

African Review

of BUSINESS and TECHNOLOGY



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Editor's Note

This month, from page 20 to page 29, in business and finance, African Review assesses smallholder agribusiness, support for entrepreneurs, software and services in banking, project finance, economic development and production networks; and discussions on inclusive Islamic finance at IFIF. From page 30 to page 32, there are articles satellite technology to deliver broadcast and communications services, including analysis of the new AMOS-6 satellite, launched to deliver broadband Internet. The power section from page 34 to page 41 spotlights nuclear power generation, with respect particularly to financial considerations and diversification away from fossil fuels, and also examines the business of a key genset manufacturer, SDMO. Page 42 offers insights into the revival in furniture manufacturing in West Africa. Pages 44 to 51 preview bauma, report on added value for telehandler operators and an increasingly efficient earthworks portfolio, on flooring innovations, the argument that manufactured sands is the future for construction industry; and on support for builders seeking to create new business models with advanced design and construction techniques. Mining is covered from page 52 to page 56, with articles on WAMPEX, on finance and investment in the minerals sector, on crushers and security.

Dr Andrew Croft, Editor



Cover picture: Gui Jun Peng/Shutterstock
Inset, Top: Fotalia
Inset, Bottom: CDE Global Limited

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Agenda / North

N+ONE opens Moroccan neutral exchange point with France-IX



Casablanca-based cloud services provider **N+ONE Datacenters** has launched the first neutral Internet exchange point (IXP) in Morocco, CASIX, with support from **France-IX**. Commercially operational from March 2016, the IXP is an important step on the road to improving in-country connectivity as it provides Internet service providers (ISPs) and content delivery networks (CDNs) with a neutral location for peering, enabling them to benefit from reduced reliance on international IP transit and associated costs.

N+ONE is a pioneer in datacentre infrastructure across North Africa. When developing plans for Morocco's first neutral IXP, it chose to partner with France-IX, which has valuable experience in the challenges of interconnecting local networks in Africa. France-IX is providing N+ONE with ongoing technical assistance and remote technical support as well as donating equipment, which has provided over 100 Gbps of total port capacity. The technical infrastructure of the IXP is undergoing final testing and is on target to be operational for the launch date.

The neutrality of an IXP is important as it eliminates the possibility of the IXP owner, often a carrier, having influence over the peering community or their customers. If the IXP is neutral and offering free colocation services, then the peers are able to benefit from a democratized environment that is purely focused on providing maximum efficiency, performance and economic value. N+ONE decided to set up CASIX to help the process of democratizing the internet in

Morocco where, amidst the advent of 4G, more and more people are using social media and access to the internet is becoming ever more important.

« As the first and largest carrier-neutral datacentre operator in Morocco, we are in a strong position to sponsor the country's first neutral IXP. We will offer free colocation services for the exchange at all our facilities and our ISP, CDN, banking and corporate clients who are early peering members are already benefitting from the ability to exchange locally and are gaining added value from a neutrally managed IXP. Just like any new market, the numbers and benefits will continue to grow, » said Réda Ben Talha, deputy director sales & marketing at N+ONE Datacentres. « We chose to partner with France-IX as we wanted to tap into a successful IXP community and to benefit from its assistance. France-IX is a young IXP and yet it has managed to build an international community of nearly three hundreds networks, which is impressive. We met its team at several industry events and we naturally went on to discuss how we could work together. »

CASIX is the second African IXP partnership for France-IX, following SENIX in Senegal. These two collaborations demonstrate France-IX's ability to support the development of internet connectivity in North and West Africa, helping these regions open up to the global economy and positioning France-IX as the leading digital gateway to Africa and the Middle East.

Siemens to service more power stations in Egypt

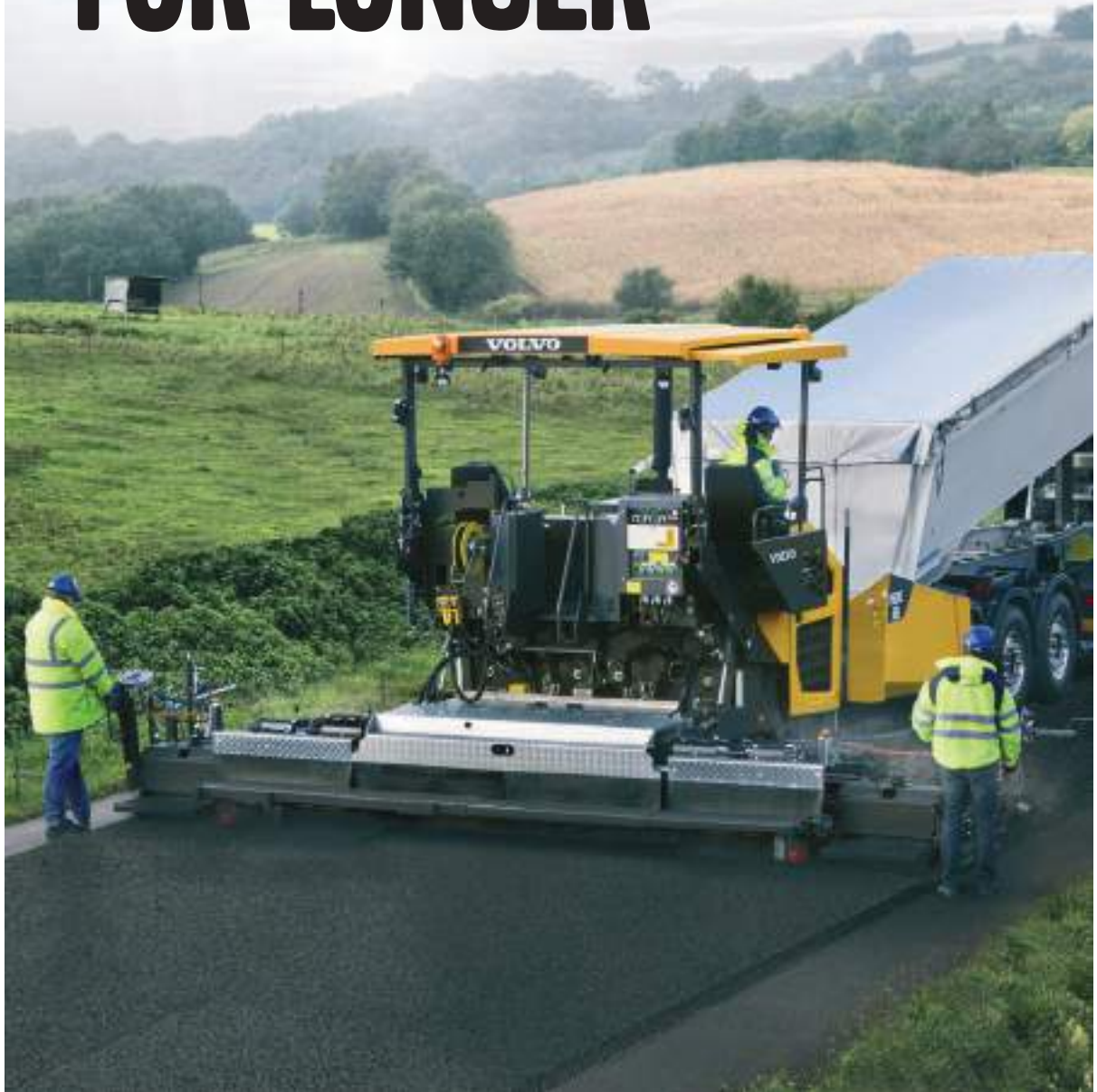
Global technology group **Siemens** has extended a long-term contract to provide service and maintenance, as well as component upgrades, at the Nubaria, Talkha and El Kureimat power stations in Egypt. The agreement was signed under the supervision of **Egyptian Electricity Holding Company (EEHC)**, represented by **Middle Delta Electricity Production Company** and **Upper Egypt Electricity Production Company**. The 10-year extension calls for Siemens to continue providing service and maintenance for eight SGT5-4000F gas turbines and the associated generators.

In addition to long-term service and maintenance, the scope of the new agreement for the three power stations includes several modernization and upgrade measures for the eight gas turbines in order to improve operational flexibility. For example, Siemens will apply a 33MAC upgrade to extend the intervals between the gas turbine inspections from 25,000 equivalent operating hours (EOH) to 33,000 EOH.

Siemens will also upgrade the gas turbine controls to its market leading SPPA-T3000 control system. The upgrade will enable the plant operator to make faster, informed decisions in daily operation of the plant. A training programme for the power plant personnel is also part of this new agreement.

"Siemens is committed to working closely with the **Ministry of Energy** in Egypt as the country looks to meet the region's growing power demands," said Tim Holt, CEO of Siemens Power Generation Services, Power and Gas business unit. "By modernizing and upgrading existing power components, we are providing our advanced service technologies, including our industrial-strength data analytics and remote monitoring capabilities, to help ensure the long-term reliability of these power plants for many years to come."

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In a recent side-by-side comparison against competitor pavers, the Volvo P6820C tracked paver achieved comparative fuel savings of up to 30%. This remarkable statistic is achieved thanks to the P6820C's Smart Power function, which reduces the engine's maximum rpm from 2,000 to 1,600 rpm without sacrificing power, performance or quality. So the P6820C can keep paving almost twice as long using the same amount of fuel. Noise and vibration are also reduced, making for an improved operator environment – and making the P6820C better for the environment all round.

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Agenda / East

Techstars invest in first East African enterprise

The international investors that have boosted more than 650 technology startups have thrown their weight behind their first East African company, Kenya's **Bamba Group**. US accelerator **TechStars** believes Kenya's Bamba Group could be the next **AirBnB** or **Dropbox** within the next five years. The experts will put Bamba through intensive training in Austin, in the USA, and give them a cash investment to fast-track their growth. TechStars Austin managing director, Amos Schwartzfarb, said, "We are very happy to select the first company from East Africa into the TechStars programme. Bamba Group is a testament to our globalised world where a startup from any corner of the planet can rise up, pursue their passion and make a lasting impact on the world."

The cloud-based system is used by major not-for-profit and for-profit companies in Kenya including Aga Khan Foundation, Nairobi Airport Services, and Diamond Trust Bank.

Bamba Group CEO Al Ismaili is thrilled his company is among the two per cent of the applicants who are accepted into the programme. He said, "It is our employees that

are most deserving of this selection. We now look forward to the next stage of our growth with a new saying around the office - something we now hear regularly from our new mentors at TechStars - 'Do More Faster'. We hope to make Africa proud."

Kenya's Cabinet Secretary of Information, Communications and Technology (ICT), Joe Mucheru added, "I congratulate Bamba Group for this great opportunity and hope they will inspire many more start-ups to get recognised globally."

Bamba has embedded itself as a staple in the Kenyan software scene. This is evident through its participation in the Presidential Digi-talent Programme (PDTP), a public-private partnership run by the ICT Authority in Kenya and commissioned by the President of Kenya.

ICT graduates from Kenyan universities are selected for the one-year programme that includes world-class software training, soft-skills training, mentoring and guaranteed internships in both the public and private sector firms involved. Other organizations involved in this programme include **Google**, **Microsoft**, **SAP**, **Oracle**, **Cisco** and **PwC**.

Gilat Satcom unveils digital classroom at Ethiopian summit

Communication solutions provider **Gilat Satcom** has confirmed that its Digital Classroom In A Box is now available for shipping to Africa, as a part of the Smart Village turnkey solution. This new concept for rural schools was unveiled at The Aid and International Development Forum summit which took place in recently Ethiopia.

The summit looked at how technological innovations and best practice are being deployed to improve aid delivery and development strategy in East Africa and was attended by 250+ senior representatives and advisors from regional governments, UN agencies, international and regional NGOs, investors and donors, research institutes and the private sector.

Gilat Satcom's Digital Classroom In A Box was developed as the e-learning component for its 'Smart Village' portfolio that enables rural villages and remote communities in Africa where ARPUs are low to be a part of Africa's digital future. The Digital Classroom comprises a fully insulated and decorated shipping container powered by solar with VSAT connectivity, a wifi router with 500m radius, a management and billing system, a projector, interactive screens, sound system and microphone, computers and tablets, tables and chairs. It has been designed to provide everything that an African rural school needs to deliver both face-to-face lessons and remote e-learning.

Initiatives announced at US-Djibouti forum

US Assistant Secretary of State Antony Blinken has recently concluded a two-day visit to Djibouti, which saw the announcement of important new programmes, including:

- Plans to construct a pipeline carrying oil from Ethiopia's Awash region to Djibouti. **Black Rhino**, an American company that invests in African infrastructure development, will fund the project, which will also include the creation of new oil storage facilities in Djibouti. Work will begin in June 2016.
- The signing of a US\$1m grant agreement provided by the **US Agency for International Development**, which will support community programmes for women, young people and vulnerable groups.
- The launch of Djibouti's first international school of English with an American curriculum, operated by **Quality Schools International**.

Mr Blinken led the US delegation that attended the second annual US-Djibouti Binational Forum. During his visit, Mr Blinken held talks with HE Ismail Omar Guelleh, the President of the Republic Djibouti.

Mr Blinken praised the "quality of friendship and cooperation between the two countries and its two peoples". He said that the Binational Forum provided a "valuable opportunity to exchange ideas concerning the implementation of multiple initiatives and partnerships".

The United States contributes more than US\$100mn a year to Djibouti's economy and is one of the country's largest employers. More than 1,700 Djiboutians work at Camp Lemonnier, the only permanent US military base in Africa.

Mr Blinken announced that more local companies would be able to obtain work contracts from Camp Lemonnier through the Djibouti First programme.

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Agenda / South

Quick turnaround in Moz for rotor rewind on sugar mill alternator

Marthinusen & Couatts recently performed a rush job for sugar producers **Tongaat Hulett** in repairing the rotor of the 20 MW salient pole synchronous alternator at its Xinavane mill near Maputo, Mozambique. The division carried out the complex task at its Cleveland, Johannesburg, facility in just over three months. It involved a complete rewind of the rotor, which has a cruciform-type winding configuration.

"It was complicated by the fact that we found it necessary to redesign the winding and insulation," Craig Megannon, general manager at Marthinusen & Couatts, explained. "The original coil had developed a fault due to the fact that it had been vacuum pressure impregnated, which by forming it into a solid block caused differential expansion between the copper windings and the steel of the rotor body. We solved this problem by introducing thicker insulation and thinner copper windings, which were neither VPI'd nor glued to the pole body. This achieved the desired result, as proven by the tests we carried out on the rotor windings on completion of the job," Megannon says.

With 57 years of extensive experience in the local and global market, Marthinusen & Couatts undertakes both electrical and mechanical repairs, overhauls and complete refurbishments.



From left Rudi Els, coil shop manager at Marthinusen & Couatts, specialist winder at Marthinusen & Couatts, William Martin, and Craig Megannon, general manager at Marthinusen & Couatts during the rewind of the Xinavane mill's alternator rotor at the company's Cleveland facility

Bosch's solutions at Propak Africa

At Propak Africa 2016 **Bosch Packaging Technology** highlights its horizontal packaging solutions for the efficient packaging of biscuits, chocolate, bars, candies and other confectionery treats. The company will focus on entry-level and mid-range automation solutions for its customers in the Southern African countries. This enables producers with small to medium production volumes to tap into automation or increase their productivity with a range of innovative

horizontal flow wrappers. The solutions are available from the company's office in South Africa, so local producers also benefit from service, support and on-site training.

"Our portfolio of horizontal packaging solutions range from entry-level through to high-end automation making Bosch the ideal partner whether your brand is testing a new market, or requires high-volume production lines," said Steffen Manke, general manager, Bosch Packaging Technology South Africa.

Japan, Botswana discuss remote sensing tech

Botswana's Minister of Minerals, Energy and Water Resources, Kitso Mokaila visited Cape Town, South Africa, recently, where he met a delegation from Japan's Ministry of Mining at the ongoing Mining Indaba conference.



Botswana's Minister of Minerals, Energy and Water Resources, Kitso Mokaila

Mokaila met with Japan's delegation from Ministry of Mining to discuss issues surrounding the remote sensing technology.

Remote sensing usually refers to the technology of acquiring information about the earth's surface (land and ocean) and atmosphere using sensors onboard airborne (aircraft, balloons) or spaceborne (satellites, space shuttles) platforms.

Mokaila also met with South African Energy Minister Tina Joemat-Pettersson to discuss export power stations based in Botswana and South Africa. The Minister also met with Kenyan authorities at the event and discussed bilateral issues.

Mokaila also gave a presentation at the event on mining situation in Botswana.

Organised by **Euromoney Trading Ltd**, the Mining Indaba conference in Cape Town attracts over 7,800 individuals representing about 1,500 international companies from 100 countries and is one of the largest mining conferences in Africa. It is attended by investors, mining analysts and financiers.



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Agenda / West

Ghanaian startup Asoriba wins Best African Startup at Seedstars Africa

Technologists behind

Asoriba, a Ghanaian mobile app and management software for churches startup, have seen their work rewarded with the award of Africa's Best Startup at the inaugural Seedstars Africa event recently held in Casablanca, Morocco.

Asoriba was chosen as the winner before an audience of more than 300 attendees,



Asoriba technologists win Best African Startup at Seedstars Africa

local winners from African countries including Mozambique, South Africa, Nigeria, Ivory Coast, Rwanda, Uganda, Kenya, Ethiopia, Angola, Tanzania, Senegal and Botswana, over 25 mentors from around the world, and a jury including 500 Startups venture partner Hasan Haider and **African Business Angel Network (ABAN)** founding member, Alexandra Fraser.

"Travelling to Casablanca and winning the Best African Startup Award has really boosted my team's confidence and we are inspired to take over the entire African continent with Asoriba," said Nana Agyeman-Prempeh, CEO of Asoriba who earned a Master's degree in Agricultural Engineering while attending the **Meltwater Entrepreneurial School of Technology (MEST)** where the Asoriba team was formed. The team includes chief technical officer (CTO) Patrick Ohemeng Tutu, chief product officer (mobile) Jesse Johnson, VP of marketing & sales Obed Asamoah Boateng and chief product officer (Web) Saviour Dzage who pitched at Casablanca and brought the trophy home.

The cloud-based software which includes a web and mobile app, allows churches to effectively manage their finances and receive contributions via mobile money and cards, seamlessly communicate and engage with members via SMS and mobile app, precisely manage member and church data, and monitor and observe church growth and attendance. The Asoriba team based in Accra has already garnered over 200 churches and 16,000+ members peak on its platform.

Riaba's petrochemicals contract

According to the **Ministry of Mines, Industry and Energy of Equatorial Guinea, Riaba Fertilizers Limited** has awarded the EPC contract for a new petrochemicals complex to a Chinese consortium led by **East China Engineering Science and Technology Co Ltd (ECEC)**.

Riaba Fertilizers Ltd was incorporated to develop the petrochemicals complex at Riaba, on Bioko Island. The new facility will utilise offshore gas reserves located to the east of Bioko. A gas supply agreement is already in place with the Block O and I operator **Noble Energy** and partners **Gunvor, Atlas Petroleum International** and **Glencore**. The complex will comprise an ammonia and urea plant with production capacity of 1.5 MTPA. Facilities will include on and off-site infrastructure and utilities and a urea shipping jetty. This initiative is part of a government-led industrialization and energy diversification plan known as the Petrochemicals Revolution, or REPEGE.

NBC to host Digital Broadcasting Forum

Nigeria's National Broadcasting Commission (NBC) will host the African Digital Broadcasting Switchover Forum 2016, following the signing of a hosting agreement with the **Commonwealth Telecommunications Organisation (CTO)** recently. The event will take place on 11-13 May 2016 in Abuja.

Held almost exclusively in South Africa since it was launched in 2006, the annual event is moving to West Africa for the first time.

"The economic potential for broadcasting on the continent is yet to be fully tapped into. Nigeria has a lot to offer, and so we are excited at hosting this event next year and we look forward to engaging media regulators and broadcasters from the continent and beyond, here in Abuja," said Emeka Mba, NBC's director-general.

Shola Taylor, secretary-general of the CTO, commended Mr Mba for seizing the opportunity to host Africa's broadcasting industry in Nigeria:

"When it comes to broadcasting, Nigeria is a destination of choice and a reference on the continent and increasing also in the world, and on behalf of members of the CTO Council, I must commend you for seizing this opportunity so promptly." Mr Taylor said.

In previous years, the event had focused predominantly on the technical, regulatory and costs aspects of the digital migration process, attracting key private sector players such as production, transmission and end-user equipment manufacturers, as well as satellite carriers and content distributors.

"This will be the first Commonwealth broadcasting event held for the region since the first internationally agreed switchover deadline of 17 June this year, and as most countries accelerate their migration to digital systems, we expect next year's event to put more emphasis on content production and business models." Mr Taylor confirmed.

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20-21

Africa Public Private Partnerships (PPP): Investment and Development

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neoedge.com

20-21

Ghana Summit – Oil, Gas & Power

Accra, Ghana
www.cwcghana.com

21-23

International Water Technology Conference (IWTC)

Sharm El Sheikh, Egypt
iwtc.info

24-27

USETEC

Karlsruhe, Germany
www.usetec.com

26-27

Somalia Oil, Gas & Mining

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www.theenergyexchange.co.uk

26-28

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Lagos, Nigeria
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26-30

Zimbabwe Interational Trade Fair

Bulawayo, Zimbabwe
www.zitf.com

27-28

Med Ports

Tanger, Morocco
www.transportevents.com

WEC report reveals structural changes to gas markets

Launched at the Africa Gas Forum during the 2016 Africa Energy Indaba, and one of 15 Knowledge Networks studies for the World Energy Resources flagship study initiative, which will be presented at the 23rd World Energy Congress in Istanbul, Turkey in October 2016, 'Unconventional gas, a global phenomenon' indicates that the growth of unconventional gas is spreading across the world, with major implications over many years for markets and prices. Published by the **World Energy Council (WEC)**, 'Unconventional gas, a global phenomenon' looks at where and how fast the revolution is taking place.

The study, developed with project partner **Accenture Strategy**, says that despite an uncertain price environment, the magnitude and speed of change is not only influencing the United States market, but also other markets including countries such as China,

Argentina and Algeria. Also, countries such as Mexico, Saudi Arabia, South Africa, Poland and Turkey are mentioned in the study as having significant potential for shale gas development.

The study identifies three emerging global trends:

- **Shifting portfolio allocations:** current price uncertainties are resulting in operators shifting their capital to more flexible, shorter-cycle investments rather than in deep well projects.
- **International growth of unconventional gas operators:** new operators across the world are realising the global opportunities and bringing new supplies, which will have an effect on markets before 2020.
- **Interconnected markets:** excess supplies in some countries have led to price normalisation and other structural shifts

that are making the market more global and transparent.

In order to realise the full potential of global gas, the study goes on to highlight the need for certain decisive interventions to alleviate uncertainty in the market:

- **Industry:** Bring a higher degree of focus to portfolio allocation, risk management, and efficiency and continue to seek new and innovative investment partnerships to deliver projects.
- **Policymakers:** Establish policies that promote a liquid market and competition needed for security of supply and the formation of clear price signals.
- **Consumers:** Evaluate the economic and environmental benefits of diversifying energy assets with natural gas in power, industry, transportation, and chemicals and consider innovative investment partnerships to secure supplies.

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Bulletin / Security

G&D sees 75% of all cars with integrated connectivity by 2020

Automotive security specialist **Giesecke & Devrient** expects that approximately 75 per cent of all cars shipped in 2020 will be delivered with integrated connectivity, representing an increase from only ten per cent of the approximately 70mn passenger cars registered worldwide in 2014 including connectivity to approximately 69mn of 92mn registered passenger vehicles equipped with integrated connectivity by 2020.

Shell adds simplicity and security to Gadus grease range

Energy group **Shell** has redesigned its extensive grease range, Shell Gadus, making it easier to choose the right products through simplicity of matching the right product to the application, the range of standard packaging options designed to meet your needs, from semiautomatic, single-point grease lubricators and grease cartridges, to pails, drums and even larger quantities, and consistency and increased security of supply.

CVT power solutions can also enhance security

Marco da Silva, power solutions managing director at **Jasco Group**, described recently how factories and industrial environments can make use of constant voltage transformers (CVTs) to filter power before it



Marco Da Silva, managing director of power solutions, Jasco Group, says CVTs can be used to protect security equipment

reaches equipment, and how IT environments can make use of the solution to filter power before it reaches sensitive facilities such as a data centre; he added that sectors such as transportation can utilise CVTs to protect essential equipment like security camera networks and recorders even during power problems.

Study shows increasing security risks to mobile payments

With acceptance of mobile and other new forms of payments expected to double in the next two years, a global study shows a critical need for organisations to improve their payment data security practices; this is according to a recent survey of more than 3,700 IT security practitioners from more than a dozen major industry sectors independently conducted by the **Ponemon Institute** on behalf of digital security specialist **Gemalto**.

Growing cybersecurity concerns fuel growth for PAS

Software solutions company **PAS** generated record-breaking growth across its business units in 2015, with its cybersecurity business unit growing the fastest, returning a 48 per cent increase in orders year over year; Eddie Habibi, PAS founder and CEO, said, "With the number of cyber incidents on the rise, industrial companies depend on PAS solutions to detect unauthorised activity deep within the proprietary control systems, which IT-based tools fail to identify."

Friend MTS launches automated IPTV anti-piracy service

Content and platform security specialist **Friend MTS** is once again ramping up the fight against video piracy with the launch at CABSAT 2016 of Viper, the first technology-led anti-piracy solution specifically designed to tackle the growing threat from illegal IPTV set top boxes; Friend MTS CEO Jonathan Friend said, "Viper will finally enable operators and broadcasters across the globe to effectively

fight this increasing threat and work towards shutting it down for good."

AdaptiveMobile boosts MTN revenue control

Mobile network security specialist **AdaptiveMobile**, which works with 22 mobile operators across 18 countries, is promoting the success of its Grey Route Controls solution, which identifies, mitigates and protects against mobile security threats and shields operators from financial exploitation; African operators including **MTN** are using the solution to identify and shut down 'grey route' traffic and recapture millions of dollars in revenue each month, with other tangible benefits including a significant decrease in the volume of customer complaints and billable time handling concerns.

Nixu Corp, Nokia Networks collaborate on cybersecurity

Following the signing of a collaboration agreement, technology firm **Nixu** will include its comprehensive cybersecurity services as part of communications company Nokia's client offering, giving **Nokia's** network operator clients access to Nixu's cybersecurity expertise through one partner; "This collaboration model enables Nokia to include our productized cybersecurity services in the delivery of complete network or service solutions," stated Nixu Corporation CEO Petri Kairinen

Kaspersky Lab sees detected threats across the continent

Cybersecurity company **Kaspersky Lab** has seen strong growth in detected threats in many African countries; Dirk Kollberg, senior security researcher, global research & analysis team at Kaspersky Lab, said, "The continued increase in threats and cyber-security matters certainly shows that African countries are a growing target for cybercrime."

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Bulletin / Infrastructure

Innovative finance solutions for affordable rural development

Delegates attending a major infrastructure conference in Nairobi, Kenya, were told that African governments may soon be able to award critical infrastructure contracts to the best technical bidder, making them less reliant on tied, aid-funded contracts and better able to incorporate a higher proportion of local content in the project; the positive message was delivered by Darren Keep, **Mabey Bridge** regional sales manager, Africa, addressing an audience comprised of government ministers, international contractors and investors at Project East Africa in Nairobi, Kenya.

600SA delivers Fassi cranes in fast track contract

In a 'fast track' contract, two **Fassi** standing platform clamshell operation cranes were delivered recently to the Msunduzi Municipality in KwaZulu-Natal, South Africa, by **600SA**, a division of **Eqstra Industrial Equipment (EIE)**, in less than two months from placement of order; the machines, Fassi F95A.0.21 cranes, were specially imported on behalf of the client and were equipped with advanced features such as three control consoles for increased efficiency and ease of operation and are being deployed across the municipality for refuse collection and disposal and to assist the municipality to improve service delivery.




The Fassi F95A.0.21 crane is compact with 4,420kg lifting capacity at 2m reach, and 1,545kg lifting capacity at 5.9 m reach, but it is powerful and has additional functions to allow for clam shell grab and rotator operation

SA steel firm contributes to social transformation

South African steel manufacturer **Scaw Metal Group** has made a valuable contribution to community upliftment over the last three years, with corporate social investment (CSI) totalling more than R5mn (US\$318,000) in education, environment and sports; Scaw Metals Group CEO Markus Hannemann said, "The results of our CSI efforts is a good example of our employee's commitment to going beyond their roles within the organisation."

Accenture's digital portal empowers engineers

Professional services company **Accenture** has launched a digital portal that helps product developers such as engineers accelerate delivery of products to market at lower costs through greater efficiency; the Accenture Enterprise Product Information and Content (EPIC) portal consolidates large amounts of product development data from multiple enterprise systems in a single, organised view, reducing the time needed for product developers to search for this data by up to 95 per cent, enabling professionals to use analytics to anticipate and solve problems, as well as developing insights and making better-informed decisions.


Strategy | Consulting | Digital | Technology | Operations

Enterprise Product Information and Content (EPIC)

An Intelligent Product Lifecycle Management (PLM) Portal

The EPIC solution captures scattered product information in one place enabling faster decision making

High performance. Delivered.

Challenges

- Difficult** to gain insight and in silos
- Complex** inherently fragmented systems & interfaces
- Inefficient** business processes to reporting and analytics


Outcomes

- Productivity** ↑ Up to 95% improvement
- Quality** ↑ Up to 70% improvement
- Cycle Time** ↓ Up to 70% reduction
- Rework** ↓ Up to 50% reduction
- User Satisfaction** ↑ Up to 90% improvement

Solution

Mobile enabled for access from anywhere, anytime

Extensible connects to multiple PLM systems, SAP & homegrown applications



Comprehensive aggregate view of product and program information

Economical based on Microsoft technology leveraging existing investments with no per-user license fee

Actionable embedded analytics enable problem identification and resolution

Intuitive user interface is extremely friendly and simple

Accenture Product Lifecycle Management Capabilities

4,000+ dedicated PLM professionals worldwide

20+ years of experience in PLM Services

1 Global network of solution and delivery centers

Proprietary assets and industrialized delivery capabilities

Deep cross-industry experience – Aerospace, High Tech, Automotive, Industrial Equipment, Food & Beverage, Consumer Goods, Retail, Life Sciences, Energy, Utilities

Strategic alliances with top-tier PLM vendors including Dassault Systems, Oracle PTC, SAP and Siemens

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Bulletin / Infrastructure

Innovations in formwork technology at bauma

Amongst several new developments from formwork and scaffolding technology company Peri, to be shown at bauma 2016 in Germany, is the combination of its proven Maximo wall formwork system with optional, easy-to-mount heating modules, meaning that heating ensures that concreting work can be carried out even at low temperatures since the hydration process is not inhibited.

Transnet strengthen ties with German Ambassador

The Ambassador of the Federal Republic of Germany to South Africa, Walter J Lindner, has been hosted at the Transnet Port Terminals (TPT) head office in Durban; the delegation visit emanated from the current stakeholder relationship between the Southern-African German Chamber of commerce (SAGCC) and TPT, and involved a co-hosted strategic B2B session addressing leading figures in local automotive manufacturing and logistics, as well as the German Embassy's economic division head, economic counsellor Dr Falk R Bömeke.

Hydraform's building blocks set for Ivorian health systems

Brick- and block-making machinery company Hydraform was first choice in providing construction materials for the first phase of a hospital complex in the Agneby-Tiassale region of Côte d'Ivoire; Hospital Jean-Baptiste, inaugurated in April 2015 by the President of the Republic of Côte d'Ivoire, represents the starting point for a wider initiative jointly funded by the Ordre de Malte and SCB (Société d'étude et de Développement de la culture Bananière), intended to generate employment in the local community as well as facilitating the provision of healthcare.



Hospital Jean Baptiste is developing into a major centre equipped to service the whole of the AgnebyTiassale region

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"Quotes"

"Of Africa's 1.1bn people, one in three is a middle-class consumer. Africa also has the youngest population of any continent. These little-known facts are what make it such an attractive yet under-exploited target market for world business."

John Thomson, managing director, Exhibition Management Services

"Mobile and cloud technology is revolutionising the way small and medium businesses work, giving real-time decision making for the first time ever, reducing costs and democratising access to business management tools."

Alan Laing, EVP global strategic partnerships & alliances, Sage

"Local entrepreneurs are the key to unlocking economic development in Africa. Young, growing businesses require risk capital from funding sources that have a higher risk tolerance than traditional banks. The needs for such funding is particularly important in post-conflict and other frontier markets."

Oumar Seydi, director for Eastern and Southern Africa, IFC

"While many operations in Africa found it necessary or preferable to provide their own road, rail, energy or water services, most will be compelled to find partners to make this affordable in coming years."

Andrew van Zyl, partner and principal consultant, SRK Consulting

"We encourage food and agri suppliers and other leaders to be directly involved in the establishment of water markets to protect the long-run economic sustainability of the agriculture industry. Globally, local governance and investment will be required in order to ensure stable water supplies but also to replenish current deficits caused by years of overuse in many countries. Water markets will increase the overall net benefit to society, increase the incentive for expanded investment, while decreasing risk for the agriculture sector as a whole."

Vernon Crowder, analyst, Rabobank

"Today, the only certainty in the world's economies and business markets is change. Of late, we have been reminded of the 'trickle-down' impact that macroeconomic influences have on even the most sophisticated or fastest-growing economies in Africa. Where the financial profession is no different. In fact, in addition to looking at adapting to ongoing market challenges, this profession – including financial officers, accountants and auditors – are faced with numerous other changes, in standards, regulations and new ways of working, and there can be no doubt that the profession needs to adapt to thrive."

Theuns Holtshousen, divisional business leader: Africa, CaseWare Africa

"Whether organisations choose to outsource the full management of infrastructure to a single service provider, or



Saurabh Kumar,
managing director,
In2IT Technologies
(South Africa)

only certain aspects of it, it is essential to create well-defined SLAs [service level agreements] to govern the management of infrastructure. In addition, service providers need to deliver visibility into the infrastructure being managed through comprehensive reporting. From the business aspect, it is essential to create an integrated view of IT operations, and align IT with defined business outcomes, to ensure that IT can add value to the organisation."

Saurabh Kumar, managing director, In2IT Technologies (South Africa)

"Africa is brimming with entrepreneurs with growing high impact businesses that could not only positively impact Africa, but the world. Access to finance has always been a tough challenge to overcome and people have typically not wanted to invest in African businesses as they have historically been considered too risky. However, the African narrative is changing for the better and the continent's exponential growth in the last decade shows that an investment in impact focused African businesses can yield high returns."

Neku Atawodi, founder and CEO, Malaik

Cultivating fortunes on the family farm

An integrated approach to smallholder agribusiness can enable prosperity and deliver a promising economic future

Recently I joined more than a dozen of the world's sharpest minds on African agriculture in an effort to consider the future of the African farmer in our digital age.

I wanted to establish one simple fact: agriculture is poised to drive a new era of inclusive economic growth for Africa - but only if we focus on the small, family-run farms that are Africa's main source of employment and produce the majority of what Africans eat.

The opportunity is clear. Africa's growing population and expanding middle class are creating a domestic market for food products that will be worth \$1 trillion by 2030. But to tap this opportunity for Africa's smallholder farmer, we need to stop thinking about them as subsistence growers and embrace their potential to generate income.

The very word subsistence implies a struggle to survive, not an effort to build a business that thrives. That's why no child of an African subsistence farmer wants to be a farmer. For the most part they remember farming as a trade that kept them poor, because for the majority of Africa's farmers, agriculture is a classic poverty trap. Subsisting becomes a full time job. But African farms are fully capable of becoming profitable businesses.

The need for greater yield

Today, most farmers produce a fraction of what their lands can yield, mainly because they are not using improved seeds or fertilizers. In Uganda, for example, 87 percent of smallholder farmer use saved grain as seed, even though there are new varieties that could quadruple their yields.

One reason for their reticence to purchase new seed is that most African farmers operate in an environment that always has them on the verge of destitution. It's true that many lack access to yield-improving farm inputs, including seeds, fertilisers, and information. But more importantly, they rely



Agnes Kalibata, president, Alliance for a Green Revolution in Africa (AGRA)

on saved seeds because they know how they will perform. They cannot afford to gamble the unknown.

Many African farmers also wonder why they should invest in boosting production when they lack access to markets where they could sell their surplus. In the Democratic Republic of the Congo, the eleventh largest country in the world by geographical area, there are fewer than 1,500 miles of paved road, about what you would find in a middle-sized American city. And when African farmers do managed to get their produce to market, they often fail to get a fair return because they lack insights into commodity pricing.

Market opportunities

So how do African farmers, a huge constituency that comprise 70 per cent of our population, get beyond subsistence? For starters, national governments and the development community can empower African farmers with more options in seeds, fertilizers and market opportunities.

The good news is that over the last decade we have learned a lot about the local seed and soil needs on African farms. And we have seen many organisations intensify their

efforts, including plant breeders at the CGIAR centers and soil experts at the International Fertilizer Development Center. Also, new efforts, like the African Fertilizer and Agribusiness Partnership (AFAP), are providing fertilizer blends suited to specific soil conditions. And there are innovative ways to scale up these solutions.

Innovations in agriculture

Digital innovations are accelerating the shift to market-oriented agriculture. More than 750mn rural Africans already use mobile phones, which is why Nigeria now delivers seed and fertilizer vouchers directly to farmers through their phones. In its first year alone, the programme reached 1.7mn farmers and helped them produce an additional 8.1mn metric tons of food.

We need to see commitment spread across Africa. Give our farmers the opportunity to prosper and they can cultivate a promising economic future that delivers benefits for all Africans. ■

Agnes Kalibata, president, Alliance for a Green Revolution in Africa (AGRA), and former Minister of Agriculture for Rwanda

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The Raizcorp way

Since 2000, Raizcorp has worked with over 10,000 entrepreneurs to assist them on their growth trajectory; its founder and chief executive, Allon Raiz, discussed the firm's activities with *African Review*

African Review: What does Raizcorp do?

Allon Raiz: We are a business development service. We call ourselves a 'prosperator' because we dislike the term 'incubation' – incubation connotes weakness and illness and it labels entrepreneurs as vulnerable and sickly. But when you analyse the people in our programmes most of them, the majority of them, are profitable.

Raizcorp's purpose is about taking them from one stage to the other; sometimes its pre-profit to profitable; some times it's profitable to more profitable. But the focus is on growth. We have different programmes that are focused on different parts of their journey – from pre-revenue to commercialising client's operations. We also accelerate large businesses that need some support in their final push to be big.

African Review: How does the selection process for your clients work?

Allon Raiz: Our selection process is an expert process that we have put together over the last 15 years, a learning process that is informed and takes into account the mistakes we have made over the years. I have to say upfront that it is not absolutely perfected, but it's pretty rigorous. We have impressive success rates. And, as much as it sounds odd and innocuous, many people decide after their initial expression of interest that they don't fit in, so that's a de-selection element in itself.

African Review: Let's assume they have decided to proceed. What happens next?

Allon Raiz: They come in for an interview, basically depending on where their businesses are positioned and the criteria for that programme. Then they write some of our tests. We have a team of 14 psychologists that mark those tests. That leads to a second interview that looks for a correlation between the information we have gathered. We then conduct what we call a baseline audit. This is not part of the selection process but basically we are trying to see where they are at. That helps us, but that's only for efficacy purposes so that in the future we know where they

were when they arrived. The next stage is to conduct a due diligence. We check, for instance, that they are the owners of the business; their turn over trends; and we look at the bank statements. Finally, the applicants sit in front of a panel of three.

African Review: Do you sit on the dragon's den panel? What is the success rate of the applicants?

Allon Raiz: No, I am not on the dragon's den panel. But it is a high-pressure situation, and only one in three actually gets through that stage, with only one in 20 getting through the whole of process. Let me also point out that we do not make any decision based on the applicant's business plan. We base it on entrepreneur. The business plan is not, in our opinion, an indicator of success so we look very much around the entrepreneur and whether we believe they are a good fit for our programme.

African Review: Do you work principally within the South African economy?

Allon Raiz: Yes, it is mainly the South African economy from which we get on average 10 to 40 applications a day, sometimes as high as 100. But we're also operating in Angola and looking to expand further north. So we are in discussions in a number of other countries in East Africa and West Africa. We expect to be in 15 countries in the next 10 years.

African Review: Are your applicants mainly individual entrepreneurs?

Allon Raiz: Certainly, I would say that our business is all about people and processes, but our applicants can be individuals or teams such as two owners or three partners. We will put them all through the application process, and if one pulls out that deselected all. We are quite strict about that.

African Review: How many partnerships do you have under management?

Allon Raiz: We've got two models — one takes equity in the businesses. In the other model, we take a flat fee. Some corporate clients come to us to use our programmes as



Allon Raiz, chief executive and founder of Raizcorp

part of their supply development programme, black economic empowerment programme; or as corporate social investment initiative.

There again, they might come to us and say "we are looking to support X amount of entrepreneurs in this specific field and we want them on this programme, or we want you to design a specific programme for us in this space."

I can give you the example of Discovery, South African medical insurance and medical aid company. Discovery asked us to design a programme specifically around social entrepreneurs in the medical and health-related space. So, we designed something for them. It was out of our comfort zone and we had to rethink our selection process. We went on a huge learning curve in our first year, but they knew we could use our expertise in this new space and new direction. ■

Interview conducted for African Review of Business and Technology by Stephen Williams



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Matchi disrupts with FinTech development

Established banks are turning to agile innovators to integrate the software and services they need to compete today

In a competitive and ever-evolving industry, African banks continue to draw on new technological innovations in order to put their services ahead of the pack.

One of the most recent of these innovations is the development of financial technology (FinTech), a line of business which is based on using software to provide financial services. FinTech companies, (normally start-ups) are shaking up the traditional financial system, using technology and software to make payment processes easier, increase security and make banking more affordable.

Innovators in the new world

In a world that revolves around technology, large banks are sitting up and taking notice of these FinTech innovators. In Africa, banks are increasingly calling on FinTech companies to provide services based around technology.

In 2013, South Africans Warren Bond and David Milligan realised that there was an opportunity to connect financial institutions to market-ready FinTech solutions from all over the world. So, they created Matchi. Before this, Milligan had been running innovative business units in a large bank for more than 10 years, while Bond had successfully launched and licensed technologies to banks.

“Both of them experienced first-hand how banks can benefit from working with smaller, more innovative FinTech firms. We realised that a global innovation platform was needed to assist innovators reach the right financial institutions. On the other hand, banks need consistent and clear approaches for sourcing and evaluating possible innovations,” explained Matchi marketing head Catherine Miller.

Matchi is an online matchmaking platform which provides leading banks and insurance companies (known in Matchi terms as “Buyers”) with access to a curated online showcase of the world’s best FinTech innovations. Buyers are able to search, view and connect with innovators directly to establish collaborative relationships and explore new business opportunities. The company has regular contact with senior decision makers in more than 70 major banks and insurance companies across all six habitable continents.

Buyer members also have the opportunity to run an Innovation Challenge, which is one of the quickest ways to identify and source targeted market-ready solutions. The challenges give innovators from all over the world the option to respond directly to the buyer’s particular area of interest.

The importance of start-ups

Financial institutions can also opt to be ‘Sponsors’, which secure the first viewing rights to new innovations within their geographical region. Buyers and Sponsors are both guided by Matchi analysts to connect them with the right innovations. Standard Bank and Liberty are the two



Banks are increasingly calling on FinTech companies to provide services (Photo: Fotalia)

Matchi Sponsors for the Sub-Saharan Africa region, while many other large banks in Africa are Buyer members. Massive attention has also been gleaned from innovators. Miller said, “We have had huge interest and support from the African FinTech community, with hundreds of high quality FinTech innovations available to view on our platform. Several South African FinTech firms have already won or been finalists in our global challenges.”

By being part of the platform, innovators cut down drastically on marketing costs, while Matchi has partnered with KPMG to offer them the chance to get solutions implemented in specific regions.

Paul Steenkamp, head of innovation capability at Standard Bank, says that the banking giant has engaged the local and international FinTech community extensively through their Matchi sponsorship.

“The scale and reach of big banks are incredibly valuable. On the other hand, FinTech start-ups have agility and capabilities that banks don’t have. When you bring these things together, one plus one equals three. Banks and FinTech companies can achieve a lot more by working together,” Steenkamp said.

As proof of the importance of FinTech start-ups, Standard Bank developed its SnapScan app – which allows users to make in-store payments with their mobile phones – with South African-based FinTech group FireID.

Thousands of FinTech innovators are springing up across Africa, creating an entire new industry which is bringing in billions of dollars.

According to the African Tech Startups Funding Report 2015 - compiled by tech startup analysts Disrupt Africa - FinTech firms received the second highest startup funding of any industry in Africa in 2015, after solar power. Disrupt Africa found that US\$185.7mn was invested in tech companies, securing 29.6 per cent of the total funds invested in African start-ups. ■

Challenge: the project finance

Is there a shortage of project finance or just not enough bankable projects? What makes a project financially viable? Why do projects often fail to meet investors' and banks' criteria?

Sub-Saharan African country's lack of basic infrastructure is a major constraint on doing business, transporting goods and people and output of energy intensive industries. The largest infrastructure deficit occurs in power generation, power consumption and security of supply. Over 600mn people live without access to reliable and affordable electricity. According to the World Bank, closing the infrastructure deficit requires around US\$75bn a year. Infrastructure investment is currently running at US\$40bn, leaving a funding gap of US\$35bn a year.

Shortage of capital has long been blamed for the state of Africa's infrastructure but financial experts and investors claim that it is a lack of "bankable" projects rather than actual shortage of finance that is to blame. Money is available for bankable projects, but in many cases, private investors are finding that apparently commercially viable projects are not structured in a way to suit them.

Why independent power projects often fail the bankability test

According to James Leigland, public-private infrastructure advisory facility team leader at

The World Bank, the cost of project preparation can reach five per cent of the project's investment cost, to be paid up-front yet it is essential for success. Comprehensive project preparation encompassing detailed feasibility studies of factors such as market size, technical and environmental feasibility, degree of government support and the all-important presence of a bankable power purchase agreement, which assures investors that they will be paid and in profit. The bankable power purchase agreement (PPA) for a power generation project for example incorporates cost-reflective tariffs to cover investor's costs, as well as hypothecation of revenues to investors, from power sales as well as a sovereign guarantee. An inadequately framed PPA is probably responsible for the current situation of the independent power producer Songas Power Plant, which is owed US\$100mn by the distribution company Tanzania Electric Company Limited. Songas is currently threatening to cut 40MW of power off unless it receives payment of the debt.

The twin elements of affordability and size of market demand are also key issues for project financiers. Are there sufficient

customers willing and able to pay a cost reflective tariff to a new independent power generator? For example, Namibia's proposed US\$2.3bn 1,050MW Kudu gas power plant is far too large for the domestic market and the plan to export 300MW of surplus power to South Africa's Cape Province is unrealistic. Very often, customers are unwilling or unable to pay the higher tariffs required for new power thereby making the project uneconomic.

To further reduce their risk, potential investors are now investigating the past record of accomplishment of 'consortium partners' — from the lead partner to the smallest sub-contractor as a means to contain time and cost overruns. The "Africa premium" of cost and schedule inflation raises a project's investment costs.

How are projects being made more bankable?

Agencies such as the African Development Bank, European Bank for Reconstruction and Development and Obama's Power Africa amongst others, have established infrastructure project preparation facilities (IPPF) often partially funded to provide consortia with technical and economic expertise for better project preparation as well as a conduit to dialogue with government. The African Development Bank, under its recently appointed President Adesina, is forming an African- financed infrastructure fund worth US\$12bn to electrify the continent in the next five years. To de-risk private investment in independent power producers and to attract four times the amount from private investors, the bank will offer credit enhancement and partial risk guarantees. It is not lack of finance, but the fear of not getting paid, that underpins the failure of many projects to get off the ground. In essence, project promoters must do their homework before presenting a case for finance. ■



South Africa's mega 4,800MW Medupi Power Plant is still incomplete where costs have ballooned from an estimated US\$4.34bn by Eskom CEO Jacob Maroga in 2007, to US\$9.69bn today. (Photo: Wikimedia Commons)

Integrating assets and industry

How African economies are linked into today's international production networks

In today's increasingly integrated global economy driven by technical sophistication, declining transportation and communication costs and liberalisation of trade and foreign direct investment (FDI) regimes, many products and services from conception and design through production, marketing and distribution have become more dispersed across the globe and between firms. They are driven by multinational corporations (MNCs), aiming to optimise their sourcing strategies through geographic re-organisation and the separation of production stages. An estimated four-fifths of international trade is linked to activities of MNCs.

“Fostering commercial linkages between the MNCs and domestic private sector can help to promote business contributions to development goals

The international supply chain

The interconnected production process where value is added at each stage before passing on to the next stage is referred to as 'global value chains' (GVCs). Various tasks that constitute the supply chains are undertaken in diverse locations, depending upon respective countries' comparative advantages. This enables a particular country to join a production network without having to provide all the other upstream or downstream capabilities.

The literature on world trade integration measure GVC participation via two distinct concepts, both of which are expressed as a percentage of a country's gross exports:

*The share of foreign value added (FVA) in



Although its share has fallen, mining and quarrying remain the sector with the highest foreign value added in African exports in absolute terms, followed by petroleum, chemical and non-metallic mineral products

total exports that was imported from external suppliers upstream in the GVC - termed "backward integration" - reflecting the extent to which a country is integrated relatively downstream of the value or international supply chain;

* The share of a country's exports that is transformed into further exports by the importer (i.e. value added embedded in exports of other countries) - termed "forward integration" - reflecting the extent to which a country is integrated relatively upstream of the value or international supply chain.

Combining backward and forward integration provides a measure of total GVC participation and the degree of industrialisation.

Added benefits

Each stage carries, to varying degrees, opportunities for new local activities, job creation and corporate profits, as well as knowledge spillovers and technology. Several Southeast Asian countries' industrialisation

strategy was based on offshoring and increased connectivity. China integrated into GVCs by specialising in the activities of final product assembly and upgrading its participation by building a competitive supply chain of intermediate inputs (ie developing linkages) and by improving the quality of its exports.

In recent decades, developing economies are being linked to GVCs at a specific stage, usually assembly in manufacturing and commodity production in agriculture. This offers opportunities to upgrade through knowledge transfers mainly in the form of FDI, product differentiation and over time installing adjacent stages of the value chain. The International Monetary Fund (IMF) echoed, "Knowledge transfers from other producers in the value chain and, eventually, upgrading to higher value added segments of the production chain can support productivity and income growth".

Similar to merchandise trade, services are also disaggregated and traded as separate

tasks, thus allowing for the development of service value chains in their own right, which can be used anywhere in the world. A large chunk of services trade relates to the actual operation of GVCs, notably transportation/logistics and warehousing, but also includes a variety of sub-sectors like banking/finance, insurance, business processing services and information technology, which are supplied at every stage of the production phase. These services play a crucial role in merchandise trade by helping to move various components efficiently across national borders.

Organisation for Economic Cooperation and Development (OECD) and World Trade Organisation (WTO) Trade in Value Added (TiVa) database revealed that the value generated directly and indirectly by services industry as intermediate inputs represented over one-third of total value added in manufactured goods. Service value chains are now seemingly being interlocked into GVCs.

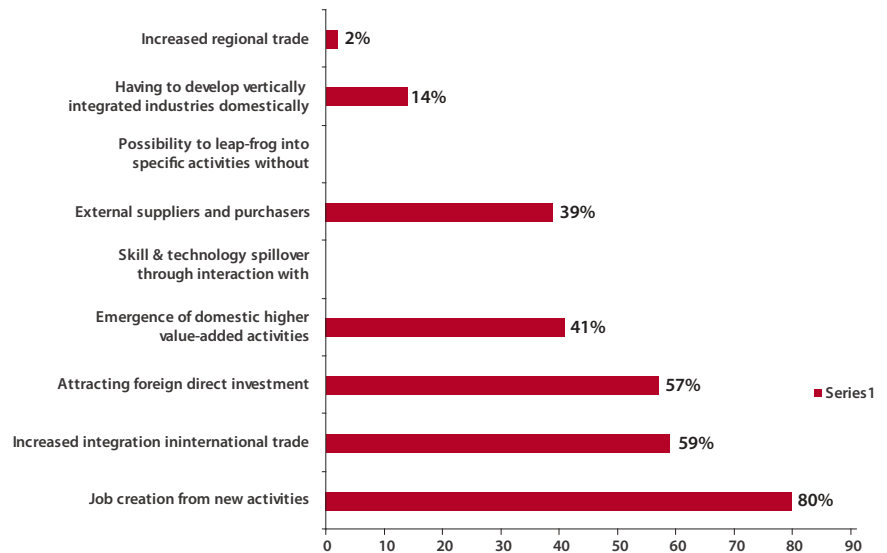
Regional participation

Africa's share of global trade in value added is small but growing, particularly in primary goods and in backward integration. So far, the region serves more as a source of primary inputs than as a production hub.

Manufacturing shows the highest level of global and regional value chain participation, ahead of agriculture and business services. Asia and Europe are the main source of foreign value added in African exports and Europe major export destination.

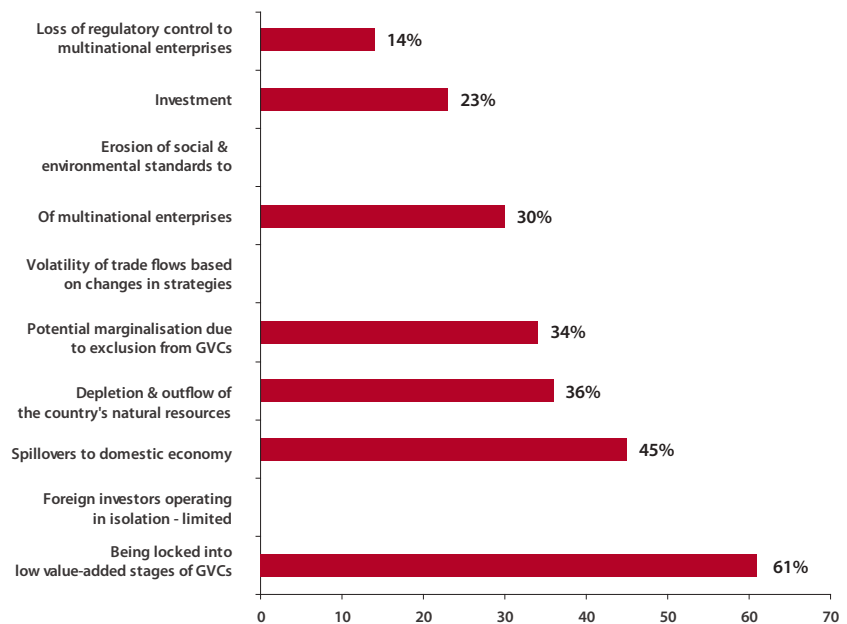
The most integrated African countries in GVCs are Cote d'Ivoire, Ethiopia, Kenya, Ghana, South Africa, Mauritius, Egypt, Morocco and Tunisia. Recent years have seen the growth of Africa's automotive operations as assembly hubs in the production networks of multi-national car companies, mainly in South Africa, Morocco and Egypt. Other medium to high-tech manufacturing capabilities in Africa have also developed,

Chart 1: The greatest opportunities arising from GVCs and resulting new trade patterns



Source: African Development Bank, AEO country Experts Survey 2014.

Chart 2: The greatest threats associated with GVCs and resulting new trade patterns



Source: African Development Bank, AEO country Experts Survey 2014.



Recent years have seen the growth of Africa's automotive operations as assembly hubs in the production networks of multi-national car companies

given the high content of foreign value added embedded in the exports of electrical machinery and metal products. Although its share has fallen, mining and quarrying remain the sector with the highest foreign value added in African exports in absolute terms, followed by petroleum, chemical and non-metallic mineral products.

Among services, finance and business processing centres report the highest GVC participation rates, plus the highest share of region's value chains. Africa's high value added service sectors are reasonably well integrated into global networks. Especially in finance, regional value chains are of significant importance - with the sector

➤ showing a much greater share of value added from other African economies in a country's exports than any other sector, reflecting the expansion of Pan-African banking groups likes of Standard Bank (South Africa), Attijariwafa Bank (Morocco) and Togo-based Ecobank.

Structural transformation

Countries can be positioned upstream or downstream in GVCs depending on their specialisation, and their positions could change over time. Upstream economies produce the raw materials or knowledge assets (for eg. research, design) at initial production stages, whilst downstream economies assemble processed products, such as machinery, electronics components or specialise in customer and distribution services (for example, its end-use by final consumers).

Empirical evidence suggest that African countries with a higher share of foreign value added in exports on average experienced higher productivity growth and positive structural changes - gradually moving from simple labour-intensive activities into more sophisticated portions of the production process over time. As a country climbs up in the value ladder through upgrading where components are assembled into final products and establishing headquarter functions, it exports more intermediate

goods with higher value added. This has been particularly at play in Southeast Asia and central eastern Europe, where downstream capabilities rank well above emerging and developing regions' average.

Fostering commercial linkages between the MNCs and domestic private sector can help to promote business contributions to development goals. For example, large agribusiness companies working in partnership with donors to link African small-scale farmers into their supply chains. These

social inclusive business ventures provide inputs and transfer knowledge and skills, thereby raising overall productivity and incomes of farmers. Without upgrading and nurturing new capabilities, however, in the long-term local operations risk remaining confined to the bottom value added segments of a GVC.

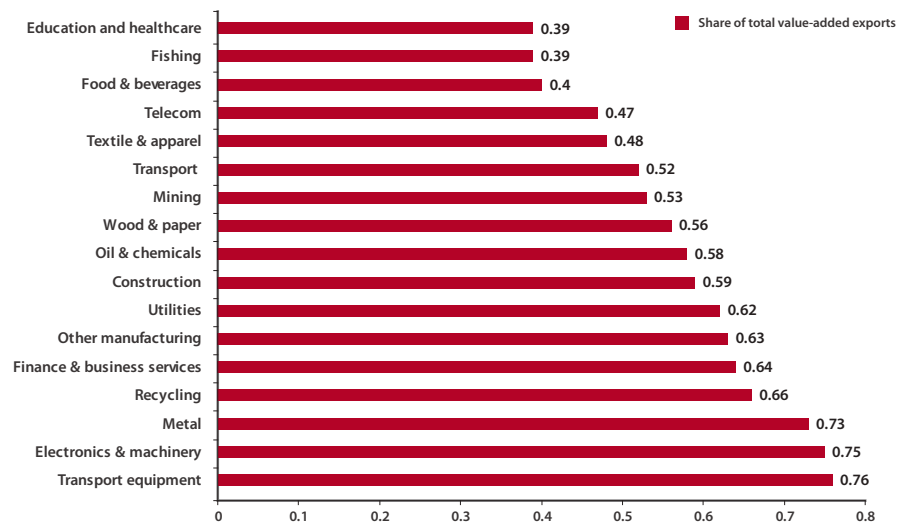
“Recent years have seen the growth of Africa’s automotive operations as assembly hubs in the production networks of multi-national car companies, mainly in South Africa, Morocco and Egypt

Africa boasts sizeable potentials to integrate much deeper into GVCs by leveraging its comparative advantages, which include a young expanding workforce, large tracks of unused fertile land and favourable climate. Such assets provide added value opportunities in light manufacturing, textiles/ apparel, agro-business and tourism, among other sectors, thereby helping to foster export diversification and structural transformation of African economies. ■

Moin Siddiqi, economist

The April 2016 issue of African Review will discuss how best to increase Africa’s integration into GVCs

Chart 3: Africa's integration into GVCs by sector, 2011



Source: UNCTAD-EORA GVC database, which provides global multi-region input-output (IO) tables, to derive value-added trade for 189 countries (42 in sub-Saharan Africa) from period 1990 to 2012.



These social inclusive business ventures provide inputs and transfer knowledge and skills, thereby raising overall productivity and incomes of farmers

IFIF focuses more on financial inclusion

Held recently in Khartoum, Sudan, the International Forum on Islamic Finance (IFIF) featured intense discussions on inclusive Islamic finance, the impact of social media on banking, strengthening Islamic capital markets in Africa and much more. Today, the agenda delves into specific case studies of emerging markets in Africa, microfinance and mobile payments.

There were engaging presentations on emerging markets for Islamic finance in Africa by Dr Andrew Nevin, partner at PwC Nigeria, and Ridha Meftah, executive director at EY Tunisia. A Harvard & Oxford trained economist (and Rhodes Scholar), Dr Nevin has been playing a formative role in creating a strong and vibrant economy and society in the world's most dynamic continent, Africa. Mr Meftah is renowned for his financial experience in North Africa and the West African Economic and Monetary Union (WAEMU).

The conveners of IFIF, Middle East Global Advisors delivered a powerful line-up of sessions focusing on technology, financial inclusion and innovation.

The event featured a unique session on bringing FinTech and mobile payments to under-banked markets in Africa.

Leading the discussions at IFIF were Fadilah Tchoumba (lead business and strategy analyst of Ovamba), Kashif Naeem (EVP & group head – retail microfinance of Bank of Khartoum), Brian Richardson (CEO of Wizzit), Mohammed Kateeb (group chairman & CEO of Path solutions) and Justin Floyd (CEO & deputy chairman of RedCloud Technologies).

IFIF 2016 concluded with a dialogue centred around an exemplary leader from Islamic finance, Professor Datuk Rifaat Ahmed Abdel Karim, CEO of the International Islamic Liquidity Management Corporation.

Overall, IFIF 2016 focussed on two key areas for spurring economic growth in Africa – innovation and inclusion. Fadi Al Faqih, CEO of the Bank of Khartoum (BoK), spoke about his bank's leadership in microfinance, saying, "We managed the largest and 1st of its kind fund for Islamic microfinance, the Al Aman Fund. It was created by a consortium of banks and Zakat organisations with a total fund value of SDG200mn (US\$33mn) where participating banks contributed SDG150mn and zakat organisations contributed the remaining SDG50mn." ■

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Services streamed from the sky

How satellites continue to deliver broadcast, communications, tracking/positioning and data services to many users across parts of the continent

In mid-2015, mobile satellite voice and data service provider, Globalstar, announced that African Businesses would now be able to 'benefit from leading-edge, low-cost satellite communications', as a result of its gateway in Gaborone, Botswana – where it partners with Broadband Botswana Internet (BBI) – going live. This development now enables Globalstar to offer pan-African satellite coverage of what it calls 'affordable' simplex services, one of which is its SPOT range of personal tracking services. While Globalstar delivers commercial simplex and duplex services to a wide range of sectors, such as oil and gas, government, mining, forestry, commercial fishing, utilities, military, transportation and heavy construction, its SPOT LLC subsidiary offers its additional satellite communication and tracking services and devices for recreational use. The SPOT Global Phone, for instance, uses the Globalstar network to transmit two-way voice and data communications, while SPOT messaging devices use both the GPS satellite network and the Globalstar network to transmit text messages and GPS coordinates keeping users in remote, isolated regions in contact with the outside world. Since services began in 2007, more than 3,500 rescues have taken place around the globe as a result of initial alerts via SPOT services. In 2010 alone, some 550 rescues were initiated by SPOT services in 51 countries on land and at sea.

Companies co-opting new services

Commercial sectors to benefit from the latest generation simplex SPOT Gen3 services include oil & gas providers and exploration companies, often operating in remote locations, as well as mining, construction and engineering companies. Remote workers on land or offshore can keep head office, customers, family and friends regularly up to date with their

movements and work knowing they have a one-touch lifeline in an emergency.

Talking to African Review, SPOT spokesperson, Vanessa Haywood-Sandes of Peak Sport Management, said that while SPOT does manufacture a satellite phone (voice) it is 'not yet available in Africa', adding, "They are hoping to launch it later this year." She said that there are currently two devices that SPOT offers in Africa: the SPOT Trace and the SPOT Gen3. "Both products track on and off the grid with no GSM cellphone signal needed and are the only products of this kind actively marketed in Africa.

She went on to say that the Trace is used predominantly for asset tracking for anti-theft applications such as the security of boats, RVs/quad bikes, motorcycles and motor vehicles. It sends a one-way tracking signal and only has an on/off button and while it is used for tracking alone Haywood-Sandes said that it can also be configured to send alerts via sms or email 'when an asset moves'.

"The Gen3 is used as a safety tracking device in sailing/boating, aviation, mountaineering, cycling, hiking, hunting, fishing and loan worker applications. It has a few messaging options which need to be pre-configured on-line before a trip." She said that an 'OK' button enables users to 'check in', daily to let loved ones/colleagues know that they're safe. "There is another custom button in which you can pre-set another type of message and a third 'helping-hand' message, which also needs to be pre-set and should be used to alert loved ones if you are in need of help in a non-life threatening situation. Finally, there is the very important 'SOS' button, which, when activated, sends a signal directly to GEOS – an international emergency call centre. They then initiate a search and rescue operation. The button is only to be used in a life-threatening situation. No

messaging can be received on the device – it is one-way only – and does not have a keyboard so all messages need to be pre-configured".

According to Haywood-Sandes, the equipment - Trace and Gen3 – has long battery life, with Lithium batteries, depending on the tracking rate, able to last for weeks. The reason for this long life, she said is the use of Globalstar's low earth orbit satellites, requiring less power to communicate with when compared to devices and competitive solutions that 'make use of satellites orbiting the earth at much larger distances'.

"The business has grown well over the last six months since launching in Africa," Haywood-Sandes told African Review. "We're particularly happy with the growth because the technology is so new to Africa. South Africans, in particular, aren't particularly aware of products like DeLorme or Yellow Brick because they aren't actively marketed here or anywhere in Africa, as far as I know. Educating the public/potential consumers as to the difference between GSM and live satellite off-the-grid tracking has been a challenge but we're getting there. We've had a couple of SOS activations so far, which have all been dealt with and injured parties rescued. We've sponsored a number of South African's with SPOT Gen3s to use on expedition-type trips, allowing us to make use of their 'adventures' on social media to help educate people as to how the device works."

Highlighting the versatility of the system, Haywood-Sandes concluded by saying that, "Large and small businesses such as Vodafone, could also use the Gen3 for their lone workers in Africa. The Gen3 is particularly useful for lone workers working off the grid and in potentially dangerous environments". She added that there is, potentially, also a huge B2B market for Trace, to track commercial vehicle assets

when those vehicles are off the grid. Although the device is 'not a fleet management system' per se, she said it, "fills the gap in fleet management systems, since there are still massive areas in Africa, which offer no cellphone network coverage."

Reaching the disadvantaged unconnected

Inmarsat is currently working on two projects in Nigeria and Kenya, which form part of a feasibility study into the use of commercial satcoms in rural areas and bringing internet connectivity to local communities in Nigeria and Kenya. The project is part of the UK Space Agency's two-year, £32-million programme to generate new opportunities for the UK's space and satellite industry to operate in emerging and established space-faring nations.

In Kenya the company is working to help deliver financial services to 200 remote communities and sites across the country, to

increase 'financial inclusion' for the many people who are 'unbanked' in 'unconnected' settings. The satellite service provider is working in partnership with the Equity Bank Group, which is the largest bank in terms of customer base in Africa with over eight million customers in Kenya already. Inmarsat is working with local agents to provide each of the 200 communities with a BGAN Link Internet connectivity terminal that will enable the provision of easy and 'flexible' financial access to people in these new user groups. The company says that in addition to the financial services on offer, agents will also be able to create other business opportunities for themselves and each community, such as selling data-based services.

In Nigeria, the company is delivering maternal and child health services to 50 unconnected rural communities in partnership with players including the Mobile Alliance for Maternal Action (MAMA).

The project has seen Inmarsat connecting clinics in remote regions with BGAN Link Wi-Fi hubs to provide access to online health information from MAMA for these isolated populations and thereby help improve maternal and child health outcomes.

Through its partnership, Inmarsat is delivering satellite connectivity devices to these communities pre-loaded with MAMA's health application and is also helping to facilitate the collection of health data to enable advancements in eHealth findings relating to maternal, newborn and child health in Nigeria. The company says that, 'The project will ensure that these clinics can be part of regional and national eHealth systems, have access to telemedicine content, and provide an environment that encourages women and their families to take advantage of the maternal care available.' ■

Tim Guest

Building a business platform with satellite TV services

As West and Central Africa experience unprecedented levels of economic and developmental growth, the region is increasingly viewed as dynamic and exciting for media services entities and broadcasters. Demand for high-quality services is likely to grow. However, the market is dominated by terrestrial access. While the move to digital has been on the agenda for some time, the transition is yet to gain momentum.

SES has sought to play a key role in establishing satellite television in the region. SES Platform Services marked the beginning of 2015 by setting up an independent English-language TV platform with turnaround services. The platform, which is delivered via the SES Astra satellite on the orbital position of 28.2°E, is geared towards English-language channels for West African countries, as well as international channels hoping to branch out across the continent. SES Platform Services was responsible for the entire development of the platform from planning to realisation.

Access to West Africa

A year on from its launch, the platform continues to offer many benefits for TV broadcasters. It provides access to the West African market for new channels, while well-known and established channels, which have so far mostly been broadcast via terrestrial infrastructure, can use the platform to reach new audiences in an affordable way and open up new business opportunities. Other broadcast services can be flexibly added, meaning the platform is always attuned to the needs of SES Platform Services' customers. Channels using the platform include the popular Sunshine TV, MoneyMartTV and Joy News ventures.

The platform is based on SES Platform Services remote media platform, a DVB platform which re-multiplexes the incoming IP or L-band signal and can encode them if required. It models the signal as an L-band signal and subsequently sends it to the uplink. In terms of equipment, the remote media platform consists of standard racks, fitted with high-end IRDs and multiplexers, which can also re-encode, if required. There is also a modulator which sends the final signal to



The SES Astra 2F satellite

the transmitting antennas. The multi-viewer monitoring system features automatic error detection and alarm functions which are analysed in a master control room in Munich, Germany. Each of the two technical set-ups have a total capacity of between 26 and 30 standard definition channels in MPEG 4.

Positioned on two teleports

SES manages its services to West Africa at teleports in Ghana and Nigeria. The K-Net facility in Accra is used by Multi TV, a popular free-to-air platform operating ten channels on the SES Astra 2F satellite. The Computer Warehouse Group facility in Lagos is well-established for operations across West, East and Central Africa. The Ghanaian teleport has a connection speed of 2 Mbit/s, while the one in Lagos runs at 10 Mbit/s via VPN. These connection speeds can support configuration, monitoring and maintenance of the West African platform directly from the SES Platform Services playout network operations centre in Munich.

New satellite services to rural regions

How the development of access to broadband Internet is enhanced by the introduction and operation of the new AMOS-6 satellite

Africa, particularly Sub-Saharan Africa, offers spectacular potential for Spacecom and our AMOS satellites. With years of experience in Africa, our satellites have provided a mix of customers from ISPs, broadband internet service providers, broadcasters, telecom providers, multi-national enterprises, governments and more with an array of services.

A new focus

Today, Africa is advancing technologically and as cellular networks and Internet broadband build out into Africa's far flung regions, the continent will remain a great frontier with immense growth potential. Spacecom is currently planning to position multiple satellites to service Sub-Saharan Africa. The first of these is AMOS-6, scheduled to be launched to the 4W prime orbital position later in 2016. AMOS-6 was built with Africa in mind. Our focus on Africa also led to us to increase our staffing – both sales and technology – to work closely with our African partners.

This new satellite to be positioned will be co-positioned with AMOS-3 and AMOS-2, and ultimately replace the latter. AMOS-6 will be larger than both of its cohorts combined and will include new technologies such as High Throughput Satellite (HTS) Ka-band spot beams to enable service providers to offer improved broadband internet access to their customers.

The great news for AMOS-6 is that we have already partnered with Facebook to provide Internet Broadband services to the continent. Facebook's Internet.org will provide broadband access to reaches the masses with excellent user experience. Together we will bring connectivity to Sub Saharan Africa with the AMOS-6's Ka-band capacity. This new initiative to leverage satellite technologies will increase the number of African citizens online to relieve pent-up demand for connectivity from the many users in Africa beyond range of fixed and mobile terrestrial



Amir Carmeli, senior VP sales West Africa & France, Spacecom: operator of AMOS satellite fleet

networks. AMOS-6 will be the satellite backbone for this major operation. The strength of AMOS-6's HTS beams aimed at Sub-Saharan Africa will ensure that this strategic goal is met and exceeded. Our partnership with Facebook is an excellent vehicle for Spacecom to serve African communities by enabling them to receive fast, reliable broadband internet. We believe this venture is the quickest method to unlock and expand the continent's latent growth.

New technologies, new markets

In addition, AMOS-6's 39 Ku-band segments will provide a wide array of services. With cross-beam and cross-services capabilities, the satellite will serve an important role as a communications carrier between Europe, the Middle East and Africa. Fitted with numerous new technologies, the new satellite will open more new markets including those in Western Europe and Ka-band spot-beams for broadband access.

Spacecom's AMOS-6 HTS technologies will enable our partners, DTH and broadband service providers, to integrate broadband

services for non-linear content with broadcast services for linear content. One advantage HTS brings is that it makes the provision of broadband faster and less expensive than terrestrial rollout. The farther businesses and households are located from the city centers, the more prohibitive costs of terrestrial technologies become. With HTS platforms, high speed broadband becomes a reality whether for residential customer, as in North America or Europe, or to providing broadband connections for a town or village in Africa.

Spacecom is in a superb position to enable Africa to realise its own potential. Satellite is a quick and effective way to bring a larger percentage of African businesses and citizens online with broadband access. This is especially important in rural and hard to reach far-flung areas. According to the World Bank, every 10 per cent of broadband penetration increases developing countries' per capita GDP growth by 1.38 per cent. This means that more satellite services, especially broadband, boost overall economic expansion. We at Spacecom see our mission to push Africa to further realise its full potential.

Together with local, national and regional service providers, we will enable better connectivity to customers in various Sub-Saharan Africa communities. Our

customers include ISPs, broadcasters, telecom providers, multi-national enterprises, governments and others. Obviously, it should be noted that each country or region offers a very different business climates vary. Thus we need to operate differently in each country and there is no one template for every country. Our local and regional partners best understand the conditions in which they operate and therefore we adjust our operating standards to fit each and every single country. ■

Amir Carmeli, senior VP sales West Africa & France, Spacecom: operator of AMOS satellite fleet



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Caution is needed for the nuclear future

SA's nuclear procurement programme might provide more than a tenth of its energy generation by 2030, but fiscal responsibility is critical

Just before Christmas, South Africa's nuclear procurement programme was approved by Cabinet, allowing the Department of Energy to start calling for proposals to provide 9600 MW of nuclear energy by 2030, equating to 12.7% of the country's energy generation.

The aims for nuclear power provision in South Africa are lofty, with as many as eight reactors planned to begin operating from 2023, at a reported cost of as much as \$100 billion. The numbers have attracted widespread criticism, with many energy analysts and political opposition parties questioning whether South Africa can afford to embark on such a large and costly project.

Energy expert Chris Yelland stresses that, although a call for proposals has started, this doesn't necessarily mean that South Africa will definitely invest such a huge amount of money in nuclear power.

"The fact that Cabinet has opened a procurement programme doesn't mean we are on the verge of a nuclear build. In fact, there is no certainty that it will even proceed. There still has to be a shortlist drawn up on the proposals, the projects still have to go out to tender and final prices still need to be established, there's a long road ahead," says Yelland.

South Africa's government embarked on a similar procurement programme in 2008. Two vendors were shortlisted and submitted bids, but the project was then scrapped when government realised it was unaffordable.

"There is no guarantee that the same thing won't happen this time too. There are still possible financial issues that could put this to an end," Yelland warns.

Soon after last year's announcement, finance minister Pravin Gordhan said that South Africa will not pursue a nuclear power programme if it cannot afford it.

"We will act in a fiscally responsible way and only spend money we have, and if we get more money," Gordhan said in a media briefing.

Yelland welcomed the prudence of the minister, saying that if South Africa was to proceed with its nuclear programme, it needed to do so with caution.

"We shouldn't be committing ourselves to six or eight reactors, we need to act prudently and proceed with smaller commitments, perhaps building one reactor at a time," Yelland said.

In the meantime, government has committed R200 million towards conducting analysis on the feasibility of the programme.

South Africa's only nuclear power station, Koeberg in the Western Cape, has operated efficiently, safely and cost-effectively since it was built in 1984. The 1800MW plant contributes around 6% of the country's energy per year, whilst its radiation and carbon dioxide emissions have been minimal.

Yelland said that it would be a shame to waste the experience gained from running a nuclear power plant effectively.

"Koeberg is proof that South Africa can operate a nuclear power



Koeberg is working proof that South Africa can run a nuclear power programme, but the country needs to proceed with caution (Photo: Eskom)

plant. There is definitely a future for nuclear power here so it would be sad for us to waste this good experience. Hopefully we can build on it," he says.

There are however more possible disadvantages to consider. Question marks have been raised about the affordability of running nuclear power stations, with various studies published last year by South African universities and research agencies finding that nuclear energy is more expensive than other baseload options. But Yelland argues that nuclear energy could prove far cheaper than coal, if strategically approached.

"If nuclear plants are built in coastal areas, which they most likely will be, then they will be very affordable. South Africa's coast has no coal-producing areas, so nuclear will be a very attractive proposition, especially when you consider that seawater can be used for cooling purposes. On the other hand, it would probably be very expensive to build a plant inland at a place with scarce water resources," Yelland points out.

Another issue is flexibility, with nuclear plants requiring long-term investment. They take a long time to build, have a high capital cost and require a commitment of many decades.

"It's risky to invest a high upfront capital cost immediately, as you are committing yourself for the next 75 – 100 years. No one knows how our energy requirements may evolve during that time. Again, this is where the value of building smaller units with quicker lead times comes in," Yelland says.

South African media have reported that nuclear procurement proposals are coming in from Russia, China and Korea, but the Department of Energy are tight-lipped. African Review gave the department three weeks to respond to questions, but received no responses by the time of going to print. ■

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Reviving interest with small reactors

Energy stakeholders are considering relatively simple units for generating electricity from nuclear power, and to process heat

Sub-Saharan Africa (SSA) is desperately short of electricity which hits businesses hard, resulting in an average yearly loss of six per cent of turnover, rising to at least 15 per cent of sales in Ghana and Tanzania reports the African Development Bank (AfDB). Inadequate power supplies constrain SSA economic growth by between two and four per cent a year, notes the Africa Progress Panel's (APP) Report, Power, People and Planet 2015. The current shortfall in power generation, between demand and supply, is variously estimated at around 74,000MW requiring at least a doubling of present day capacity to satisfy current demand, and more to meet future demand arising from rapidly increasing population, urbanisation and a concerted drive for universal access to electricity.

Recognition of the seriousness of SSA's power shortfall has led Ghana, Senegal, Namibia, Sudan, Uganda and Namibia to express an interest in nuclear whilst South Africa, Nigeria and Kenya are developing proposals for nuclear reactors, reports AFKInsider October 2014. Currently, South Africa is the only SSA country with nuclear power. Its two reactors, located at Koeberg generate 1,940MW or around five per cent of the country's electricity.

Nuclear reactors range from the large, producing around 1,200MW, to small at under 300MW capacity (about the total generating capacity of Namibia) to medium known as small modular reactors (SMRs), with capacity of around 700MW (equivalent to the power output of Ghana).

The attraction of modular SMRs is considerable, costing very much less than the US\$5bn of standard 1,200MW reactors, reports the US Department of Commerce publication, The Commercial Outlook for U.S. Small Modular Nuclear, January 2016. Small SMR units can also be aggregated, thereby spreading the cost burden, over several years. Being modular, SMRs are factory produced and delivered to a prepared site ready for installation; versatile, offering base-load for the grid network and power to remote power grids or back-up for the increasing supplies of intermittent renewables. Many SSA country power markets, especially in West Africa, are too small individually to support large scale utilities and grid networks but, by aggregating demand and sharing the investment burden, a medium sized SMR could prove economic viable.

Obstacles to large-scale power solution

Affordability of nuclear and, for that matter, any large gas or coal power project is a prime concern affecting governments and their treasuries and consumers who face big tariff increases. A case in point is South Africa, where power prices would increase by 57 per cent from 3.5-5.5c/kWh, reports EE Publishers March 2015, raising widespread concern at the news that the government has signed Memorandums of Understanding with China and Russia to provide 9.6GW of nuclear power at a cost of US\$100bn by 2030. This political



African energy stakeholders are considering relatively simple units for generating electricity from nuclear power (Photo: Gui Jun Peng/Shutterstock)

decision, has caused Amory Lovins at the American-based Rocky Mountain Institute, to express serious concerns over the economic viability of South Africa's new nuclear drive, reports Engineering News, January 2016. Moreover, given the examples of Britain, France and Finland's ongoing problems with nuclear power plant development, including finding sufficient capital the likelihood is, that South Africa's nuclear ambitions, will suffer from big cost and schedule overruns.

A further difficulty is the current unavailability of commercial SMRs, produced by established manufacturers such as Toshiba, China Nuclear Engineering Corporation and Russia's Rosatom. However, new manufacturers are in the process of preparing designs for mini-nuclear reactors of 50MW reports financial news channel, Bloomberg. At the end of 2016, America's NuScale corporation plans to submit its 50MW reactor design for approval by US Nuclear Authorities. Assuming four years for approval and a construction time of 36 months, mini-nuclear reactors could be on the market by 2025, at considerably lower cost and shorter time scale than current conventional nuclear power as well as the mega coal fired generators typically found in Africa and especially South Africa. Likewise, UK firms aim to build the world's first small modular nuclear reactor in the 2020s.

In reality, the consequences of the oil and commodities price collapse and competing power solutions, means that the opportunities for SMRs and mini-nuclear reactors lie in the early to mid-2020s when commercial designs are launched and when government treasuries are replenished by the imposition of cost-reflective tariffs for all forthcoming power projects, including nuclear power. ■

Atoms for electrification

Global nuclear power generation enterprise Rosatom has been calling for Sub-Saharan Africa's diversification away from fossil fuels. There has been a global shift away from fossil fuels in recent years, and this shift is often referred to as the 'energy revolution'. Ghana has set inspiring energy targets for 2020 in this regard and has shown a tangible commitment to achieving these objectives.

According to Rosatom regional vice-president of Sub-Saharan Africa, Viktor Polikarpov, the integration of nuclear power into Sub-Saharan African economies such as Ghana would serve as a key driver of social economic development, while at the same time lowering the regions CO² emissions drastically. Sub-Saharan Africa is expected to grow in excess of five per cent in 2016, driving urbanisation and increasing long-term energy demands. In order to maintain let alone increase this economic growth potential, it is

clear that the region needs to increase its power generation capacity tenfold.

"It is projected that sub-Saharan Africa will consume nearly 1,600 terawatt hours by 2040, four times what was used in 2010, this if it is to achieve electrification levels of around 70-80 per cent. By 2040, sub-Saharan Africa will consume as much electricity as India and Latin America did combined in 2010," said Polikarpov.

The importance of balance

A balanced energy mix is of great importance in any region, as not one technology alone can provide the complete solution. Renewables most definitely have their place in the region's energy mix but are unfortunately not able to provide base load power.

"Base load power is often referred to as the essential minimum amount of power needed by the grid to effectively run society. Base load is required 24 hours a day, 365 days a year to

run heavy industry. Disruptions in these operations cause major delays, damage equipment, put lives at risk and ultimately cost economies billions," said Polikarpov.

"In my mind the most obvious option would be nuclear power. It is one the cleanest sources today, emitting no greenhouse gasses. It is statistically the safest form of energy available on the planet and finally it is very cost effective, especially when considered as a long-term investment. It is important to take into account that nuclear has an operational lifespan over 60 years, twice that of coal and three times that of renewables," said Polikarpov.

A number of African nations including Nigeria, Kenya and South Africa have expressed great interest in developing nuclear power. Ghana recently revealed plans to explore a nuclear power programme, as it strives to become a major net exporter of energy in the West African sub-region. ■



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In many African countries, consistent and uninterrupted grid electricity is a luxury. More often, brown outs and black outs are typical and businesses and domestic users find themselves having to plan their days around off-peak supplies and peak-time cuts. There are many reasons behind such fragile power infrastructure and services, which vary from country to country. In the case of SA, (whose state power utility, Eskom, has not been out of the news for a very long time for all the wrong reasons), generators are a mainstay for many. Rolling blackouts / load shedding has been the order of the day in recent times. An underfunded and weary Eskom, though with a new man at the helm in the form of Brian Molefe, is now trying to get itself back on track after years of alleged mismanagement, incompetence and neglect, at company as well as state level. A lack of political direction on energy policies has played its part in leading, what was once seen as the world's best-run power utility, down the tragic road it's now on.

However, not to become sidetracked from the subject at hand, the point in mentioning Eskom is twofold: firstly, such unreliable grid supplies mean generators of all shapes and sizes continue to play a massive role in keeping Africa's largest economy powered and, secondly, just like Eskom, if neglected, a standalone generator just won't work properly. That's why making sure a proper maintenance regime is in place for any business or domestic-use generator is crucial.

Maintenance no matter what the generator

Whether it's a 3kW Stramm petrol generator, or a Ryobi 5.5kW, or the full range of Kipor home-use generators of which there are just too many to mention and all widely used in SA, all are suited to run a full gamut of household appliances and electrics. They do, however, need regular servicing to ensure they're ready when the lights go out and domestic householders, no matter how



Companies like FG Wilson SA offer solutions to take the responsibility for keeping a system running off the shoulders of the busy end user

adept at DIY they are, need to follow servicing instructions and even consider service plan options, just like business users normally do.

When it comes to businesses, back-up or standby office generators are often the norm, with the former used by those who typically require a generator to run for about six hours to fill the gap when grid load shedding occurs at set times. Standby systems on the other hand are typically employed to provide power on a 24/7 basis and can run uninterrupted for days or weeks.

All of the above need servicing, regularly. To keep them running reliably, no matter what make or model, size or output, investment in regular, quality maintenance is essential and, according to some industry pundits, most important when it comes to using diesel generators. Irregular servicing can lead to lubricant and fuel problems and simply by running a generator for half an hour a week such issues can be avoided and will ensure the unit copes when it comes to the surges, spikes and high voltages they face. Regular periods of 'maintenance operation' will keep lubricants and fuel flowing and prevent any build-up of contaminants or oxidation from taking hold.

In the case of the business user, keeping an eye on something as peripheral as a

standby or back-up generator when it's not your core business, can lead to neglect. That's why taking out a service contract with a specialist company is key, particularly with diesel systems.

Players like Bundu Power, FG Wilson SA, Tide Power, Absolute Power and many others offer service and maintenance contracts that take the responsibility for keeping a system running off the shoulders of the busy end user. They typically use genuine parts and components to maximise the productive life of a generator set and they'll know how best to get the most efficient operation and fuel consumption out of the unit. A specialist service contract can provide 24/7 support if needed in an emergency, or just regular fuel management and service visits. It makes business continuity sense.

For the domestic user of smaller equipment, the 'from-time-to-time' check-up with a qualified technician makes sense, as does adhering closely to the maintenance requirements set out in any documentation.

Hopefully, with everyone on the same maintenance and servicing page, Eskom's next load shedding event (none scheduled at time of writing) will hardly be significant in the great scheme of things. ■

Tim Guest



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Providing power to projects

In 2015, French genset manufacturer SDMO hosted a series of sales meetings with representatives from the regions in which the company sells its products. Export director Patrick Le Guen discusses the aims of those meetings and the company's future plans.



While difficulties in the global market have caused many problems for the manufacturing industry, in France, SDMO has been bucking the trend. Work at its busy manufacturing plants, complete with a bustling workforce and huge warehousing facilities, continues apace as the company continues to diversify its range and take advantage of its heavy investment in R&D.

The company is helping industry professionals in Africa who are looking for efficient and effective power solutions. With a presence that spans the continent, export director Patrick Le Guen says that despite the African genset market remaining relatively static over the past four years, the falling of oil price, which has severely affected countries such as Nigeria, Angola and

Algeria, the company is continuing to invest in these countries.

"We believe there will be a recovery in these promising countries in the medium term," says Le Guen.

"One of the advantages of working in Africa is that there are a lot of countries, so when you have some markets that are falling somewhat, there are always some that are improving and balancing it out," he adds.

"We are currently doing very well in Africa, especially in the south. We've made a lot of improvements in the southern and eastern parts of Africa where we were previously a little bit weaker when compared to the West Africa where we have been present for a long time."

In 2014, the company set up a branch in Kenya, and from this facility in Nairobi it is

able to work closely with customers throughout East Africa. Le Guen says that the company is now in "quite a good position" in Kenya, while from its base in Nairobi it continues to strengthen its presence in neighbouring Uganda and Tanzania.

With a sales office in Egypt, the company's presence in the north of the continent and into the Middle East has also been strengthened through the introduction of a new sales office and the expansion of its storage facility in Dubai.

Distribution support

Along with its diverse range of genset products, the company's strength lies in its distribution networks, which have helped it become the third largest manufacturer of generator sets worldwide.



Despite its successes in markets throughout Africa and the Middle East, and in its ability to manufacture its products at world-class facilities in Brest, France, export director Le Guen points out that “business is done out in the field, not in Brest”.

“For the time being, we have quite good numbers, in spite of the issues with the global oil price,” he remarks. “The market is really very different in Africa and in the Middle East. In the Middle East the market is driven by projects, because there are large projects in countries such as Saudi Arabia, Kuwait, Qatar and the UAE. Your figures can be really impacted depending on how successful you are at supplying large projects. In Africa it is very different as there are fewer large projects, with the main market there concentrated in the 10-1,000 kVA range.”



SDMO manufactures its products at world-class facilities in Brest, France.

By inviting a group of distributors from across Africa to see first hand the company's operations in Brest, SDMO was able to educate its customers and enhance its service to countries throughout the region. The meeting, which took place last year, was part of a series of regionally-focused meetings that brought together local distributors of the company's products.

“I think we have a good distribution base and we are present in countries throughout Europe, the Middle East, Africa and Latin America,” says Le Guen. “Our challenge now is to make our distributors better and this means convincing them to put service first, because it is really important. It's impossible to be successful on a long-term basis if you do not deliver a good service to the customer – especially as SDMO is a premium brand.”



The X1400C, which SDMO promoted on its stand at last year's Middle East Electricity in Dubai.

Le Guen suggests that the company strongly encourages all of its distributors to be perfectly trained in its products – a service it offers at its facilities in Brest or locally on the ground.

“For training we have people in Brest dedicated to service, but for each area we have a service manager. It is their responsibility to visit all our distributors, train them, check they have the spare parts, set the new warranty claims and provide information about the products,” he says.

Market focus

With the oil price affecting various industries in Africa, Le Guen says that there are certain markets the company plans to target more aggressively in order to maintain its strong standing within the genset industry.

“Currently, the market for oil and gas is not so great, but of course it still exists and is a target for us,” he notes.

“For the time being, however, SDMO is not so strong in that market as it is in perhaps the construction or energy markets, but we have received some good orders over the past two years, and we want to take the benefit from that and establish a larger presence in the oil and gas sector.”

Designed with potentially hazardous industries in mind, the company has developed specific generator sets, which Le Guen describes as being “very special models for the oil and gas sector”.

“Each genset must be able to operate in what is classified as zone 2 under the ATEX directive, which covers potentially explosive locations, so the gensets in the range have been equipped with all type of features that protect them,” he notes.

As it has in recent years, SDMO will once again have a strong presence at Middle East Electricity in Dubai this March. Last year the company's stand featured a range of power products, including rental and portable gensets. The main attraction was the a 1400 generator set from its Power Products >700 kVA range, and a model more than capable of

working in extreme conditions – perfect for usage in the arid Middle East and similar climatic conditions throughout the African continent. The machine is, according to SDMO, more cost-effective due to its lower consumption and the longer intervals required between maintenance. Along with its impressive load impact recovery, the generator set does not require any derating up to use at 40°C.

Portable and compact products have helped SDMO grow its rental business throughout Africa and the Middle East. On the sidelines of the International Rental Exhibition in Amsterdam in 2014, the European Rental Association, which represents 4,300 European rental companies across the continent, presented SDMO with an award for its Rental Compact range, with the shock resistance qualities of the gensets leading to recommendations for construction sites in extremely difficult conditions. The quality of its products, says Le Guen, has really helped the company in the rental market, where it is trusted to supply well-maintained products.

“We have an office in Johannesburg from where we look after the South African market and the surrounding countries, including Lesotho, Mozambique, Zimbabwe, and Zambia,” he says. “Our sales improved a lot in 2015 throughout that whole region and we have established new distributors, offering more support and aiding the excellent job of our South African distributor.”

With a strong distribution base in place, the company has no plans to invest further in this network, but does plan to improve its distribution through training and ensuring the correct business segments are covered.

“Sometimes we have distributors that are very good in construction and mining, but it is possible they are not experts in other industrial sectors,” says Le Guen. “We want to have better segmentation across our business and to be more present in all of them.” ■

Push for 'Made in Ghana'

The furniture industry needs an overhaul for revival of locally-produced goods and the economy to benefit

The Ghana government must, of necessity, begin offering massive support in a variety of ways to the local furniture manufacturing industry if it wants the country to be credited with production of quality furniture by global market players.

The Ghana furniture manufacturing industry has been undergoing serious financial and capacity challenges as well as increasing imports from China, Europe and America over the years, which are rapidly forcing it towards the brink of collapse.

How can local furniture companies be subjected to exorbitant lending rates ranging between 27 and 40 per cent while their foreign counterparts enjoy low interest financial facilities? Such a situation automatically makes the products of the local manufacturers uncompetitive and gradually pushes them out of business.

According to statistics from the Ghana Revenue Authority (GRA), importation of furniture increased US\$18.47mn, US\$30.1mn, US\$42.29mn and US\$45.3mn in 2011, 2012, 2013 and 2014 respectively. But such is a trend — more has to do with lack of capacity to deliver. According to majority leader in Ghana's Parliament, Alban Bagbin, furniture and other fittings for the Job 600 office complex for Members of Parliament were procured from China because no local company could have met the demand. In April 2015, Parliament and Judicial Service found it necessary to import furniture amounting to over US\$20mn to the neglect of local manufacturers.

Industry players are attributing the influx of foreign furniture on the local Ghanaian market and unfair trade to agreement reached between the European Union (EU) and Ghana government. And this is where the government is duty bound to explore new areas by way of initiating development — oriented policies to bring relief to operators and stakeholders in the industry to enable them to compete favourably with foreign firms in Ghana.

Among the policies, there must be continuous intensive training programmes to expose operators in the furniture manufacturing industry to current technologies needed in order to produce ornamental and durable furniture to meet international standards. This is very critical. The Ghanaian government can assist industry players to overcome their financial challenges but if they lack the vital pre-requisites of education and skills in such a technologically-based industry, the whole idea of revamping the industry will be an exercise in futility.

As indicated by Kwasi Awuah Agyeman, president of Furniture and Wood Products Association of Ghana (FAWAG), "We can't continue to remain inferior to other economies. If there is a time for us to show how Ghanaian we are, then it is now or never. We are not suggesting patriotism by patronising inferior or low quality products.

"With the right direction and investment from our leaders, we can equally produce high quality products and elevate our products to match or outdo the competition."

It is, however, gratifying to note that the government is working towards reviewing the existing Procurement Act of Ghana to make it mandatory for all state agencies, ministries, departments, and major companies operating in Ghana to use a greater quantity of locally-



There are few furniture manufacturing companies who are doing well on the Ghanaian market

based manufactured goods and services in their daily business activities.

Indeed, when such a law comes into effect in a not too distant future, it will help in reducing Ghana's foreign exchange deficit as far as imported goods are concerned.

So far, investigations reveal that, from 2011 up to now, China tops the ladder with regard to furniture importation, about half of the overall imports, with USA, Europe, Asia, South America and the Middle East following in that order.

Justifiably, the FAWAG president says, "As a country, we are creating an army of jobless youth; helping to collapse our industries and manufacturing companies; depreciating our local currency and above all shrinking our economy, with the result of absolute poverty, hopelessness and miserable lives for our people."

Cognizant of its continuous strides in 'Made In Ghana Campaign', the government has announced that pretty soon, there will be a national stakeholder conference on the wood furniture industry for the sole purpose of making the sector vibrant, capable of creating job opportunities to ensure economic growth. The government will be executing such a responsibility through the Ministry of Trade and Industry. There will be a three-year action plan and it is expected that, the furniture manufacturing industry shall employ at least 15 per cent to 20 per cent.

There are few furniture manufacturing companies who are doing well on the Ghanaian market and Agorwu Furniture is an example. The company uses local materials to produce high quality furniture comparable to, or even better than some of imported ones.

According to Diabo Samuel, CEO of Agorwu Furniture, "Agorwu Furniture produces high quality range of furniture using our own well seasoned tropical wood that competes with imported furniture from countries such as Italy, UK, Spain, USA, etc. Our locally manufactured mirror-like and matchless furniture is up to four times the strength of imported ones."

With regard to decorative iron furniture being sold on the local Ghanaian market, they are all imported items. ■

— By Emmanuel Yartey

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The world's biggest trade show, bauma 2016 is round the corner, with exhibitors at the ready to showcase their new products and services for the construction market

Perkins

Original equipment manufacturer's (OEM's) are seeking to expand out of Europe as there is not growth in the continent for them to get the growth that they want and there is growth in other places – South America, the Middle East and Africa and China and India equally, according to Oliver Lythgoe, product concept marketing.

"We need to give our OEM's engines that can be easily adapted across all territories including Africa. The OEM's don't want to have two different machine designs its just too expensive for them, the R&D cost will be too high," said Lythgoe.

"We have a parts service commitment, so we keep parts available for our engines – even many years after they have finished production. It keeps its value – the engine will have a long lifespan."

Perkins told *African Review* that it will be launching its own oil at the forthcoming Middle East Electricity taking place in March, as well as at this year's bauma show.

Lythgoe said the firm will be launching, "A specially formulated off highway oil - automotive oils are not good enough for off highway machines," adding "engines get used much harder and have a much longer life".

SDLG

Launching three new products for bauma, SDLG is expanding its range of machinery – especially backhoe loaders, while its graders have also been very popular in African countries. SDLG told *African Review* it has sold its excavators in a couple of African countries too. The L948 four tonne wheel loader, a new five tonne wheel loader called Ig959f and a small crawler excavator called E635f is also part of the new range.

Thorsten Poszwa, global director external communications, said, "We are displaying our



other products such as graders, backhoe loaders, rollers and excavators at the show. SDLG is known for its wheel loaders and what we are doing now with our African dealers is expanding the range of products so its not only wheel loaders."

"We serve them in Morocco and South Africa. Last year we went in with a new dealer in Algeria, so we hope that there is no import restrictions in Algeria. We hope that will loosen up this year and then we have countries such as South Africa, Ghana, Kenya that have been promising."

Caterpillar

A key message the firm wants to send across at bauma is the role technology play's in its machines to improve efficiency for customers and to make it easier for the operator, which it highlights is important when you have operators who might not be very skilled, according to Francine Shore, trade press relations EAME. Shore told *African Review*, "If you've got functions that are semi-operated it makes it easier and safer in many cases. Customers can also save money, save fuel, save time so its really important.

"Fuel will also be a big topic at bauma – for example although the fuel may be cheap for one excavator over a year it will be thousands and thousands of dollars. So if you can save fuel it will have a real impact on the fleet of machines," added Shore.

Volvo CE

Volvo believes it is key for the company to keep investing, keep innovating and responding to customer demands. SE10 partner Brian O'Sullivan told *African Review* that customers are looking for lowest cost per tonne and low cost ownership, which gives Volvo a part to play in providing high quality machines that will not break down.

"Lifetime relationships with the customer - customer support agreements are becoming more valued by the customers and they are certainly more valued by Volvo. It means that you have this ongoing relationship. The machines are prepared and maintained to manufacturer specifications so the customer is happy. Their machine uptime is maximised, also its good for Volvo at the end of the process when the machine needs to be sold as their residual values are higher." ■

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New three-year warranty for Bobcat telehandlers

A new warranty aims to boost customer confidence and increase the resale value for telehandlers



Bobcat TL470

Bobcat has launched a new standard three-year warranty for the complete range of Bobcat rigid telehandlers manufactured at the company's plant at Pontchâteau in Loire Atlantique in France.

Available as standard in Europe, Middle East and Africa on all the models in the Bobcat telehandler range from the T2250 5 m telehandler to the top-of-the-range T40180 18 m model, the new warranty reflects the high quality and reliability of the products manufactured in Pontchâteau, according to the manufacturer.

The new three-year warranty demonstrates Bobcat's commitment to the market as a whole and is complemented by a range of warranty extension programmes from Bobcat. The new warranty will also enhance customer confidence and increase resale values for Bobcat telehandlers.

The Pontchâteau plant produces all of Bobcat's rigid telehandlers with the design, development, production and sales organisations all based at the plant. Currently, the Pontchâteau site produces 14 different Bobcat telehandler models, with lifting heights from five metres to 18 metres.

Aimed at applications in the construction, rental and recycling industries, over the last four years, a new generation of Bobcat machines has been introduced, including —

- TL series (Telescopic Loader) TL358, TL358+, TL360, TL470 and TL470HF, 5.8 to 7 metres two stage boom models aimed at intensive applications.
- T Series (Telescopic) T35105, T35105L and T36120SL 10-12 metres middle lift models; T35130S, T35130SL, T35140S and T40140 13-14 metres high lift models and top-of-

the-range T40180 18 metres telehandler.

At Pontchâteau, Bobcat ensures the company delivers products of the highest quality through the selection of leading and proven suppliers, integrated design, reliability/endurance testing and the manufacturing process in which 100 per cent of all production units are individually controlled and quality approved.

Bobcat, founded in 1947, designs, manufactures, and supplies compact equipment for the global construction, landscaping, agriculture, industrial, mining, rental, ground maintenance, and utility markets.

Bobcat offers products such as loaders, including skid-steer and compact track loaders; and compact excavators, utility vehicles, utility work machines, and telehandlers. ■

Bomag's superior single drum rollers

Construction equipment earthworks portfolio is enhanced with increased efficiency, eco-friendliness and ease of operation

The latest engine technology and intelligent power control make these models true trendsetters in efficiency and eco-friendliness. The Ecomode function has been shown to reduce fuel consumption by up to 30%, whilst delivering the same compaction performance. The optional Ecostop function not only saves on fuel, but also reduces engine wear. These intelligent fuel-saving features pay for themselves with lower operating costs. In addition they increase potential resale values, because these rollers are in use for fewer actual operating hours. Thanks to the latest generation engines, pollutant emissions have

been dramatically cut. This is due to the highly efficient engine design giving with lower fuel consumption, plus the optimised exhaust after-treatment.

Compaction at the turn of a switch

Models BW 213, 219 and 226 feature Variocontrol (BVC), the well-known compaction system from BOMAG with automatic compaction control. A clever, new operating concept makes it even easier for the operator to make full use of Variocontrol: just one rotary switch integrated into the arm of the seat is needed for all settings. In manual mode, the operator chooses the

required amplitude; in automatic mode, he can specify EVIB values and Variocontrol takes over control of the amplitude. Thanks to the clear icons on the control panel, the operator sees immediately whether he is in manual or automatic compaction mode, and provides a clear indication when maximum compaction has been reached.

Variocontrol automatically ensures that energy is constantly transmitted at the optimum level and that the operator has his work fully under control. This prevents over-compaction and minimises the number of passes required, which in turn increases productivity and the quality of compaction performance.

Everything in sight and under control

Ease of operation and working ergonomics were given special attention by the engineers at BOMAG during development of these new generation models. The dashboard features a clearer and more user friendly design. The compact steering wheel and the steering column with individual adjustment provide a perfect view of the drum. The operator's cab is generously proportioned with large windows. This means the operator always sees what is going on around the machine, which in turn ensures significantly higher levels of safety.

A new loading function on the speed switch is particularly practical, making loading of the roller even safer and easier.

A special highlight of the high gradeability DN versions is their pump system, which incorporates two pumps supplying two engines. This makes the machines far more stable in operation on steep slopes. The excellent gradeability of over 60% is constantly attainable when moving forwards and backwards.

Long servicing intervals, excellent access to maintenance points, and many maintenance-free components ensure high availability of the machine whilst at the same time keeping the costs down. ■

Future-proof engine technology: Ecomode and Ecostop make these new generation BOMAG 11 to 26 t single drum rollers trendsetters in energy efficiency and cost-effectiveness



Featuring dual pump drives, the new single drum rollers effortlessly handle gradients of up to 60% in both forward and backward directions



The Variocontrol compaction system can be fully adjusted using just one rotary switch integrated in the arm of the seat

Better flooring, quicker turnaround

Seamless flooring is increasingly being viewed as a cost-friendly option for several contractors

Flooring refers to installing or applying materials on a rough, uneven surface that ensure a floor is completely covered, allowing one to walk without any inconvenience.

There are different kinds of flooring options, and seamless flooring is used widely as it provides good grip, especially indoors.

Seamless flooring installations offer several other advantages and as a result are considered the best solution when it comes to reducing volumes of concrete and facilitating speed of construction.

According to Nic de Carvalho from CLF, seamless flooring systems enable contractors to pour significantly larger areas per say than when using traditional methods. Other significant advantages include enhanced construction safety, shorter project completion turnaround and no saw cuts or joint curling.

The need to complete projects more quickly and to curtail costs has seen an increase in the demand for seamless flooring installations. It's common for contractors to be able to pour between 2,000 sqm and 3,000 sqm, while installing a seamless flooring system, and this is a major difference to the maximum of around 500 that can be poured using traditional flooring construction methods. "It enables contractors to significantly accelerate their construction programmes," de Carvalho says.

CLF, an AfriSam Group company, recently successfully completed the installation of a seamless floor for a large warehouse being built in Krugersdorp, Gauteng. The 130 mm thick seamless concrete floor was installed at the Watch Tower Warehouse. The large facility has an expansive floor space of 16 000 sqm, which made this technology an ideal solution due to the project size and scope.

CLF uses a very tough composite material made from special concrete, a high saturation of high tensile steel fibres and anti-shrinkage compounds underpinned by total quality management systems to produce the thinnest, toughest and largest seamless floors in the country. The lack of joints means floors are flatter and this facilitates faster movement of forklift traffic.

"These features of the seamless flooring system make it a natural choice for industrial and commercial applications such as warehouses and distribution centres," de Carvalho said.

The patented Primekss system was developed in Europe under funding by the European Union Technology Grant and to date has been successfully used by some of the largest logistics companies in the world. "On a local front we have undertaken work for some of South Africa's largest industrial facilities such as the 90 000 sqm Unilever Distribution centre in Boksburg and an 11,000 sqm post tensioned seamless floor for BMW's manufacturing plant in Rosslyn," added Carvalho.

CLF has been a leading industrial flooring contractor in southern Africa since 1998. The company specialises in the design and installation of seamless concrete flooring for industrial and commercial applications and offers turnkey solutions.



The most significant advantages of seamless flooring systems are that contractors can pour significantly larger areas a day

Fact Box about AfriSam

AfriSam is unlocking value for its customers by partnering with innovative companies that specialise in the application of its products and services. Through its partnership with Concrete Laser Flooring (CLF), AfriSam is pioneering some of the latest trends and developments in concrete technology in the South African construction industry.

"Our partnership with CLF is in line with our vertical integration and brand extension strategy. It positions AfriSam as an integrated concrete solutions company. We do not only supply cement and concrete, but offer a total solutions approach to our customers' varied needs. We are always on the lookout for new solutions, innovations and opportunities to bring to the attention of customers, as well as advancing the knowledge and skills base of the industry itself through our active participation in The Concrete Institute (TCI)," says Richard Tomes, sales and marketing executive at AfriSam. ■

"AfriSam is a total solutions provider for its customers. The partnership with CLF is a perfect example of this, driving both the demand for and application of concrete and promoting the latest advances and technologies."

Consistency in changing environments

Why many regard manufactured sands as the future of Africa's construction industry

Depleting water and sand resources on the African continent, combined with stricter aggregate specifications and multiplying bans of river sand mining in some countries, such as Kenya (in 2014 Machakos County assembly banned sand harvesting on river beds) present a fresh opportunity to explore water-saving sand and aggregates washing as a profitable alternative to river sand mining.

Whilst countries such as South Africa, Namibia and Zambia have already embraced – to a degree – the switch to more environmentally-friendly, higher-profit sand and aggregates washing systems, others are still resisting what has now become a global trend. Quality manufactured sands made of washed aggregates are fast becoming the alternative of choice to natural sand.

CDE Global specialises in manufactured sands and its presence in Africa has grown steadily in the past years. With experts from an engineering background based in South Africa and travelling across Sub-Saharan countries, CDE Global is able to understand, and crucially respond, to changing industrial, economic and geographic environments as well as clients' needs. The recently installed

CDE washing Combo X70 in a Tanzanian quarry, the most advanced plant of its kind in East Africa has proven a hit with its owner who has been able to optimise production and financial outputs through consistency in sand quality, and therefore developing an edge over its competitors."

Engineering quality

Wayne Warren, business development manager for CDE Global in Sub-Saharan Africa, said, "Africa is mineral-rich and a wide range of rock types can be used for crushing, including dolerite, granite and dolomite amongst others. However, crushing alone more than often cannot produce a manufactured or 'engineered' sand of sufficient quality.

"Sand and aggregates washing using a reliable, water-recycling combined installation, such as the CDE X70, optimises return on investment and quality outputs by maintaining consistency and increases productivity, delivering ready to use concrete and/or plastering sand at the correct moisture level, within the client's time and quality requirements.

"With a water recycling rate of 90 per cent,



Quality manufactured sands made of washed aggregates are fast becoming the alternative of choice to natural sand

the CDE AquaCycle technology adds great return-on-investment value to any installation that requires high levels of water recovery.

"CDE wet and dry washing solutions also have the advantage of being highly flexible to meet any requirements customers may have, wherever their operations are based. For instance, in areas affected by extreme drought conditions, where there may not be enough water to run an EvoWash, CDE also offers a range of dry-washing options in the form of revolutionary Sirocco Air Classifiers that use air in place of water to produce high quality sands in the most challenging environments." ■



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VDC improves building management

WSP | Parsons Brinckerhoff Africa helps builders to create new business models with advanced design and construction techniques

From the advances in stonemasonry that led to the building of the Parthenon in Athens, right through to the latest green building trends, the building industry has been at the forefront of innovation throughout human history. Today, virtual design and construction (VDC) technology is the latest innovation to transform major building projects; from conceptualisation, through every phase of design and construction, to facilities management.

By breaking down previous communication barriers between design, engineering and construction, VDC technology enables a team to move from a legacy 2D workflow into a virtual reality. A platform where an information rich virtual 3D model of the project can be experienced by everyone involved - and before ground is even broken.

A paradigm shift

Like the historical transition from hand drawings to computer-aided drawing (CAD) in the 80s and 90s, the architecture, engineering and construction (AEC) sector is currently undergoing a major transition in the way in which projects are engineered and constructed. The advent of VDC and building information modelling (BIM) has created a paradigm shift. We now find ourselves in an exciting era where the full design intent can be conceptualised, designed, analysed, visualised and coordinated across project teams in a virtual 3D environment. The latest BIM/VDC advancements have moved project data to the cloud, enabling dispersed teams to access centralised live model data from any

location and device, whilst being able to carry out design coordination across disciplines.

Pushing the boundaries of design

Design technology advancements have dramatically shifted the limits on the size of building projects that design teams can generate models for at any one time. For instance, it is now possible to generate virtual models of entire cities, up to 100km² and over 100,000 buildings. These city size models can include high fidelity 3D terrain models with aerial photography, roads, railways, bridges, services, structures, buildings and landmarks - whether existing or new - for the proposed development zone. Imagine being able to see a full 3D rendering of an entire city before that city exists.

What's more, these models can now be developed so much faster. What used to be a highly technical and laborious task has acquired a large component of automation, making it possible to take on larger projects with more demanding project time frames? City size models can now be developed in a fraction of the time and, this new design technology has opened the doorway to context based design. Engineers can rapidly design and analyse their proposed solutions in a virtual realm, which provides a detailed and extensive representation of the real world application.

Printing a model to life

While the technological advancements in 3D design and visualisation are in themselves a fantastic aid for the AEC sector, often a developer or client still prefers to see (and

feel) a physical model. Historically these physical models were painstakingly built by hand, and due to the amount of effort involved, did not lend themselves to accommodating design revisions.

The advent of 3D printing has enabled design teams to rapidly create physical scaled representations of their virtual design model, with ease and precision. 3D printing also allows the physical generation of more complex, highly detailed scale models of design components that are time consuming and often impossible to manufacture by hand.

The speed of 3D printing, especially when using a modular or segmented approach, means that physical models can be created at

an early stage of the project lifecycle. The physical model can keep evolving as the project moves from conceptual through to detail design, leading to significant time and cost savings for the project team, particularly where there are last minute changes to the scope of the project.

Taking 3D modelling to an immersive experience

3D and related technology is advancing at a rate of knots, and it is already possible to allow a client to experience their project in a virtual reality space. For instance, project design teams on the cutting edge of this innovation are able to link Oculus Rift VR headsets to

VDC/BIM software, enabling the client to walk through and look around their new building long before construction begins, in an immersive 3D stereoscopic environment.

If we consider the emerging capabilities of 3D display technologies, VR headsets and even 4D immersive holographic spaces (that join multi-view and multimedia-rich spaces), coupled with augmented reality and gamification, showing off the design concepts of a building project could become a complete immersive experience for everyone involved. ■

Douglas Ackerman, regional director and head of VDC/BIM, WSP | Parsons Brinckerhoff Africa

Architects rank WSP | Parsons Brinckerhoff as best partner

The top 100 global architects have ranked WSP | Parsons Brinckerhoff as best services engineer for the second year running in the annual supplement, World Architecture 100 (WA 100).

The WA 100 list is the annual survey of the world's largest architecture practices, which also includes architects' verdicts on their favourite professional partners including

services and structural engineers, contractors, cost consultants and project managers.

WSP | Parsons Brinckerhoff also continues to be highly rated in the structural engineers category, repeating the 2015 achievement of second place.

An award was also handed to Isabelle Adjahi, who was named best investor

relations officer (mid-cap). "It is an honour to be recognized by analysts and investors for our excellence in investor relations. In line with our company values, our IR activities are based on transparency and responsiveness with the aim of supporting the appropriate valuation of the company, thus supporting long-term growth," said Ms Adjahi.



The PANAFRICAN GROUP has entered an agreement with Vacuworx for the distribution of its line of lifting products for Sub-Saharan Africa.

For more than 15 years Vacuworx has been engineering and manufacturing the highest quality heavy-duty lifting equipment for the oil, gas, water, sewer, utility, and road construction industries.

Vacuworx vision is to create the safest, most efficient work environment for those who handle heavy-duty pipe, plate, slab, HDD drill stem, and concrete road barriers.

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West Africa gets back to business at WAMPEX

What is it about WAMPEX that keeps attracting over 100 global industrial companies, investors and thousands of visitors every two years? Why do governments, NGOs, trade associations and powerful private sector organisations flock to the West African Mining and Power Exhibition in Accra, Ghana, every second year without fail?

There are many reasons – the most important is that WAMPEX is the biggest networking platform for showcasing products and services directly to the power and mining sector companies that operate throughout West Africa. Last year, WAMPEX hosted an impressive 140 exhibitors from 16 countries, and next year's event is bound to grow even bigger. WAMPEX 2016 takes place from 1 to 3 June 2016 at the Accra International Conference Centre in Accra, Ghana.

Expanding opportunities across West Africa

"West Africa is still one of the biggest and fastest-growing industrial, mining and power generation markets in the world," said John Thomson of Exhibition Management Services, organisers of WAMPEX. "The region has massive gold, copper and iron ore deposits and hundreds of mining projects underway at any given time, all with heavy electricity demands. The Toronto Stock Exchange currently lists about 150 mining projects in the area."

Regional governments, private sector companies, investors and entrepreneurs use WAMPEX as a platform to broaden business links, expand supplier and customer networks and access the ever-growing opportunities in West African countries.

"WAMPEX enables all stakeholders to develop and strengthen relationships, stay up-to-date with the latest products, services and technologies – and sign deals! This extraordinary expo has a successful 22-year history of delivering results," added Thomson.

Maintaining strong partnerships

"WAMPEX is certainly the largest and most effective business platform available for the mining and power sectors in the sub region," said Sivnesh Kuma, general manager of Interplast Ghana, which has exhibited at every



WAMPEX attracts global industrial companies to West Africa

WAMPEX for over a decade. "In addition, the collaboration between WAMPEX and the Ghana Chamber of Mines gives exhibitors such as Interplast the advantage of direct contact with specific mining projects and the professionals involved."

The Ghana Chamber of Mines is one of several organisations that actively endorse and support WAMPEX. Ghana's Ministry of Energy, Ministry of Lands and Natural Resources, the Minerals Commission of Ghana, the Volta River Authority and the Electricity Company of Ghana are also active endorsers of WAMPEX.

Innovative products and services

"Our company's core business is mining and we always find the best business contacts at WAMPEX," said seven-time exhibitor Outare Kokobissi, West Africa Area manager for KSB Pumps. The company's Ghana office focuses on developing and supporting its West African customers by providing tender pre-qualification, negotiations and administration, as well as sales, technical and commercial

support for its pumps and valves. Interplast's Kumar added, "We will be launching our latest product at WAMPEX next year. Ingreen is a platform for the design and installation of automatic underground irrigation systems. It features a wide range of top quality products including sprinkler heads, sprinkler timers, valves, accessories and tools manufactured by Interplast and Hunters industries."

Oil giant Total Ghana has a number of projects it will showcase at WAMPEX 2016, including a new fuel additive, its AWANGO solar lamps, and a new high-tech fuelling depot in Takoradi.

Geotech specialises in airborne geophysical survey mapping, data processing and data interpretation, and will also be at WAMPEX 2016 to network with existing and potential customers.

"We always update the industry on our latest innovations and improvements on our technology at WAMPEX," says Doug Pitcher, the company's managing partner and director. ■

Excellence in exhibition management and services

Exhibition Management Services (Pty) Ltd (EMS) of South Africa is arguably the best-known and most active professional exhibition company in Africa. Indisputably it is the continent's leading independent organiser with associates based throughout the continent.

Established in 1981, it has a long history of working with government ministries, parastatals, professional bodies and the private sector for the benefit of the peoples of Africa.

EMS is involved in the total spectrum of the industry from the establishment and management of exhibition venues, to organising exhibitions for its own and other principals' accounts, to site arrangements for national pavilions abroad.

In short the company offers the most comprehensive and professional exhibition industry service anywhere in Africa today.

PE's push on minerals

Traditionally private equity would not have found its way into mining assets, however the discussions that took place at this year's Mining Indaba, in Cape Town, highlighted that finance and investment in the minerals sector is seeing an unprecedented surge. Historically, private equity has shied away from the sector for many reasons: lofty valuations for companies; volatile commodity prices; a lack of technical understanding of mining; and the fact that the public equity markets have been a more than sufficient source of capital.

Filling the M&A vacuum

With falling commodity prices, changing market conditions, the slowing of mergers and acquisitions and miners finding it hard to raise capital by traditional means, there is an opportunity for Private Equity (PE) firms to fill the void within the industry. Some of the big players in mining have raised money to invest, however there are still many that are prepared to, or have the shareholder mandate to go out and make acquisitions. And likewise, even if the juniors and the mid-tiers have the shareholder mandate, they do not have the capital.

Mining companies are also facing more regulatory requirements, which is putting pressure on cash outgoings. For instance, the increased interest in private equity comes ahead of this year's review of South Africa's Mining Charter which will be amended and final amendments are expected to be made to the Mining and Petroleum Resources Development Amendment Bill.

Investors should not be deterred

Despite facing an evolving landscape, regulatory change and even shifting political objectives, mining has become too compelling an investment case for private equity to ignore.

Unlike the leveraged-buyout model that is often associated with private equity, PE firms investing in mining have a very flexible investment model with a full range of debt and equity options at their disposal. They are in-tune with commodity prices, and while producing, cash-flowing properties are generally preferred, niche players exist that focus on earlier-stage projects or distressed assets.

The clouds are definitely parting for the

junior mining sector. There are lots of different shapes of private equity not only for the big players and investments in mature assets, but also for the junior miners, who have already been producing assets but need further investment.

Regardless of the focus or investment structure of a fund, what all private equity

firms have in common is a focus on the bottom line and a hands-on approach that is meant to maximise their returns. ■

Morné van der Merwe, an M&A partner of Baker & McKenzie's Johannesburg office and Richard Blunt, a London-based corporate partner with a focus on private equity and natural resources

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BC buckets bring more

At Bauma 2016 Atlas Copco will present its new generation of BC bucket crushers offering up to 80 per cent higher output than previous models. High resistance to wear and fatigue, and greater reliability despite significantly reduced maintenance requirements make the new BC bucket crusher one of the best pieces of equipment in its class.

Designed for carriers from 22-38 tonnes, the machine is available in two versions, BC 2500 and BC 3700.

The robust BC 2500 and BC 3700 bucket crushers are a smart choice for "small" demolition, recycling and road construction applications where they are often an efficient alternative to a mobile jaw crusher. Capable of crushing up to 110 tons/hour, they also offer a high level of flexibility in terms of operating reach, depending on the mobility of the carrier.



All types of inert material, including asphalt, stone and concrete debris, mine and quarry material, can be crushed and re-used on-site using a rig-mounted BC bucket crusher. Crushed material can be re-used directly or sold to third parties. This requires less mechanical equipment, lower transportation and dumpsite costs and only one operator who handles both the demolition attachment and the bucket crusher

The advanced twin-drive system comprises two powerful hydraulic motors. The sturdy

timing belt is designed for long service life and the system provides huge torque right from the start.

Full loading capacity can be used without risk of blockages and the absence of slippage during start-up ensures constant power transmission and no extra load on the bearings. The internally mounted drive system allows a narrower shape without compromising loading capacity. This gives enhanced usability and improved reliability.

All types of inert material, including asphalt, stone and concrete debris, mine and quarry material, can be crushed and re-used on-site using a rig-mounted BC bucket crusher. Crushed material can be re-used directly or sold to third parties. This requires less mechanical equipment, lower transportation and dumpsite costs and only one operator who handles both the demolition attachment and the bucket crusher.



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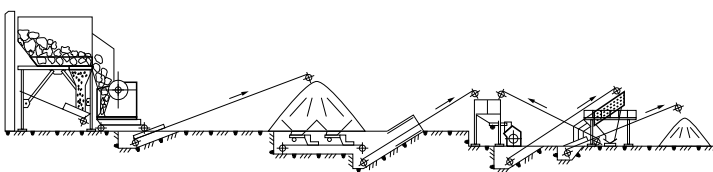


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A significant engineering approach being introduced in this model is the material flow through the plant. The flow of material has been significantly improved by increasing the width of components as the material moves through the machine.

The machine features an advanced electronic control system that monitors and controls the speed of the rotor and regulates the heavy duty vibrating feeder (VGF) with integrated pre-screen to maintain a consistent feed of material into the impact chamber for optimal crushing conditions. Material from the integrated pre-screen can be diverted to a stock pile via the optional bypass conveyor, or it may join the crushed product on the main belt. The standard hopper capacity of 6m^3 (7.5yd^3) places the machine at the forefront in this competitive market sector.

"The introduction of the Terex Finlay I-140 represents a significant step change in our family of impact crushers. Our field test results of extensive testing have recorded significant productivity increases depending on the application, over the model that it replaces. The enhanced material flow process of the plant represents a significant step change to our engineering ethos and in due course will be extended to encompass our range of impact crushers" said Alan Witherow, product manager. ■



The Terex Finlay I-140 shows its performance in a recycling application



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Factors affecting mine functions

Typical threats to site control, and the systems and initiatives trending to secure safe operation

Mining facilities face security risks due to numerous factors. Despite their remote or isolated locations, they rely on remote operation centres which employ or control trucks, drills, trains, ship loaders, mills or concentrators. They are exposed to environmental activists who may commit cyber-attacks for political reasons or economic attacks such as disruption of the metal market, especially copper, so as to affect the price at another mine. Also affecting this industry is the fact that many business functions are being centralised across the supply chain. This has translated into the need for more sophisticated operational technology (OT) systems and network infrastructure to connect the geographically diverse workforce, increasing an organisation's exposure to, and dependency on, the Internet.

Mining organisations increasingly want to utilise OT assets for business purposes. They want to be agile and have the ability to make modifications to their OT configurations. They want to take advantage of new, cheaper, IP sensors and actuators. They want to exploit their corporate identity provider service to authenticate operational personnel. It's an exciting time for operational technology systems. However, it is also a time for caution. Such progress inevitably brings a new range of security issues.

Ensuring effective security

The objective is to reduce the access path of potential cyber hackers to OT systems from the Internet. OT systems are inherently less secure as many old systems were not designed with security in mind. A proper security solution must be not only cost-effective but also take into account the complex integration of remote systems, peripherals and cloud-based services integrated into internal networks and devices.

OT security solutions can provide mining and metal companies with a robust, centrally-managed and enforced OT security

policy, automation of hardening processes with reporting of compliance to management and regulatory authorities. The solution can include a security centre system located at a company's headquarters and virtual security engineers (VSEs), installed in each site. NextNine offers such a solution.

Bringing IT and OT together

There are also considerations with respect to the trend towards convergence of information technology (IT) systems and OT assets. Over the past five years, particularly, the worlds of IT and OT have been converging, and technologists have managed the integrating IT and OT environments - delivering several benefits including optimised business processes, enhanced information for better decisions, reduced costs, lower risks, and shortened project timelines. Convergence brings a shared set of standards and platforms across IT and OT, and so enables mining companies to reduce costs in many areas of software management. Most importantly, too, are the reduced risks that come from reducing malware intrusion and internal errors. Cybersecurity is enhanced when IT security staff and practices are shared or combined with OT departments, to bring about an holistic IT-OT security environment.

Corporate support

Companies that can be called upon to support the integration of security

technologies and methodologies with IT-OT frameworks include: N-Dimension, a managed security service provider (MSSP) with innovative solutions tailored to protect smart energy networks from cyber threats, improving system reliability and safeguarding critical infrastructures, data and assets; Waterfall Security Solutions Ltd is the leading provider of strong network security products which protect the safety and the reliability of control system networks.

Waterfall Security Solutions, which seeks to eliminate the use of firewalls in critical infrastructure control systems by developing products providing stronger-than-firewall protections for industrial control networks; Wurdtech, which helps industrial operators and device manufacturers mitigate threats and vulnerabilities by providing products and services that help customers design, test, certify, and secure their internet-connected devices, ICS and other critical controls, as well as site operations; NextNine, a specialist in security management software for industrial and critical infrastructure, markets that are vulnerable to cyber security attacks and are underserved by conventional enterprise IT solutions; Hewlett Packard Enterprise, which creates security roadmaps for businesses through collaboration to facilitate innovation and a robust bottom line.; and Trilogy, which offers managed security services incorporating a unified threat management solution. ■

Design innovation with the Ivanplats headframe

Mining industry contractor Murray & Roberts Cementation demonstrated its design and drawing capabilities with completion of the design of Ivanplats' mechanised, high tonnage Platreef No. 2 shaft headframe, for the first phase of Ivanplats' Mokopane project. When complete, the Mokopane project will be able to produce 433,000 PGM ounces per annum, and will be a 12Mtpa operation. Ivanplats is a wholly-owned subsidiary of Ivanhoe Mines.



Murray & Roberts Cementation completed the design of Ivanplats' Platreef No. 2 shaft headframe



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COMMUNICATIONS

Dron Maroc leases its Inmesol gensets to the potash mine in Khemisset, Morocco

A **DRON FRANCE** subsidiary company, **Dron Maroc** specialises in gensets sale, lease, and maintenance, with extensive experience in the area.

It has a large fleet of 17 to 2,000 kVA gensets, both for emergency (when connected to the mains) and industrial use (for remote locations without electricity), servicing a wide range of areas including construction, mining, wind farms, events organisation, etc.

The equipment of its fleet is constantly being renewed in order to meet the most demanding and complex needs and applications.

As leaders in the Moroccan market, their strategy is to always offer innovative and quality equipment with proven supply reliability.

Another driver in achieving their leadership in the market has been their response capability. They have a large stock of accessories: fuel tanks, cables, grommets, switchboards, etc. And



IVR-550 model at the potash mine, in Khemisset, Morocco

everything necessary for the maintenance of filters, pumps, timing belts, etc.

Dron Maroc recently offered their lease services at the potash mine located in Khemisset, Morocco.

For this application, the **Inmesol IVR-550** genset was selected, for industrial use and that particularly supply energy to potassium ore crushers at the mine.

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 <p>Competitive cargo handling fees</p>	 <p>Immediate market access with Calogi</p>	 <p>Instant representation with Cargo Partners</p>



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Hello Tomorrow



Unmatched facilities for time and temperature-sensitive cargo

Our state-of-the-art hub in Dubai is the perfect place for temperature controlled products in transit. As we continually enhance our seamless Cool Chain solutions with innovative and efficient features, we make sure that your product's integrity is never compromised.

144 MAIN DECK ULD POSITIONS

72 COOL CELLS
10 CELLS -10 °C
62 CELLS 2-25 °C

15,000 m²
TOTAL COOL CHAIN AREA

5 TEMPERATURE CONTROLLED ACCEPTANCE & DELIVERY TRUCK DOCKS



3 PHARMACEUTICAL STORAGE ROOMS
2-8 °C | 15-25 °C

4x DUBAI MUNICIPALITY INSPECTION ROOMS



BACK-UP POWER GENERATORS
TO ENSURE UNINTERRUPTED COOL CHAIN PERFORMANCE