity additions are IPPs involving heavy fuel oil and medium-speed diesel, which rely on crude oil imports to generate power. In recent years, wind and solar photovoltaic (PV) projects are becoming more attractive than traditional thermal sources of power - helping to diversify countries' energy mix and reducing the cost of electricity supply. Three wind projects in

the average cost of supply of the national utility, Eskom.

Financing Structures

Most IPPs are developed within special purpose vehicles (SPVs) that rely on nonrecourse, project funding. A few are financed off the balance sheets of large corporations. Debt and equity structures differ. There are few international project developers and sponsors, including Aldwych International, Amaya Capital, Globeleq, and Wartsila, as

Table3: Largest Independent Power Projects in Sub-Saharan Africa, (excluding South Africa), 1994-2014

Project	COUNTRY	Investment (US\$Mn)	Capacity (MW)
Kpone IPP	Ghana	900	350
Lake Turkana Wind Power	Kenya	861	300
Bujagali Hydro Project	Uganda	860	250
Afam	Nigeria	540	630
Okpai	Nigeria	462	480
Aba Integrated	Nigeria	460	141
Takoradi 11	Ghana	440	330
Azito	Cote d'Ivoire	430	434

Sources: World Bank & Private Participation in Infrastructure.

MW= megawatts.

Kenya and Cabo Verde reached financial close during 2010-14.

South Africa has embarked on the most ambitious renewable energy IPP programme in Africa, by procuring around sixGW of grid-connected wind, PV and concentrated solar power (CSP) over 2012-14 (costing US\$14bn) - more than double the total in the rest of SSA in the past two decades. It also boasts the largest such single investment: the Kaxu Solar One, with 100MW CSP, costing US\$976mn. In fact, renewable energy is now supplied to the grid at prices below

well as private African partners. IPP contracts typically extend from 15 to 30 years. This longer time-frame is, however, both strength and weakness. Predictable revenue streams allow equity risk capital to be rewarded over years, and sponsors can also service debt with long tenors. Conversely, in an environment of power market reform, both parties can encounter difficulties with fixed long-term pay contracts if the various conditions under original contracts should change abruptly.

Most IPPs are wholly privately owned, though several involve

public financing, where state institutions hold some portion of equity and/or debt, bringing IPPs closer to a public-private partnership (PPP) model. Examples of 'co-funded' projects include the Itzhi-Tezhi hydropower plant in Zambia, 50 per cent of which is owned by the state-owned utility, ZESCO and the second wave of IPPs in Nigeria, in which the Nigerian National Petroleum Corporation

Development Corporation (DEG), Proparco, and the Norwegian Investment Fund for Developing Countries (Norfund) - have made a tangible contribution to IPPs in Africa through concessional funding, with relatively long debt tenors. "The African reality is one in which most IPPs carry substantial risks. Without development finance institutions (DFI) financing, key projects would not have reached

Table4: Total Investment in Completed Power Generation Plants in Sub-Saharan Africa (excluding South Africa) 1990-2013

Type of Investment	Debt & Equity (US\$Mn)	Capacity added (MW)	% of Total (MW)
Governments & utilities	15,884	8,663	43.7
IPPs	6,950	4,761	24.0
China	5,010	3,264	16.0
ODA, DFI & Arab Funds	3,506	3,156	15.9
TOTAL	31,350	19,844	100.0

Source: World Bank.

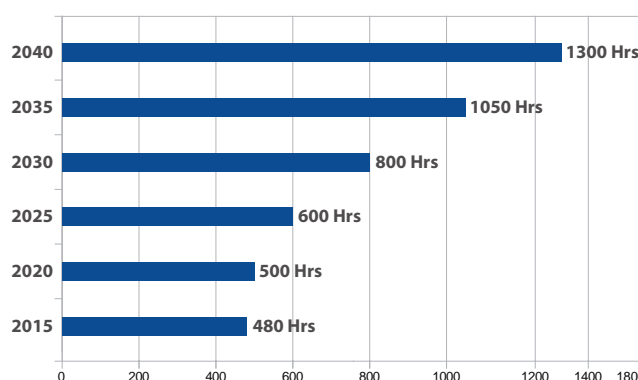
IPP= independent power project; MW= megawatts; ODA= official development assistance; DFI= development finance institution.

(NNPC) holds a 60 per cent stake. The Tanzania Electric Supply Company (TANESCO) and Tanzania Petroleum Development Corporation (TPDC), hold equity in Songas, Tanzania's flagship gas-to-electricity project.

A few multilateral agencies, notably the International Finance Corporation (IFC), and European bilateral donors - the Netherlands Development Finance Company (FMO), the German Investment and

financial close and commercial operation. DFIs have also reduced the chances of investments and contracts unravelling - in part because of rigorous due diligence practices, but also because of the pressure governments or multilateral institutions might bring to bear around honouring investment contracts," noted the World Bank. In addition to equity investments, DFIs are also prominent in the debt financing of IPPs.

Bar-chart 1: Projected Electricity Demand in Sub-Saharan Africa



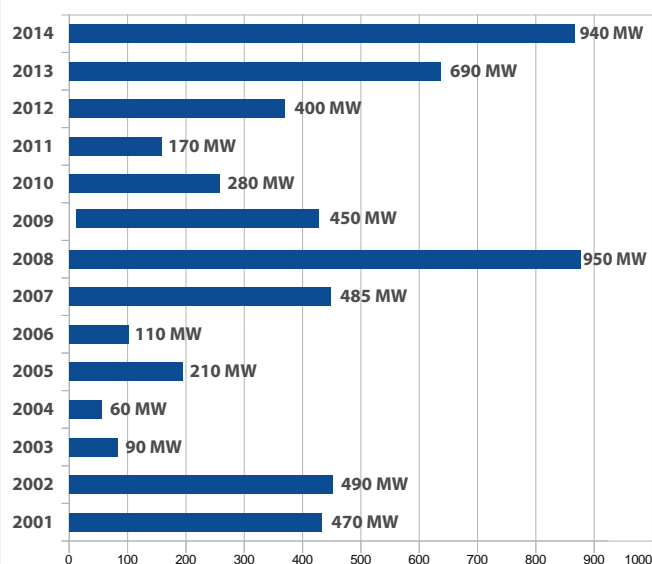
Source: International Energy Agency (IEA) 2014.

Ending energy poverty

In summary, the power sectors across Africa face two stiff challenges. Firstly, scale up generation capacity, thereby expanding and improving electricity supply - prerequisite for economic development. Second, improve the financial capacity of state-owned utilities so that they are creditworthy purchasers of power from IPPs and can also deliver electricity services on a sustainable basis. In response to these challenges, the World Bank advises: “focus on planning, procurement, and contracting practices for new generation investment must be renewed and, simultaneously, improvements need to be made to the performance of distribution utilities.”

There are lucrative opportunities for engineering, procurement and

Bar-chart 2: Independent Power Projects, by Year-of-Financial Close (excluding South Africa, 1994- 2014)



Source: World Bank & Private Participation in Infrastructure.

construction (EPC) firms across the region. Nigeria has implemented the most extensive power sector reforms on the continent. Kenya is encouraging a diversified set of power investments, including in renewable energy. Tanzania intends to expand its gas-to-power investment, while Uganda has numerous hydropower IPPs in pipeline.

Going forward, many more African countries could and should benefit from IPPs, providing they offer enabling legal-regulatory framework. The overriding priority is fostering the conditions to attract more and better IPPs, thus helping overcome the continent’s power deficit - a hurdle to achieving the United Nation’s Sustainable Development Goals (SDGs). ■

Moin Siddiqi, economist

Critical Factors Attracting IPP Investments

Country stability: Macro prudential policies; legal system allows contracts to be enforced and respected; arbitration; good repayment record; investment-grade rating; capital repatriation; past experience with private participation in infrastructure; investment protection.

Legal framework: Framework specifying market structure, roles and terms for investments (based on a single-buyer model), since wholesale competition is not widespread in Africa.

Regulatory oversight: Transparent/predictable licensing and tariff framework; cost-reflective tariffs; competitive procurement of new generation capacity required by regulator.

Coherent planning: Planning and initiation of transparent tenders; fair allocation of new build opportunities between state-owned utilities and IPPs; contingencies to avoid blackouts.

Competitive bidding: Competitive procurement process, adequately resourced; tax incentives.

Equity finance: Local capital contribution; risk appetite; reasonable return on equity (ROE); involvement of a development finance institution partner and/or host government.

Debt arrangements: Competitive financing; local capital markets to mitigate foreign exchange risk; flexibility in terms and conditions; risk premium demanded by financiers.

Reputable off-taker: Proven technical-managerial capacity; efficient operational practices; low technical losses; commercially sound metering, billing and collections; efficient and reliable customer services.

Enhanced security: Robust power purchase agreement (PPA); fuel metering; interconnection; insurance products (the most popular instruments are multilateral development bank guarantees, notably from World Bank and African Development Bank); transfer; termination; dispute resolution; change-of-law

provisions; refinancing options.

Revenue guaranteed: Security arrangements to mitigate various risks facing private investors and commercial lenders with respect to payment default on government obligations. In such cases, escrow accounts; letters of credit; standby debt facilities; hedging and other derivative instruments such as hard-currency contracts, indexation in contracts are most commonly used instrument to mitigate risks.

Other risk mitigation: Where off-takers are not perceived creditworthy, sovereign guarantees; political and regulatory risk insurance - to cope with possible adverse actions by host government or negative effects on projects from changes in law or regulation; international arbitration.

Strategic management: Sponsors who work to create a favourable corporate image in the host country through political contacts; effective communications.

ESKOM ENSURES SUCCESSFUL SUPPORT FOR SOUTH AFRICAN ELECTIONS

With local government elections successfully concluded, the **Electoral Commission of South Africa (IEC)** and the state utility **Eskom** have been acknowledged for their collaborative efforts towards ensuring a continuous

supply of electricity, with minimal or no interruption at all during the elections and the counting process thereafter. In preparation for the elections, an Eskom and the IEC formed a team to manage the interactions and

preparations for the registration period as well as the elections. Eskom then set up a nerve centres throughout the country to communicate with the Eskom and IEC leadership for the duration of the election period. In light of the

increased winter power interruptions experienced prior to the elections, Eskom’s distribution nerve centres were activated virtually and reported daily to ensure effective real-time information and response.

Visions for Africa's future in power

Intra-regional collaboration, decentralisation of power, increased use of renewables and optimised infrastructure are among the solutions at the fourth annual POWER-GEN & DistribuTECH Africa 2016 in Johannesburg

Quoted during the opening session of POWER-GEN & DistribuTECH Africa, South African Minister of Public Enterprises Lynne Brown said, "The current electricity deficit in Africa is quite alarming. This lack of electricity access remains one of the biggest barriers to development and prosperity and continues to trap millions of people in poverty."

Africa has the greatest concentration of households without electricity in the world; with 10 African countries having over 75 per cent of their populations unconnected to power. Industry experts and delegates at the event noted that Africa had an energy paradox in which the continent had abundant natural power resources but a lack of infrastructure to meet surging demand for power. Participants agreed that Africa's rich gas, solar, wind, hydro and geothermal resources had to be harnessed and added to the energy



POWER-GEN & DistribuTECH Africa is the platform for industry experts and key players to exchange knowledge and learn about new technology

mix in a sustainable way, and that greater private sector participation in the sector had to be encouraged. The decentralisation of power generation and distribution, and hybrid models that put some power sector control into the hands of private entities, were among the long-term African power solutions proposed at the event.

Strategies and technologies

POWER-GEN & DistribuTECH Africa conference and exhibition was hosted by PennWell Corporation, in collaboration with host utility Eskom at the Sandton Convention. It has been and continues to be the key platform for industry experts and key players to come together to exchange knowledge and encounter

technology capable of creating a brighter future for African power. The event covers the entire power generation spectrum, renewable, fossil fuels, nuclear and addresses the technology needs of utilities and power distributors. Attended by a record breaking 3,045 pan-African and international power industry stakeholders, the 2016 event was themed 'Creating Power for Sustainable Growth', and showcased strategies and technologies for advanced power generation and distribution. Event highlights included a delegation of 60 Sub-Saharan Africa VIPs, three entertaining networking receptions, a world class exhibition floor, featuring 80+ exhibitors, the Turkish Solar Pavilion and over 250+ confirmed B2B matchmaking meetings.

POWER-GEN Africa & DistribuTECH Africa 2017 is set for 18-20 July 2017 in Johannesburg, South Africa. ■

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Emsa Generator's expertise in generators

S Gokhan Guner, deputy director at Emsa Generator's Export Department, highlights the company's ongoing product development and successful distribution across SSA



Investments in its facilities means Emsa can now serve customers faster and better

Emsa Generator is one of the biggest generator manufacturing companies in the region. The company was established in Istanbul, Turkey, in 1977 as a small entrepreneurship producing commercial alternators to meet the growing demand for a reliable uninterrupted power source. In time Emsa Generator became Turkey's biggest alternator-producing company. Following a concerted effort of research, development and engineering, Emsa began producing diesel generators during the 1990s, and the company is now recognised as one of the industry leaders in its specialised field of generator manufacturing and supply. Today,

Emsa is amongst the the fastest-growing generator companies in the region.

S Gokhan Guner, deputy director at Emsa Generator's Export Department, spoke to African Review about the company's generators, its record of success, and ongoing prospects for growth.

African Review: Which are currently the most popular types of generators for African applications?

S Gokhan Guner: We produce 3-2,500 kVA diesel generator sets , portable generators , lighting towers, synchronising systems and engineering solutions for our

valuable customers with our dedicated staff. 75 per cent of our sales to African markets are between 22 kVA and 220 kVA. We also have a project team to meet customer demands for big projects and power installations.

All of the generators we export to African markets are supported with Perkins, Deutz and Volvo diesel engines. More options are also available on our website - www.emsa.gen.tr .

AR: Please describe Emsa's facilities in Turkey and Spain?

SGG: At the end of 2015, we moved to our new, environment-friendly, state-of-the-art factory located in Eski ehir Organized Industrial Zone

“ All of the generators we export to African markets are supported with Perkins, Deutz and Volvo diesel engines

S GOKHAN GUNER, DEPUTY DIRECTOR, EXPORT DEPARTMENT, EMSA GENERATOR

in order to accurately and timely meet the demands of the generator market, which is growing in both domestic and foreign markets. Currently, 75 knowledgeable, experienced and dynamic blue collar personnel and a team of expert engineers experienced in the field of R&D and production are employed at the Emsa Generator factory, which is built over a 30.000 sqm area - in addition to the company's head office, which employs 90 people in Istanbul Sancaktepe.

We have also started a new facility in Spain to produce generators. This new facility will enable us to reach more customers in different territories and serve them faster with high quality. Our investments in other countries will follow soon.

AR: How do Emsa's facilities serve the company's dealer network in Africa?

SGG: As one of Turkey's most important generator exporters, We increased the number of export markets by 26 per cent in 2015, reaching 78 countries.

Undoubtedly, Africa's progress during the past few years has been remarkable. To us, the African market, our new target, is a shining star. Sub-Saharan Africa, the region



Emsa manufactures generators for clients in 78 countries

that excludes Northern Africa, consists of 48 countries and boasts a population of over 800mn people.

Today, we are exporting our products to many African countries

including Ghana, Nigeria, Angola, Ethiopia, Kenya, Sudan, Morithania, Senegal, Tanzania, Guinea, Uganda, and Zambia - and we are proud of this.

“ Undoubtedly, Africa's progress during the past few years has been remarkable

S GOKHAN GUNER, DEPUTY DIRECTOR, EXPORT DEPARTMENT, EMSA GENERATOR

Our products now have all a Smart 500 Control Panel, thanks to a project that has been jointly developed with Turkcell (GSM operator) - a company that closely follows technological trends. The products are remotely monitored online for FREE for a period of one year by our specialised technicians, thanks to a sim card embedded into the product during production. In this system, clients are informed about forthcoming generator maintenance, and they are notified about possible failures in advance, with interventions made for the failures - and, thus, customer satisfaction is maximised.

In this system, errors can be reset remotely, managers who are responsible in the field can test the products remotely, possible downtime is shortened with faster intervention, the number of services is minimised - and, thus, service costs are reduced. Information security is ensured and all devices are controlled by remote control. Moreover, clients can use this service during the lifetime of the generator, if they wish. ■

You can get support by calling Emsa Generator's Service Department at the telephone number +90 216 420 00 03 pbx or through info@emsa.gen.tr



Emsa has led research, development and engineering into the production of diesel generators

Compaction performance improves with Caterpillar's landfill machine

Caterpillar has introduced a new landfill compactor designed for optimal compaction performance, low-cost operation, and multiple-life service. The new Cat 816K features a fuel-efficient C7.1 ACERT engine, single-lever steering, pressurised cab, and wheel/tire options that provide extended service life. Available Cat Compact Technologies, such as Compaction Control, further enhance compaction performance and consistency by providing accurate compaction values and 3D mapping.



The new Cat 816K landfill compactor offers performance, durability, and reliability

The foundation of the 816K's purpose-built design is its massive, robotically welded main structures, featuring a full box-section rear frame that resists torsional shock and twisting forces, heavy-duty steering cylinder mounts to efficiently transmit steering loads into the frame, and an axle-mounting design that is optimised for increased structural integrity. The K Series machine's high-pressure/common-rail fuel system delivers fuel in a precise series of micro-bursts during each cycle, providing extremely efficient combustion, and control systems lower the engine's average working speed for reduced heat loads and added fuel efficiency. An engine-idle-shutdown system saves fuel by eliminating excess idling.

The 816K's steering and transmission integrated control (STIC) combines steering and transmission control (directional and gear selection) into a single lever. Simple side-to-side movements of the low-effort lever provide precise steering maneuvers through 42 degrees of articulation right and left. Electro-hydraulic implement controls use soft detents, and cylinders use electronically controlled stops for smooth operation. The left pedal serves as a brake, transmission neutralizer, and decelerator that overrides the engine-speed setting. Routine service points for the 816K, including grease fittings, are grouped for convenience and reached from ground level via swing-out doors or from non-slip platforms.

The vital information management system (VIMS) notifies operators and technicians about potential problems, allowing issues to be resolved quickly, preventing unscheduled downtime. In addition, Cat LINK technologies wirelessly provide equipment managers with critical information, via the VisionLink interface, including machine location, hours, fuel usage, idle time and event codes.

BUILDING EAST AFRICAN CONSTRUCTION BUSINESS

The fourth CIBEX East Africa will take place 15-17 February 2017 at the Kenyatta International Convention Centre in Nairobi. New technologies, international know-how and current projects will be showcased to the regional industry experts. Locally-supported by main industry associations such as Kenya's **National Construction Authority** and the **Kenyan Federation of Master Builders** and internationally promoted by **IMAG**, subsidiary of **Messe München**, CIBEX appeals again to the construction and infrastructure business community within the region. The East Africa is generally the fastest-growing regional economy within Sub-Saharan Africa. The most dynamic investment opportunities are in construction, energy and infrastructure. These are huge investment areas due to the existing funds and the growing middle income population. The expected growth in infrastructure within Sub-Saharan Africa stands at around 10 per cent per annum to the year 2025. With an abundance of natural resources and recent mineral, oil and gas discoveries, demographic and a more investor-friendly environment, the investment spotlight shines brightly on East Africa.

For exporters who want to make a first move into this market or local dealers who want to widen their scope of business with international partners, CIBEX East Africa provides an international networking platform for the whole construction and infrastructure industry within the region. Internationally, CIBEX East Africa is renowned for its high-level exhibition and conference - with the 2016 event representing 51 participants from Austria, Denmark, Germany, Finland, France, Italy, Kenya, Madagascar, Poland, Switzerland and the UAE, showcasing the latest innovations, services and research to East African infrastructure stakeholders.

REPORT REVEALS SA LAND RECLAMATION

The **World Bank** and the **Public Private Infrastructure Advisory Facility (PPIAF)** has published research into regeneration programmes in eight cities around the world - Ahmedabad, Buenos Aires, Johannesburg, Santiago, Singapore, Seoul, Shanghai, and Washington DC - documenting projects for inner cities, former industrial or commercial sites, ports, waterfronts, and historic neighbourhoods. The case details vary, but a common thread is significant private sector participation in the regeneration and rehabilitation of urban areas. The report describes how, in the 18-square kilometre inner city of Johannesburg, a series of targeted regeneration initiatives achieved a decline in property vacancy rates from 40 per cent in 2003 to 17 per cent in 2008, and a similar jump in property transactions. Since 2001, for every R1mn (US\$ 63,000) invested by the Johannesburg Development Authority, private investors have put R18mn into the inner city of Johannesburg, creating property assets valued at R600mn and infrastructure assets valued at R3.1bn.

BRIEFS

Fuchs aligns material handlers within Terex business



Fuchs introduced upgrades to its MHL320 F handler at IFAT

Terex Corporation has positioned its purpose-built **Fuchs** material handler business for global expansion and sales growth. The business is now marketed as "Fuchs - A Terex Brand" in key markets, the Fuchs line has been transitioned to the Terex Material Processing segment. Also, new machines have been introduced at key trade shows, including the ISRI 2016 Convention in Las Vegas, USA, and Bauma and IFAT 2016 held in Munich, Germany.

Apex impact doors for Mall of Africa



Apex SR 9000 impact doors have been selected for installation in the Mall of Africa

Thirty six **Apex SR 9000** high impact traffic doors are being installed in the Mall of Africa, which is currently being constructed in South Africa's Waterfall City Development.

The perimeter edges on these doors are bull nosed with a minimum radius of 8mm preventing excessive wear on the edges. This also assists in absorbing impact from carts, pallet jacks and trolleys, as well as reducing stress on hardware and mount assemblies.

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A better balance for enhanced performance

The new Cat 14M3 motor grader builds on the solid design of predecessor models with a larger engine, increased fuel efficiency, improved machine balance, enhanced transmission performance, advanced electrohydraulic steering, more powerful telematics, and added operator-safety/convenience features. An easily-maintained drawbar-circle-mouldboard assembly is designed for productive performance in a range of applications, and longterm durability of major structures combines with low operating costs and serviceability.

Premium features

The 14M3's front frame is a single,

The new Cat 14M3 motor grader



heavy-duty steel casting designed to dissipate working forces, and the rear frame features two bumper castings and thick hitch plates. A series of 'top-adjust' metallic or nonmetallic wear strips and wear inserts ensure that drawbar-circle-

mouldboard components maintain a 'factory-tight' condition that promotes high-quality work and reduces costs. An adjustable circle drive also assists in maintaining assembly tightness and further reduces service time and costs.

The Cat C13 ACERT engine replaces the C11 engine in predecessor models and features an ECO mode that boosts fuel economy by limiting the engine's high-idle speed to 1,750rpm in working gears, while maintaining machine power. ECOmode savings are especially significant when working at high idle in light to moderate applications in gears 3R to 5F.

The standard Optimised Variable Horsepower system is designed to closely match power requirements in all gears, and the Consistent-Power-to-Ground feature automatically changes engine power levels to compensate for cooling-fan losses, resulting in consistent power delivery in all ambient temperatures and working conditions

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The 14M3's 8F/6R powershift transmission has a wide operating range for application flexibility and maximum productivity. The Cat Advanced Productivity Electronic Control System (APECS) enhances range-to-range shifting by maintaining consistent torque flow and smoothing shift points. The ShuttleShift feature enables directional shifts without slowing engine speed or using the inching pedal, and an available Autoshift system allows programming shift points to best match requirements of specific applications.

The 14M3's load-sensing hydraulic system incorporates advanced electrohydraulic operation for precise, responsive implement control. Proportional Priority Pressure-Compensating valves provide different flow rates for the head and rod ends of the cylinders, further ensuring consistent,

predictable control. Balanced, proportional hydraulic flow enables all implements to operate simultaneously with consistent speed at consistent engine speeds.

Integrated technologies

A fully scalable, factory integrated Cat GRADE with Cross Slope system allows operators to easily maintain desired cross slope by automatically controlling one side of the blade. In addition, newly patented Stable Grade and Auto Articulation technologies improve operator performance and productivity. Stable Grade detects and reduces machine bounce during operation while Auto Articulation improves manoeuvrability and performance in tight working spaces and enhances operator comfort. Cat Advanced Control Joysticks are optional with Cat GRADE with Cross Slope.

The Advanced Control Joysticks allow the operator to configure auxiliary hydraulic functions safely and effectively without removing either hand from the controls, which results in decreased operator fatigue and increased productivity.

The operator environment

Intuitive joystick controllers in the 14M3 replace the multiple levers and steering wheel of conventional motor graders, reducing hand and arm movement by up to 78 percent for less operator fatigue. The logical control pattern allows any operator to quickly become productive. Steering is speed-sensitive, becoming less sensitive at higher speeds, and a secondary steering system engages automatically if required. Selectable blade-lift modes - fine, normal, and coarse - match blade control to the application, and the 'Return-to-

Center' system automatically restores straight-frame travel.

The 14M3's large windows provide excellent all-around visibility, and the optional rearview camera enhances sight lines to the rear. The standard suspension seat features side bolsters for comfortable side-slope operation, and heated/ventilated seats are available. The high-capacity HVAC system pressurises and dehumidifies the cab for year-round comfort.

Machine service/technology

Service intervals for the 14M3 have been extended, including 500-hour engine-oil changes and 2,000-hour transmission and differential oil changes. Most routine maintenance points are accessible from ground level, LED lights are available for the engine compartment, and wear indicators allow brake wear to be measured during routine service. ■

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Linnhoff Technologies is a manufacturer of asphalt mixing plants from Germany since 1900s. Linnhoff product range includes various capacities of mobile, portable, and stationary asphalt mixing plants, as well as ancillary equipment.

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Made in SA for blasting in St Helena

High energy fuel emulsion from explosives and services firm BME South Africa is used for a local island airport building project

Delivering high-quality bulk emulsion explosive to a remote island in the Atlantic Ocean - and ensuing problem-free blasting for a two-year project - has proved BME's ability to design and manufacture a safe and reliable product suited to the most demanding conditions.

"Supplying and blasting over 4,000 tonnes of HEF emulsion for the building of the airport on St Helena island was a demanding task for a number of reasons," said Albie Visser, BME's general manager for South Africa. "But the experience showed what could be achieved by our commitment to innovation and quality."

Supporting the local economy

Situated over 2,200km from the Namibian harbour town of Walvis Bay, St Helena is one of the world's smallest inhabited islands - measuring only 8km by 16km and inhabited by just 5,000 residents. In a step towards making the island more economically self-sufficient, the British government announced in 2005 that an airport would be built on the island - which traditionally could only be reached by the mailship RMS Saint Helena.

The construction of the airport was an ambitious plan that would require substantial blasting and earthmoving, involving eight million cubic metres of material in a dry-cut fill operation.

"BME had to design an emulsion so stable that it would withstand the long sea voyage, in addition to the road trip of 1,700km to Walvis Bay," said Visser. "It would also have to endure multiple re-pump events, and widely varying ambient temperatures between 3 degrees and 34 degrees."



BME delivering high-quality bulk emulsion explosive to St Helena

High quality standards

Most emulsions tend to become thicker the longer they stand or the colder the surrounding temperature; variations in temperature can also lead emulsion to break down. However, manufacturing the product on site in St Helena proved unviable due to the lack of infrastructure and insufficient energy supply; hence the decision to locally manufacture a product of remarkable resilience, and transport it in its emulsion state.

"We went the extra mile to ensure that all the materials were of the best possible quality, including the used oil, so that the emulsion remained fluid throughout its six-month life-cycle, from manufacturing in South Africa through to blasting on St Helena," he said. "This meant extending our already stringent quality standards, and applying them to every tonne of the approximately 4,000 tonnes of HEF that the project required."

From the factory in Fochville, BME transported the emulsion by tanker to its silos near Swakopmund in Namibia, and then into ISO-containers ('isotainers') for loading onto the ship bound for St Helena. To deal with the steep gradients up to the work site on the island, emulsion was pumped from the isotainers into a converted water bowser before transportation to site - where it was re-pumped back into the isotainers.

"With this number of pumping events, the potential for emulsion breakdown becomes significant," said Visser, "but our product maintained its integrity even beyond our target levels. In fact, looking at how well the product withstood these conditions, we can confidently say that it would still be usable after a year."

The first BME truck was on site and ready to go in October 2012, and in November the first blast - consuming 74 tonnes of bulk

explosive - was detonated on St Helena.

"Over the roughly two-year period from November 2012 to August 2014, the operation consumed about 200 tonnes of HEF 100 emulsion a month," he said. "We supplied the contractor with up to 18 blasts per month, totalling some 54,000 holes in total; each hole was 89mm in diameter and averaged 12m deep."

Process experts

The key to a good emulsification process is the right surface active agent (or surfactant) - the emulsifier. Visser said, "Our in-house experts developed the emulsifier specifically for the St Helena project, in the same way that we develop emulsifiers to suit the raw materials in whichever environment we operate."

Visser emphasised BME's use of a dual oxidiser - or 'double-salt' - system, which gives more stability to the product than a single-salt solution. He said, "We were pleased that our emulsion had the long shelf-life that we required and was extremely tolerant to multiple pumping cycles - proving highly resistant to breakdown even under excessively stressful conditions."

This was achieved through a demanding regime of testing over a number of months leading up to the project's commencement - using elevated temperatures, for instance, to accelerate the ageing of the products and to ensure it could last the long periods on the road, at sea and standing on the island awaiting use.

"Our product standards ensured that every tonne manufactured was the same high quality - whether it was made the next day or the next year," Visser said. "We made sure there was no variability in the quality." ■

ConMin commits to West African infrastructure



ConMin West Africa will spotlight work undertaken a projects such as Eko Atlantic City

For 2017, IMAG (a subsidiary of the bauma-organiser Messe München) and Afrocet Montgomery are organising the first trade fair for construction machinery and mining in Nigeria: the ConMin West Africa. It is set for 25 to 27 April at the International Convention Centre in the country's capital, Abuja.

"We are pleased that we will now also be able to expand our commitment in Africa in the western part of the continent with the ConMin West Africa; Nigeria particularly has great potential for the construction industry," says Gabriele Kraus, executive director of the Internationaler Messe- und Ausstellungsdiensd GmbH (IMAG) in Munich, Germany. In Africa, IMAG has already been active in construction machinery fairs in Algeria, Kenya and South Africa.

Since 2014, Nigeria has been regarded as the largest economy in Africa; in fact, the country has been shining in recent years with high single-digit economic growth rates. The country

has large oil and gas resources – Nigeria is the largest oil producer in Africa, but it still lacks the infrastructure for petroleum refining.

Major construction projects are being undertaken in the country. Near the capital Abuja (2.5mn inhabitants) inland and the port city of Lagos (18mn inhabitants), entire new cities are to be created with the "Centenary City" and "Eko Atlantic City". In addition, Nigeria plans to expand railway lines, ports and airport terminals on a large scale, as well as a large refinery, to be able to process the oil produced in the country and to not be dependent on gasoline imports from abroad.

ConMin West Africa is intended to take place annually and is supported by the Federal Ministry of Solid Minerals Development based in Abuja. "We are looking forward to work with our partner Afrocet Montgomery as one of the leading organisers of trade shows in West Africa," said Kraus. The trade fair will be accompanied by a conference. ■

“ We are pleased that we will now also be able to expand our commitment in Africa in the western part of the continent with the ConMin West Africa

GABRIELE KRAUS, EXECUTIVE DIRECTOR, IMAG



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Partnerships, projects, and blended finance

Several infrastructure initiatives have become more viable with fresh financial backing from the newly-formed SDIP Africa Hub

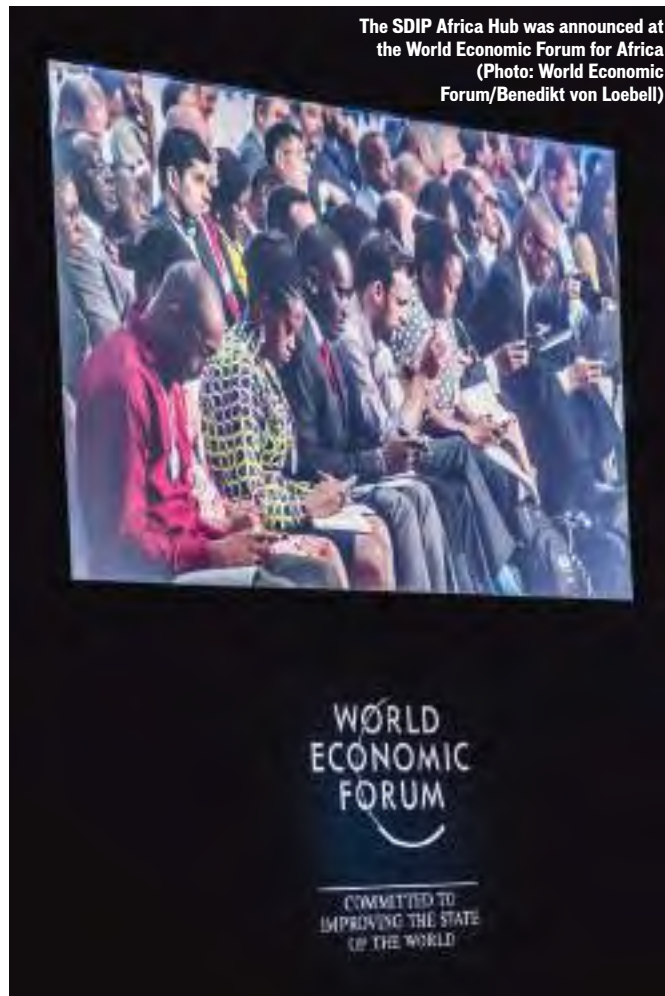
The chances of realising 16 African infrastructure projects with a combined value of over US\$20bn received a lift recently as the Sustainable Development Investment Partnership (SDIP) announced the creation of a dedicated Africa hub.

SDIP is an initiative hosted by the World Economic Forum and the OECD. The SDIP Africa Hub will coordinate African regional activities of the initiative, which has been set up with a mandate to support financing of the United Nation's Sustainable Development Goals through blended finance, an innovative approach to development finance that combines funding from private investors and lenders, governments and philanthropic funds.

Building capacity

The world's fastest-growing economies all may be categorised as either developing countries or emerging markets. Their potential and need for private investments to boost development is enormous. Despite the higher expected returns on investments and the long-term cash flows offered in emerging markets, infrastructure investments in such countries are constrained by political and financial risks.

SDIP brings together public and private entities that share an ambition to scale up sustainable infrastructure investments.



"The SDIP Africa Hub is an important first step to accelerate the engagement of SDIP members on the continent. We envision the hub building local capacity to advance blended finance best practices for

infrastructure investment and ensure a consistent pipeline of projects for the initiative from Africa," said Terri Toyota, head of the Foundations Community and Development Finance, and member

of the Executive Committee at the World Economic Forum.

Members for projects

SDIP's membership has grown from 20 institutions when it began in September 2015 to 30 today. African members of the SDIP include the Development Bank of South Africa (DBSA), the Senegal Strategic Investment Fund (FONSIS) and the Industrial Development Corporation of South Africa (IDC). Institutional support to SDIP is ensured by the Organisation for Economic Co-operation and Development and the World Economic Forum.

Worldwide, SDIP has reviewed projects representing US\$30bn in value, over half of which are located in Africa. African projects assessed by the SDIP have a combined value of over US\$20bn. In addition to supporting blended finance for the 16 projects, the African hub of SDIP will also facilitate the exchange of best practices across institutions.

"The DBSA believes that the SDIP initiative, and its goal of delivering US\$100bn in infrastructure projects within the next five years, will make a meaningful contribution and also help build local capacity and solutions by bringing together African and global private- and public-sector organisations," said Mohan Vivekanandan, group executive, strategy, at the Development Bank of Southern Africa. ■

Members of the Sustainable Development Investment Partnership (SDIP)

Bill and Melinda Gates Foundation; Citi; Danish Ministry of Foreign Affairs; Development Bank of South Africa (DBSA); Deutsche Bank; East Capital; European Bank for Reconstruction and Development (EBRD); European Investment Bank (EIB); HSBC; Industrial Development Corporation of South Africa (IDC); Inter-American Development Bank (IADB); International Finance Corporation (IFC); Investeringsfonden For Udviklingslande (IFU); Meridiam Infrastructure; Multilateral Investment Guarantee Agency (MIGA); Netherlands

Development Finance Company (FMO); PensionDanmark; Pensionskassernes Administration (PKA); Japan International Cooperation Agency (JICA); Ministry of Foreign Affairs of the Netherlands (MinBuZa); Ministry of Foreign Affairs of Norway; Senegal Strategic Investment Fund (FONSIS); Sumitomo Mitsui Banking Corporation (SMBC); Standard Chartered; Storebrand; Swedish International Development Cooperation Agency (Sida); UK Department for International Development (DFID); and US Agency for International Development (USAID)

The rising profile of Ghana's capital city

How West African construction has benefitted from investment in tall buildings in Accra

High rise buildings being constructed by the government of Ghana and foreign private investors within the metropolis of Accra are changing the face of the country's capital city and gradually assuming exceptional beauty as obtains in most developed countries in Europe, America and Asia. The yearn for high rise buildings in contemporary Ghana is helping the nation significantly in economising enough lands for other equally important development projects. The construction industry contributes significantly in to the socio-economic development of the country by way of employment opportunities, the provision of infrastructure and much-needed facilities for all economic sectors.

A modern future

Experts in the construction industry say that, in ten years time, the country's construction industry will average annual growth of 6.1 per cent in real terms, and that will be driven by investment in energy and transport infrastructure. They say the government has worked tirelessly to tackle its fiscal deficit, which will



definitely help significantly in attracting foreign investment.

The construction industry, particularly the real estate sub-sector, contributes to development through high rise buildings in the capital city of Accra. Several locations now have high-rise buildings for corporate organisations and for private individuals - including Airport City, an enclave at Kotoka International Airport (KIA), Cantonments, Accra Central, Ridge, Roman Ridge, Labone, Osu Ringway Estate, Tema Communities, East Airport, East Legon, Trasacco's Villaggio Vista at Tetteh Quarshie Circle, Meridian Apartments, Primrose Peace, Casa Bella and Astoria Palms, and the

Airport Residential Area.

Recently, Chief Momodu Dele, Nigerian international businessman endorsed President John Dramani Mahama for Ghana's infrastructural development. He said, "If you haven't been to the airport in the last two months and you go there today, you will be shocked at what you find and compared to what I have seen elsewhere. If you talk about roads, I am able to drive my car around Ghana without worrying so much about poor roads that can destroy those cars. I went to Kwame Nkrumah Circle the other day after two years and I couldn't believe the level of work going on there - so these are some of the things we need to look out for."

Dr D.K. Ahadzies of the Centre for Settlements Studies at Kwame Nkrumah University of Science and Technology reinforced this view. He said, "Exploiting the activities and outcome of the construction industry towards the socio-economic progress does not materialise on a mere haphazard and weak developmental framework but on aligning decision making to the existence of a well thought-out Construction Industry Development Agenda (CIDA).

"Indeed, many modern societies such as the UK, USA, Australia, Malaysia, Chile, China, Singapore, Brazil and South Africa have the Construction Industry Development Agenda robustly integrated into their national development agenda and indications are that, this has not only contributed to improving the competitive advantage of the respective domestic construction organisations, making them not only significant national and international players but also helping largely to lift millions of their citizenry from poverty." ■

Emmanuel Yartey

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A new project funding initiative for Africa

Increased activism investors should benefit continent's growing number of projects, but relatively few projects are receiving private sector funding

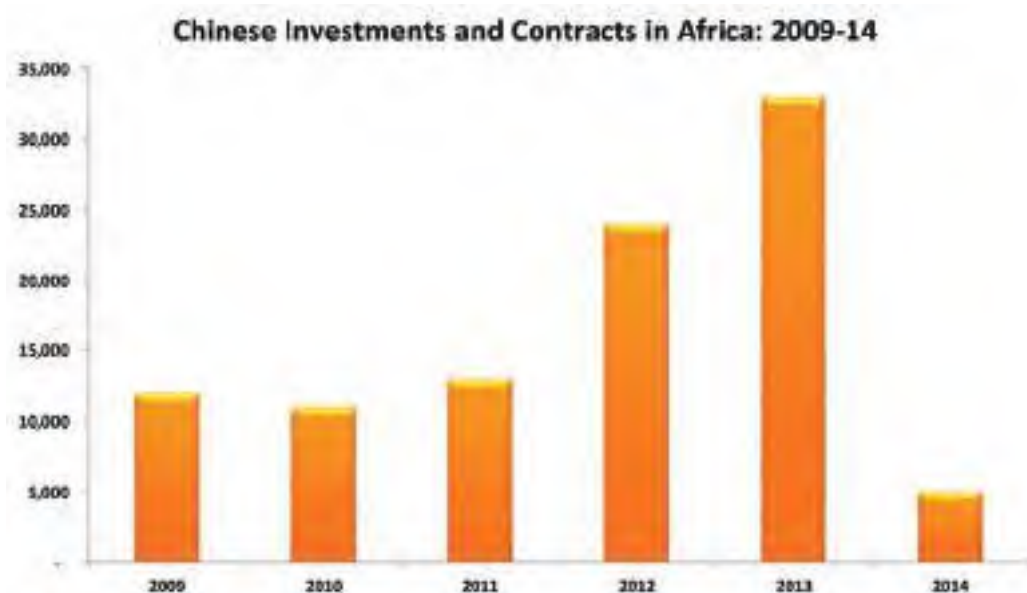
There are thousands of projects in Africa seeking funding. In both the public and private sector, needs and ambitions for construction and infrastructure continue to grow. Development Finance Institutions (DFIs) such as World Bank, Africa Development Bank, UK's DfID and others support a lot of African development projects, but in terms of meeting the demand, they barely scratch the surface.

At the same time, there is an increased awareness of opportunities in Africa and a growing ambition from investors and investment funds to get involved in the opportunity. So, with a growing number of projects, and growing interest in African Investment, why are so few projects receiving private sector funding?

Chris Dandridge CEO of Consortia Corporation who has almost US\$2bn in developing market investments told us "Last year (2015), we were approached by 17 projects in Africa, looking for investment. Potentially all of them were investable, but we could not work with any, because none had completed bankable studies."

In December, DMG Events held the 'Africa Investment Summit' at Westminster Hall in London. It was attended by over 1000 delegates, with investment funds, banks, family offices and other funding institutions worth collectively over US\$400bn represented. Event director, Paul Sinclair, told us that they had several hundred African projects approach them looking for funding or investment. Of these, 16 had signed MoUs as of April this year. Again we were told it is the lack of bankability that prevents projects from achieving the investment they require.

So what is a 'bankable study', or



Sources: The American Enterprise Institute; The Heritage Foundation

'bankability'? Naturally this varies from project to project, but it is the numerous studies that take place to design, engineer, calculate build cost, understand market values, forecast complex revenue streams, highlight legal issues; to name but a few.

The initial investment required to bring a project to bankability is sometimes referred to as 'sweat capital'. Most projects that do attract investment understand this and these are the projects that make it to the front of the queue. To put this into terms described by an investment bank, "There is a revolving door of projects seeking

investment, without bankable studies they go out as quickly as they come in." The ones who have invested sweat capital into their projects find that they are the ones who gain the investors' attention and vastly increase the likelihood of success.

Falls in funding for Africa

UNCTAD's 'Global Investment Trends Monitor' showed a decrease of FDI flows into Africa, falling from highs of UD\$55bn in 2014, to US\$38bn in 2015. There is evidence of further falls in 2016. Coupled with this, Chinese investment and contracts

which have driven much of the project spending in Africa have dropped dramatically. In 2013 these peaked at US\$35bn, but fell dramatically to US\$5bn the following year (The American Enterprise Institute - Heritage Foundation).

A new approach

The reduced investment climate is driving those seeking funding (both public and private) towards private sector finance. Unlike governments and DFIs, private sector capital will not be drawn to a project on the basis of development agendas and unlike DFIs, will not fund the bankable studies that are key to unlocking investment.

This places the onus on project owners to undertake 'pre-development' work themselves. A full bankable study will involve many elements - master planning, design, engineering, environmental studies, market studies, legal

“ There is a revolving door of projects seeking investment, without bankable studies they go out as quickly as they come in.”

“ The reduced investment climate is driving those seeking funding towards private sector finance.”

analysis and a robust financial plan. Assumptions made about each of these will be subject to in-depth analysis and scrutiny. The work required necessitates a team of experts and experienced management to bring it all together in a meaningful and coherent plan. Depending on size and type, the pre-development work on a project can take many months to complete and the financing can run into several million dollars.

Such costs can be unpalatable or unaffordable for project owners who may be asset rich, but cash poor. International banks and finance institutions are not the ones who will enter this space, but they may support local banks that are happier to take land as security for loans. This still leaves the onus on the project owner to absorb the risk and to ‘sweat’ the early investment. Smaller investors may consider projects to provide ‘mezzanine’ finance for equity, but they too favour projects that are de-risked as a result of early stage pre-development project design, structuring high level cost planning and a solid business plan.

Nick Wilson, project director at Africa Build Ltd spent nine years as business development director at Emmar in Dubai and is now working to help design and develop some of Africa’s most ambitious developments. He says, “There is no shortage of opportunities in Africa. It is where the Middle East was 20 year ago and has the potential to be the greatest area of growth and development for the next 20 years. However, we are in a period when the large financial institutions are making good money in ‘safe’ markets, so though there is much talk about investing in Africa, they are only willing to back very secure projects.”

There is an awakening to the fact that while some international government have in the past come with large sums of money and have backed the ‘big idea’, those days may have passed. Today, the private sector is looking for projects that have already invested in the design, research and financial plan that make the project bankable.

Wilson continues, “This may not mean sinking in US\$2mn plus up front. Our own clients pay for stages that start with a review of the idea, an analysis of existing information and an early stage master-plan design. This allows negotiations to begin with investors, sign MOUs and potentially raise early stage capital to finance the full studies. Investors want to see that the project owner has ‘skin in the game’. They want to see rigor and credibility in the process. We work with a team of specialists– PWC: Financial Strategy & Capital Raising; Broadway Malyan - Master Planners and Architects; WSP Parsons Brinckerhoff - Design and Engineering; Turner and Townsend - Cost, Procurement and Program Management; Simmons and Simmons - Legal and Oxford Business Group - Market Analysis and Studies. Investors reading proposals undertaken by established international firms are likely to take them very seriously.”

Now that the commodity super-cycle is at an end, so too, it seems is access to easy money. Public and private sector projects alike now need to work hard to be taken seriously. They are competing for investment funds that might otherwise seek safer havens in more established, lower risk markets. ■

Joe Collins, director, African Supplies

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Slurryblaster hydro mining solution applied in DRC

Rapid sediment build-up in acid ponds can have dire results for mines as the reservoirs gradually lose their ability to store solution, impacting on both upstream and downstream processes.

This is exactly what happened at a copper mine in the DRC when two of its acid ponds silted up completely resulting in no solution capacity whatsoever. Previous attempts at solving the issue were not successful due to the abrasive nature of the silt and solution that needed to be removed from the ponds.

Lee Vine, managing director of **Integrated Pump Rental**, said that the company's Slurry Blaster hydro mining equipment solution was deemed the most appropriate for this harsh application. This locally developed and manufactured equipment offers optimum performance coupled with reliability, and this, according to Vine, was exactly what was required to hydro mine the slime out of the ponds.

"Not all applications are the same and for this reason, and after assessing the specific requirements on site, we custom built a SlurryBlaster unit for this particular task," Vine said.

All stainless steel components including pumps were used for the pontoon mounted SlurryBlaster. The system comprises a 90kW feed pump with float, two 30kW slurry pumps for the removal of the slurry, a 200 metre heavy duty hose and electric control panels for protection for the pumps.

The two acid ponds are identical; each 100 metres by 50 metres and 6 metres deep. The unit operated at a 7 bar pressure and discharged material at 80 litres per second with a concentration by volume of 70 per cent. It took a month to clean each dam.

Integrated Pump Rental has an existing footprint of local partners in Africa and this ensures that the teams operating the equipment are familiar with local conditions. In addition to the SlurryBlaster hydro mining solutions, Integrated Pump Rental operates an extensive pump rental fleet which includes Grindex submersible drainage and dewatering pumps, diesel driven pumps and accessories. Value added services such as dam cleaning and pontoons, pump flotation modules and pipe floats are available. All products used by Integrated Pump Rental are ISO 9001 certified.



Integrated Pump Rental's Slurry Blaster hydro mining equipment solution was deemed the most appropriate for this harsh application at a copper mine in the DRC

MOTOR REBUILT FOR ZAMBIAN COPPER MINE

Marthinusen & Coutts has recently completed the rebuild of a 6,550kW two-pole 11,000 Volt squirrel cage induction blower motor for a copper mine in Zambia.

According to Rob Melaia, engineering and technical executive at Marthinusen & Coutts, the motor had suffered a rotor failure which caused collateral and associated damage to the stator and also considerable damage to the rotor laminations at the core extremities.

Marthinusen & Coutts has extensive experience with the rebuilding of such large rotating machines and it is this ability to leverage knowledge gained from years in the industry that facilitates the identification and repair of electrical machinery in limited time.



Marthinusen & Coutts recently completed the rebuild of a 6 550kW two pole 11,000 Volt squirrel cage induction blower motor for a copper mine in Zambia

The repair work undertaken comprised a stator rewind, a rotor rebar including a partial recore with new laminations and the replacement of the P900 high strength rotor retaining rings.

Interestingly, the retaining rings are made from the same steel used for the largest turbo generator in the world and this was sourced by Marthinusen & Coutts from a German supplier in record time.

"Working closely with our network of local and international partners facilitates access to specialists in all fields and allowed the fast track procurement of these specialised rings. This was especially impressive as these were procured over the Christmas period," Melaia said.

GET ZERO LEAKS WITH A TRUE KNIFE GATE VALVE

For many years, plant operators have battled with leakage problems, searching for valves which will isolate the flow and prevent leaks to the atmosphere, but are often left feeling frustrated and out of pocket. External leaks from valves during valve cycling are common problems for plant operators around the world. These leaks can have disastrous consequences, contaminating the environment and endangering workers with hazardous materials, resulting in major down time for the company. **Delta Industrial** knife gate valves can guarantee plant operators in difficult process applications zero leakage. John Abbott, **Weir Minerals** global product manager for valves, "This isolation is very important because it ensures safe and consistent plant operation, minimises downtime and provides lowest total ownership cost."



Delta Industrial knife gate valves can guarantee zero leakage in difficult process applications

► BRIEFS



The product lines shown at Hillhead serve an increasingly diverse range of materials handling

TWS on show at Hillhead

Terex Washing Systems (TWS) set up a showcase at Hillhead, the world's largest working quarry show, with its AggreScalp scalping unit, Finesmaster UltraFines recovery system, and AggreSand 206 washing system. TWS global business line director Oliver Donnelly commented, "We welcomed many dealers and their customers to our stand and provided them with the opportunity to speak with our experts in engineering, applications and sales."

Global Lawyers launch model mining code

The **World Initiative of Mining Lawyers (WIOML)** has launched a mining code that it says could guide many countries in attracting investment while securing fair benefits from mineral exploitation within their borders.

"The code provides a good starting point for countries without a code in place yet," said Andrew van Zyl partner and principal consultant at consulting engineers and scientists, **SRK Consulting**. Van Zyl was a speaker at the recent WIOML's conference where the code was launched. He said, "It also provides a useful benchmark against which a country could compare its existing code."

Some of the principles underlying the model code include fair licence allocation, work-it-orlose-it, the right to mine, and the social licence to operate.

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Petra Diamonds' South African stake

Why the discovery and auctioning of the Cullinan Dream signifies Africa's continued status as probably the most important diamond-mining locale on the planet

When the largest fancy intense blue diamond - the Cullinan Dream - ever to be offered up for auction, went on sale in New York recently, fetching US\$25.3mn, it was a headline-grabbing event.

The auction made interesting reading for the general public the world over. However, for those in the diamond sector itself, it highlighted the continuing success for the majority stakeholder in the Cullinan diamond mine, Petra Diamonds. It also affirmed Africa's status as probably the most important diamond-mining locale on the planet.

It was two years ago, in June 2014, that Petra Diamonds announced the discovery of a 122.52 carat blue diamond from South Africa's Cullinan mine near Pretoria. The rough stone was subsequently cut into four sizeable stones, of which the Cullinan Dream is the largest at 24.18 carats. And while US\$25.3mn was at the lower end of the estimate and some experts questioned if the diamond's intensity really did warrant its 'fancy intense' status, it is nonetheless an exceptionally rare blue diamond. It was graded by the Gemological Institute of America as a fancy intense blue diamond and classified as Type IIb - ie diamonds accounting



Crews at work underground at Cullinan

for less than half of one per cent of all diamonds found in nature.

For Petra Diamonds, one of the world's largest independent diamond mining companies and an increasingly important supplier of rough diamonds to the international market, the Cullinan Dream is just one of the successes it has had since acquiring its stake in the mine in 2008. This is not entirely surprising, since mine itself is best-known for the discovery of the largest rough diamond ever found - the famous 3,106-carat Cullinan diamond, which was cut into two significant stones that, today, adorn the Crown Jewels of Queen Elizabeth II in the UK. Since 2008, the mine has given up several other prize stones, including the Blue Moon of Josephine, a 12.03 carat polished stone auctioned in November 2015 for US\$48.5mn - a world record of a more than US\$4mn per carat value.

In March this year the company announced that it had recently recovered and sold an exceptional 32.33 carat pink diamond from its Williamson mine in Tanzania for US\$15mn (US\$463,965 per carat), as well as retaining a 10 per cent interest in the polished proceeds.

The production context

Despite a core objective to increase annual production to around five million carats by FY 2019 and the group's significant resource base of an estimated 300mn carats, in the great scheme of things Petra Diamonds is still a relatively small player. Whilst quality stones are undoubtedly keeping its six production operations of Finsch, Cullinan, Koffiefontein, Kimberley Underground and Kimberley Tailings (all South Africa) and the Williamson open-pit mine in Tanzania in the news, Petra's 'target'



The Cullinan mine in South Africa

and 'resource' figures sit in a global market where total production in 2014 was 125mn carats with a total value of US\$14.5bn. In fact, that figure shows an actual annual decline partly due to lower production in Zimbabwe and Australia. In addition, the global economic downturn forced diamond-mining goliath, De Beers, to suspend some production operations during 2008/2009 adding further to the slight global production drop-off.

In its latest Diamond Insight, De Beers has, however, been able to report on diamond jewellery demand in the US as hitting 'a record level of US\$39bn in 2015', with demand by consumers there having 'increased five per cent on 2014 levels' due to sustained economic recovery, job creation and wage growth. Such healthy demand, whether slightly up or slightly down on previous years, can only bode well for the African producers like De Beers itself as it remains one of the top three major players - De Beers, ALROSA and Rio Tinto - which together account for around 66 per cent by volume or 78 per cent by

value of global output. Petra accounts for about 2.6 per cent of world supply by volume and 2.7 per cent by value.

A Botswanan footnote

Unlike in other countries, there are no private mining operations in Botswana and all diamond mining activities are controlled by a state-co-run entity - Debswana. A 50/50 joint venture between the Government of Botswana and De Beers, the Debswana Diamond Company is said to be the world's 'largest diamond producer by value'. It operates four mines in the country at Orapa, Letlhakane, Jwaneng and Damtshaa and produces over 20mn carats a year from them accounting for more than 70 per cent of Botswana's export earnings and some 50 per cent of the country's revenues. The producer is seen as essential for the economic growth of the country with diamond sales having already helped transform Botswana into one of the fastest growing economies within the African continent. ■

Tim Guest



Kris Vergote - 21 years



Wilna Hoffmann - 20 years



Ernst Bekker - 23 years



Mike Dexter - 20 years



Javier Kirigin - 36 years



Mohini Singh - 11 years



Niel Lourens - 26 years

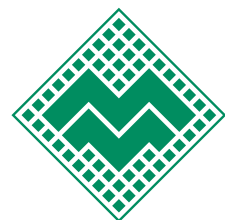


Bheka Majola - 19 years

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How buckets are made to bring more money

Innovative wheel loader attachments from Volvo CE that are designed to be durable and productive in the quarry or gravel pit



The latest additions to the Volvo Construction Equipment (Volvo CE) range of wheel loader buckets combine clever design with incredible durability for long-lasting performance that is matched both to the application and conditions on the jobsite.

The three new buckets introduced by Volvo CE are specifically designed to fit Volvo L110-L350 wheel loaders - Volvo sand bucket, rehandling flat floor bucket, and rehandling bucket, which will replace the current model.

Optimised for the application, Volvo rehandling and sand buckets enable wheel loaders to perform at maximum capacity, helping customers save time, money and effort. From a wide range of attachments, Volvo customers can choose the best match to meet - and exceed - jobsite requirements, ensuring a more profitable operation.

Shaped to perform

The intelligently-designed Volvo rehandling, rehandling flat floor and sand buckets are easy to fill, thanks to the bucket shape, balanced floor back ratio and countersunk holes. These productivity-enhancing features enable operators to do more at a faster rate, while improving fuel efficiency by up to 20 per cent.

Optimised spill guards deflect material for linkage protection, while curved side plates provide excellent containment, securing the

material for more efficient operation. To prevent different material grades from mixing, the buckets feature minimised pockets.



Durably designed to withstand harsh conditions, Volvo rehandling, rehandling flat floor and sand buckets are the products of decades of engineering experience

Profit in every bucket

Whether in a quarry or gravel pit, Volvo Rehandling bucket is the ideal partner to ensure a highly productive and fuel-efficient rehandling operation.

Operators can expect optimal levels of performance from their machines, plus reduced fuel costs thanks to the easy-to-fill bucket, which cuts cycle times. With Volvo Rehandling bucket, operators can do the same tasks while using less fuel, resulting in more loaded material for less money.

For handling, stockpiling and loading processed materials such as sand, gravel and aggregate, the Volvo rehandling flat floor bucket is an ideal fit. For applications on sand or other soft terrain, the bucket maximises both traction and break-out force, while maintaining a clean work environment for superior productivity and efficiency.

When operating in soft ground conditions where tire traction may be compromised, the Volvo sand bucket would prove an equally ideal choice. Designed for handling sand or aggregate in small fractions, the long bucket floor maximises penetration for improved traction, while its flat design also helps operators to maintain a clear and level work area. ■

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Stakeholders in mining and power solutions and systems - from manufacturers and service providers to owners and operators - meet and exhibit at Electra Mining Africa

ThoroughTec's training management platform will be demonstrated at Electra Mining Africa



There is one key African event that stands for on sales and brand visibility in the mining and power sectors. Electra Mining Africa offers many major advantages to participating companies and professionals. Held in Johannesburg, South Africa, from 12-16 September, the 2016 edition of this exhibition and conference represents a number of industrial innovations as well as the staple solutions that ensure mine operations run as cost-effectively as possible, both in terms of energy consumption and also the sustainable use of natural resources.

Since its inception more than four decades ago, Electra Mining Africa has grown to become one of the largest mining and industrial exhibitions in the world. Thousands of visitors from Africa and from beyond the continent attend the event to bring new products to market and to learn about the latest solutions and services, and technologies and trends across the continent's mining, construction, industrial, power generation and machine tools sectors.

Enterprises and expertise

There will be more than 850 local and international exhibitors at Electra Mining Africa, detailing and demonstrating products and technologies and offering the experience of industry experts at conferences and seminars.

One of the event exhibitors, Afromix has more than 30 years experience in the engineering and manufacture of pumps and agitators - including top entry, in line and side entry mixers.

The company has extensive experience - not only with respect to mineral processing, but also in the chemicals, pulp and paper, water and waste treatment, and food and beverage sectors, and in petrochemical and pharmaceutical production.

Another exhibitor at this year's event, African Pipes Valves & Fittings, imports and distributes thermo-plastic pipe fittings, valves and industrial engineering plastics. It also provides technical knowledge based on three decades in the industry, to ensure its products are used correctly

A manufacturer and supplier of high voltage (HV), medium voltage (MV) and low voltage (LV) electrical power products, African Power Traders International (APTi) sells on the basis of competitive pricing, the extensive testing of its products, the quality of its in-house research laboratories, and the returns on investment that can be gained from its advanced technical expertise. The company has formed partnerships with local and international manufacturers, and it will attend Electra Mining 2016 to connect more with industry stakeholders. APTi offers more than five decades of experience and maintains five international offices to manage its increasing African footprint.

Another exhibitor, Air Liquide goes into Electra Mining on the back of robust sales figures in gas supply and services. Its global markets and technologies revenues grew by 10.7 per cent from H1 2015 to H1 2016.

Industry developments

Screening and vibrating equipment solutions provider Aury Africa will showcase its capability to manufacture hand-poured polyurethane (PU) panels locally at Electra Mining Africa 2016. This offers significant cost-savings and enhanced quality for mining customers. The company has just commissioned a hand-cast gravity-pour PU facility. It previously imported all of its PU panels from its sister company in Tianjin, China.

Aury Africa MD Mark Houchin said, "Aury China has supplied us with manufacturing equipment so that we can commence with local manufacture. This represents a major cost-saving, which will make our local products even more cost-competitive for our mining customers."

Aury Africa will use Electra Mining Africa 2016 as a platform to showcase both its existing product range and its manufacturing and



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service support capabilities. The company produces a complete range of high-quality vibrating screens for the coal and minerals-processing industries.

Companies such as Banding & ID Solutions have developed a strong reputation in the local mining sector, bolstered by exhibiting at Electra Mining. Banding & ID Solutions Africa director Terry O'Kelly said, "Electra Mining is recognised as the largest and most important mining conference in Africa that attracts over 40,000 delegates from across the continent. This is the ideal platform for us to consolidate existing business, while generating new business leads."

The company's feature product that will be displayed is the UL4000-

C Ultra-Lok application tool, which is ideal for hose clamping, and has been designed to replace band and buckle systems in high volume applications. Combined with the Ultra-Lok band and buckle system, the UL4000-C delivers a finished product that is stronger than crimped or swaged industrial hose assemblies.

Demag's V-Type crane girder will be showcased at Electra Mining Africa 2016, where the crane technology company will display its full product range. The V-Type crane girder was launched in Sub-Saharan Africa in March 2016, following its successful debut in Europe and North America in late 2014. "We chose Electra Mining Africa 2016 as it is Sub-Saharan Africa's premier exhibition event, which has always

The UL4000-C Ultra-Lok application tool from Banding & ID Solutions



base metals at FLSmidth, said the nature of visitors that Electra Mining Africa draws makes it the ideal platform on which to engage at an operational level, and will allow the company to unpack its various support options that are geared at reducing total cost of ownership. He observed, "Crucial to the successful operation of any minerals processing and materials handling equipment is the level of support that is rendered. FLSmidth has technically competent and skilled Customer Service teams that interact directly with customers on site."

been well-attended," said Richard Roughley, Demag senior manager for sales & marketing.

With FLSmidth's ongoing focus on improving efficiencies, reducing costs and increasing throughput for its customer in the mining and minerals processing industries, the company's primary objective at Electra Mining Africa 2016 is to interact with operational personnel from its customer base. To facilitate this, a team of technically competent individuals will be on hand at all times to discuss FLSmidth's solutions offering and how the various technologies can be leveraged to optimise efficiencies and increase throughput where relevant.

Terence Osborn, sales and marketing manager – precious and

Exhibiting for the first time at Electra Mining Africa 2016, environmental solutions company I-CAT will launch a range of water, fire and dust-suppression technologies. According to I-CAT marketing director Lourens Jansen van Rensburg, the exhibition is an ideal forum to showcase the company's services and products to



Demag's V-Type crane girder

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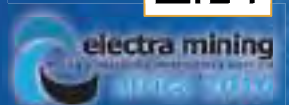


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potential new clients. He said, “We operate in a very competitive industry, and Electra Mining will afford us the opportunity to offer mining operators an alternative to their current service and product providers. Due to the prestige and sheer size of Electra Mining, we expect it to draw a much more focused visitor profile dedicated specifically to finding solutions and suppliers for their specific requirements.”

Integrated Pump Technology, the exclusive distributor in southern Africa for Grindex pumps, will use Electra Mining Africa 2016 to interact with both existing customers and potential customers, and to showcase some of its product line-up. One of Integrated Pump Technology’s latest offerings, which demonstrates the company’s innovative approach to developing pumping solutions for the harsh operating conditions in mining, is a Grindex submersible slurry pump that has been adapted for dry installation.

Also on display at the Integrated Pump Technology stand will be the Oerlikon Leybold Vacuum range of vacuum pumps. Recently added to the Integrated Pump Technology product portfolio, this includes the full line of fore and high vacuum pumps, systems, vacuum systems, vacuum gauges, leak detecting instruments, flanges, fittings and valves.

Electra Mining Africa has always been a key event for Joest Kwatani,



FLSmith’s will highlight innovations such as the high pressure grinding roller (HPGR) installation at Mogalakwena

providing this equipment manufacturer with opportunities to showcase its vibrating equipment solutions to the African mining industry. “EMA allows us to meet a large number of existing and new customers, as well as forge more alliances with industry participants in just a few days,” said Kim Schoepfliin, managing director of Joest Kwatani.

The 2016 event will provide Joest Kwatani with the opportunity to exhibit the Derrick range of engineered fine screening solutions. The company was recently appointed the exclusive representative for these technologies in select coal and iron ore mining regions in South Africa, and across the country’s borders.

And training-technologies provider ThoroughTec Simulation will demonstrate a number of new developments at Electra Mining Africa 2016. In particular, the company will be demonstrating the latest version of its Cybermine high-

fidelity full mission simulator (FMS). Adam Smallman, regional vice-president of Europe, Middle East and Africa at ThoroughTec, said, “These advanced, fourth generation simulators remain the cornerstone of our integrated training system, allowing for highly-realistic, ‘practical’ training in a safe, cost-effective and controlled environment.”

Key partners for site operations

One of the event’s sponsors, Altech Netstar has over 600,000 vehicles under its protection. At Electra Mining Africa 2016, it offers insights into the trials facing the mining Industry going forward. Similarly, it promotes ongoing working relationships with motor manufacturing, insurance companies, logistics teams, government as well as with dedicated mining industry businesses.

Another event sponsor, Festo has a long history in systems automation

and exhibit driven focus towards innovation within the mining and automotive industry. From ready-to-install solutions to process automation efficiency, Festo has a range of options that simplify work processes, improve safety and ensure productivity.

Festo offers customised turn-key solutions for individual initiatives. The company can provide on-site servicing, installation and repair for all of its products as well as regular maintenance for premium performance.

Event sponsor Dromex specialises in the provision of personal protective equipment (PPE). Partners working with Dromex can benefit from the full PPE spectrum - eyewear, boots, gloves, harnesses, etc.

Mineral processing is supported through event sponsor Multotec’s turnkey services, which are geared towards the development, manufacturing, installation and maintenance of equipment. The Multotec group has served the local and international mining industry for more than 40 years and is committed to reducing total cost of ownership with a concomitant improvement in throughput efficiencies and reduced wear. It is one of few groups to offer diverse process-related product solutions to the mining industry. Quality remains an integral part of the group’s strategy.

Subjects at seminars

Free to attend, the seminar programme at Electra Mining encompasses a broad array of subjects. Thematic strands include: lubrication best practice, presented by Mohamed Mourad, Industrial Marketing Advisor, Europe, Africa & the Middle East, ExxonMobil; advanced pipe joining technologies, explained by Barry van Jaarsveld, regional manager: South Africa, at Victaulic; and a presentation on the management of hydraulic hose assemblies by Paulo Pereira, director of global business development mining & heavy infrastructure at The Gates Corporation. Other subject areas explored include: mining



The Turbolab 80 workbench pump, offered by Integrated Pump Technology

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transport infrastructure; smart meters and smart grids; power distribution in Africa; mine security; the development of renewable energy for mining operations; occupational health and safety; and



At Electra Mining Joest Kwatani will demonstrate the importance of on-site service in supporting its customers

financial models for investing in energy infrastructure.

Conferences and content

The exhibition at Electra Mining Africa is supported by a programme of conferences and workshops, offering knowledge content that adds value to the visitor experience by affording insights on industry trends and providing learning opportunities.

The Southern African Institute of Mining and Metallurgy (SAIMM) will run high impact forums with industry keynote speakers talking about the concept of mining for the future. The Lifting Equipment Engineering Association of South Africa (LEEESA) conference will take place alongside Electra Mining Africa to cover legislation and standards - in particular, for occupational safety and health (OSH).

The Southern African Development



The latest innovations from I-CAT, to be showcased at Electra Mining Africa, include dust solutions

Community (SADC) conference at Electra Mining Africa will focus on sustainability, operational efficiency and growth in volatile markets, with speakers from De Beers, PwC, Cliffe Dekker Hofmeyr, Maputo Corridor Logistics Initiative and Geovia.

Moreover, Women in Mining South Africa (WiMSA) will host a workshop focused on development and innovation within the mining industry. Speakers at the WiMSA

include: Mike Teke, executive chairman of the Masimong Group; Peter Bergman, founder and CEO of ore-locating service OreDog AB; Joanne Doyle-Went, manager of Deloitte Digital; Professor Ronny Webber-Youngman, head of the Mining Engineering Department at University of Pretoria; and Noleen Pauls, project operations manager at the MSA Group and chairperson of WiMSA. ■





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Polyoak's innovative packaging partnerships

With its focus on partnership, technical support and innovative packaging solutions, Polyoak Packaging continues to grow in Africa. As Keith Dilkes, the company's export sales manager, explained, "Polyoak's great strength is being a 'one-stop shop' for our customers in Africa, as we offer design and technical support, and help with machinery for new factories. This has been a major benefit for customers seeking expert technical assistance.

"It's about developing long-term partnerships. Polyoak continuously seeks ways to better understand local markets. Likewise, we hope to be able to share our experience to benefit customers in this fast developing region."



Polyoak's Printed Closures

Transparent Multipack Tubs

As experts in dairy packaging, Polyoak offers advanced in-mould labelling (IML) or offset print decoration for ice-cream and yoghurt tubs.

Polyoak's latest innovation includes multipacks thermoformed using clear polypropylene with clear in-mould labels, which makes the tub see-through. This is ideal for layered products such as yoghurt topped with fruit pieces.

Strong Lightweight Buckets

Polyoak's 5L Polypail is strong, lightweight and food safe with tamper evident tab. Sides are tapered for efficient nesting during transportation, and the lid is specially designed to prevent shifting in transit. They can be decorated with IML or offset print.

Printed Closures

One of Polyoak's most popular African exports is its high quality 28mm and 38mm PET closures with outstanding three colour print.

Polyoak also offers state-of-the-art laser printing on the inside of the cap (for promotional codes), which is completely food safe and smudge resistant.

Hot Fill Preforms

Polyoak now offers Hot Fill PET bottles and preforms, available with matching 38mm closures. The range is ideal for preservative-free juices and sauces.



Dairypack Tubs and Multipacks by Polyoak

Mr Dilkes explained, "Hot Fill PET offers brands a huge opportunity to meet Africa's demand for long shelf life, without having to add preservatives. Hot Fill PET extends shelf life whilst eliminating the risk of broken glass, and reduces pack weight. These are significant benefits considering Africa's challenging supply chain."

The manufacture of Hot Fill PET involves a complex process. Keeping the bottles hygienic is critical for

optimal sterilisation. Polyoak is fully FSSC 22000 certified and adheres to strict international food safety standards.

"We are confident that our hot fill solution will become more popular due to its cost saving potential versus other packaging alternatives," Dilkes remarked. ■

For more information contact Keith Dilkes, Polyoak Packaging export sales manager, on +27 (0) 82 898 2692 or keith.dilkes@polyoak.co.za

THREE SPECIALISTS IN STEEL AT NLMK EUROPE

NLMK Europe - Plate gathers three specialists under one name - NLMK Clabecq, NLMK Verona and NLMK DanSteel - using technologically advanced production methods. From medium and heavy plates – hot rolled or forged – to ingots, you can rely on a complete range of steels in all grades and dimensions.

NLMK Clabecq is specialised in the manufacture of thin plates. The plant offers a

product that is renowned for its superior surface aspect, its flatness and its tight thickness tolerances. This is the result of impressive expertise combined with unique production equipment, including the reversible quarto mill and the continuous finishing mill with four independent stands on the same line.

Thanks to investments, including an accelerated cooling system and a quenching and

tempering unit (Q&T), NLMK Clabecq is well-established as a key player in the niche markets of line pipes, abrasion resistant steels up to 550 HB (Quard®) and steels with very high-yield strength up to 1100 MPa (Quend®). Those steels are renowned and appreciated by manufacturers from the construction and mining sectors. Those special steels are available in thicknesses from 3 to 60 mm.

PAY LESS FOR FUEL AND GET MORE OUT OF PRODUCTION

The new **Hitachi ZX 220 GI** series comes with a powerful **Isuzu** engine delivering 168HP, the most powerful in its class. With impressive fuel economy and swift front movements, the Zaxis-GI series is optimised with the Hitachi HIOSIII hydraulics offers lower running cost and versatile functions.

The Hitachi ZAXIS 220 LC - GI series hydraulic excavator delivers a huge 170ps output - 14 per cent higher than the predecessor models from the company - and, at an overall weight of 21,700kg, it still manages to increase fuel efficiency by 10 per cent. Features include auto idle, power and work modes and longer time intervals between servicing.

The hydraulic architecture is based around Hitachi's HIOS-III (Human & Intelligent Operation System), which - coupled with the more powerful engine - has enabled swifter operations in addition to higher fuel efficiency.

Furthermore, the rock-solid, reinforced front attachments and strengthened undercarriage are differentiated by the best durability and reliability of the machine's class.

The remote fleet management system gateway for easy access to on-site machines through the Internet. The operating information and machine working location add value to end-users for optimal utilisation of fleet and downtime management.

ZAXIS GI series features on board ICX data controller aligned with a global e-service, to enable data downloads, machine location identification and machine maintenance and performance monitoring by the customer.



Hitachi's ZX 220 GI series

The hydraulic excavator marks the beginning of a new era for the company and the construction sector it serves. The ZX 220 GI series marks a quantum leap forward, into a new dimension of excavation work in Infrastructure applications.

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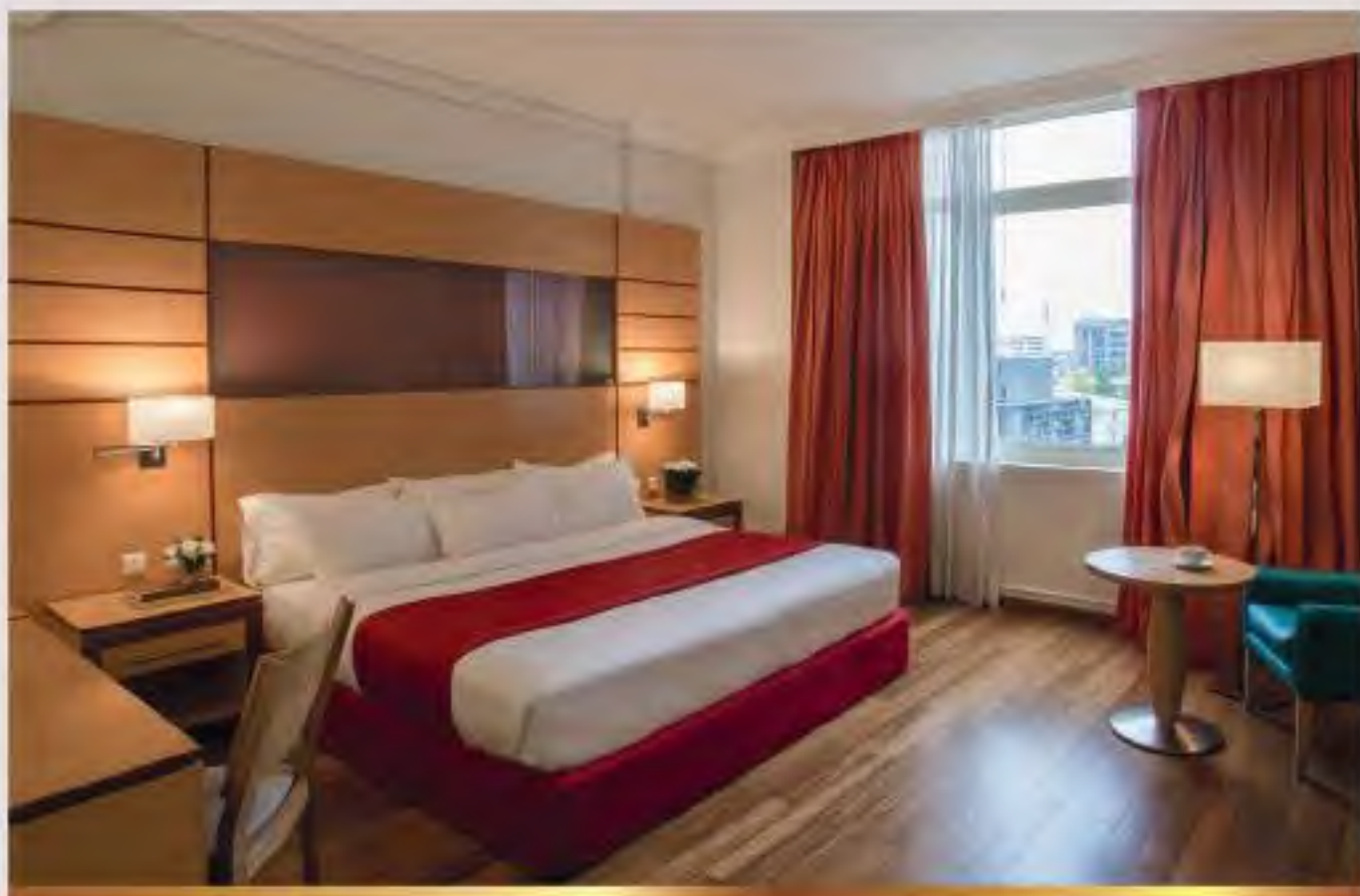
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