

African Review

of BUSINESS and TECHNOLOGY



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Enterprise mobility markets



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THE NEW SPIRIT OF AFRICA

Editor's Note

This issue covers West African economic and commercial concerns, and addresses several of the continent's staple industries and available solutions and services - in finance, technology, power, construction and mining.

The numerous business opportunities in Nigeria and Ghana, for example, are assessed, between pages 20 and 25 - with the resurgence of Ecobank highlighted in an interview with the bank's CEO, Albert Essien, on pages 26 to 28. Also examined, between pages 30 and 33, are developments in technology for corporates, as seen in the rise of enterprise mobility served by new data centre architectures.

With respect to power generation and the distribution of energy, between pages 34 and 40, with articles on Icelandic investment in African geothermal infrastructure, and on condition monitoring of power plant equipment for stable energy supply. From page 42 to page 56, the construction sector is comprehensively addressed, with articles on screw technology, equipment for machine control and rugged computing - and on project work for transport, urban environments and other forms of national infrastructure. Mining is covered between page 58 to page 62 with an appraisal of the innovations on show at Electra Mining recently.

Andrew Croft, Editor



Cover picture: Handheld Group
Inset, top right: GCIS
Inset, bottom left: JCB

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Agenda / North

Solar complex to expand, to serve more Moroccans with clean energy

The **World Bank Group** has approved a US\$519mn project to support Morocco's ongoing efforts to reduce its dependency on fossil fuels by developing its renewable energy resources. The project will back the government's strategy of harnessing power from the sun through the use of concentrated solar power technology.

Morocco is the Middle East's largest energy importer, and depends on fossil fuel imports to generate over 97 per cent of its energy. The Noor-Ouarzazate Concentrated Solar Power Project will support the **Moroccan Agency**

for Solar Energy to finance the expansion of Morocco's first utility-scale solar energy complex, helping increase its capacity and output, especially during peak hours

"Morocco stands at the forefront of climate-friendly policies in the region," said Inger Andersen, World Bank Regional Vice President for the Middle East and North Africa. "The country is well-positioned to benefit from its head-start at a time when other regional powers are beginning to think more seriously about their own renewable energy programmes.

More MENA investment from IFC

IFC has stepped up its work to encourage cross-border investments between emerging economies in the Middle East and North Africa and other developing regions over the past twelve months.

During the 2014 financial year, IFC committed around US\$640mn to projects that help MENA investors expand into neighbouring countries and other parts of the developing world. That is an increase on the US\$500mn invested in the previous year, and demonstrates IFC's support for industry leaders keen to share their knowledge and skills in new markets, create jobs, and boost growth.

"MENA still lags behind the rest of the world when it comes to economic integration," said Mouayed Makhoulf, IFC director for the Middle East and North Africa. "One of our priorities is to support regional champions as they expand within the region and beyond, supporting them as they become global leaders."

Major successes this year include an investment of US\$100mn in **ACWA Power**, which will help the company significantly increase the amount of power it generates from renewable sources and meet the growing energy demand throughout MENA.

Sudan to get exceptional support

The **African Development Bank Group (AfDB)** has concluded that its programmes and operational activities in Sudan through to 2016 will require US \$133.60mn in exceptional support. This finance is structured to bolster strategic technical assistance, capacity building and targeted operations critical to preventing Sudan from sliding into deeper fragility.

The AfDB board has recognised that, while Sudan has made good progress on both the

political and economic fronts, daunting political challenges still remain. However, the board has also observed that the country has been eager to re-engage with the international community. The most recent AfDB briefing on Sudan states, "This difficulty to make headway, especially on debt relief front, comes with the risk that the country could slide into deeper fragility that could have regional implications and painful costs. This risk is exacerbated by the conflict in South Sudan."

ACE launches Image Protect insurance

A multiline property and casualty insurer, **ACE Group** has launched Image Protect, an innovative insurance product designed to help companies across the Middle East and North Africa (MENA) region effectively manage their reputational risks.

A recent study conducted by ACE with businesses across 15 countries, including several within the MENA region, found that 92 per cent of companies believe that reputational risk is the most challenging category of risk to manage.

ACE Image Protect has been designed to address this concern by providing cover to protect businesses financially, should an accident happen that injures their customers, other visitors or staff on their premises or any other covered location. More specifically, companies can benefit from:

- Immediate financial assistance, enabling the company to make cash payments to customers, and visitors who may have been injured on the premises, in cases of accidental death and accidental permanent or partial disability.

- A dedicated budget for incident response, enabling a company to hire the right experts who can help it to reduce reputational risk in the aftermath of a mass-loss incident, for example through providing professional counselling and PR/communications services.

- A choice of four coverage options according to the company's individual needs.

Steve Dixon, managing director for ACE in MENA, said, "In today's highly connected, 24/7 news-cycle world, reputational risks are a key source of concern for MENA companies as they can cripple their most valuable asset: their image. This can be a particular challenge for those with premises or facilities that are frequently visited by the public, and those who may not have the in-house resources they may need to deploy in case of an incident. ACE Image Protect provides companies in MENA with the support and confidence they need in order to deal with a range of incident-related reputational risks."

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Agenda / East

Panasonic's presence in Tanzania

The environmentally friendly eco solutions business of **Panasonic** is accelerating growth in East Africa, beginning with the electrical construction materials market in Tanzania. This new phase sees innovative, highly efficient and durable products made available under a common platform - including wiring accessories, protection devices like circuit breakers, distribution panels and air moving solutions like ventilation fans, ceiling fans, electric fans, stand fans, etc. Tatsuya Kumazawa, director, eco solutions category at Panasonic



A broad spectrum of wiring accessories, and protection devices like circuit breakers and distribution panels with high efficiency and durability

Marketing Middle East & Africa, said, "According to a recent report published by the African Economic Outlook (AEO), the economy of Tanzania is projected to grow by around seven per cent in 2014 and 2015. The country is currently witnessing an expansion in the public investments as well as related investments aimed at stabilizing the economy in general. This paves the way for a buoyant electrical construction materials industry."

Mr Kumazawa added that Panasonic plans also "to launch in Kenya and Uganda".

Engility set on Rwandan agriculture

Government services contractor **Engility Holdings** has been awarded a US\$24.6mn contract to provide technical advisory services to the **US Agency for International Development (USAID)** and the Rwandan government as the two work together to strengthen the agricultural sector in that country.

Specifically, Engility advisers will support Rwandan government agencies' efforts to increase smallholder farmer incomes by promoting private sector investments from international and domestic sources. USAID defines a smallholder farmer in Rwanda as an individual who generally owns about three-quarters of a hectare, or less than two acres. The Rwandan government's vision is to transform rural agriculture to a market oriented, competitive and high-value sector, with the ultimate goal of improving local food security and increasing incomes of smallholder producers.

iSAT Africa and Eutelsat at work on digital TV

iSAT Africa is working with **Eutelsat Communications** on free-to-air delivery of African and international digital TV channels in Kenya and across East Africa in order to accelerate the move towards a fully digital broadcasting environment in the region.

The two entities are using the high-power African service area of the Eutelsat 70B satellite to broadcast a platform of channels to homes beyond range of terrestrial reception.

The first channels include Family TV and K24. Homes receiving the platform can pick up channels without subscription using a maximum 90cm antenna and a digital free-to-air box that can be purchased off the shelf.

iSAT Africa has also agreed terms with Eutelsat for use of capacity on the Eutelsat 3B satellite for contributing channels for aggregation in Nairobi and distribution across Africa, the Middle East, Europe and South America, covering a vast catchment area of broadcasters.

Eutelsat and iSAT Africa are combining their respective skills for this new venture in East Africa: Eutelsat bringing its extensive experience of digital delivery in Europe and North Africa, including in France, Ireland, Italy and Algeria, and iSAT Africa its track record and reputation as a leading satellite service provider and video system integrator in Africa.



iSAT Africa has agreed terms with Eutelsat for use of capacity on the Eutelsat 3B satellite

Rakesh Kukreja, MD of iSAT Africa, commented, "We envisage that media houses in Africa will see digital migration as an opportunity to expand across more territories and therefore increase viewership. This is a great opportunity for any media house to cover the East Africa community and more than 160mn Swahili-speaking people...This will allow media houses to outsource technical service delivery and focus on their core business of content management."



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Agenda / South

SkyVision sponsors AfricaCom

A communications service provider, offering integrated solutions to corporate and government entities, **SkyVision Global Networks Ltd** (<http://www.skyvision.net>), a global communication provider, has engaged in sponsorship of AfricaCom 2014, which takes place 11-13 November in Cape Town, South Africa. In addition to sponsoring the show, SkyVision will further its presence by both presenting at AfricaCom and VSAT Africa conferences and participating in key panel sessions.

AfricaCom is regarded as the largest, most professional tech event in Africa that welcomes senior decision-makers from across the digital ecosystem. AfricaCom 2014 will be attended by close to 10,000 participants, many of whom are leaders in Africa's digital community, supported by over 300 guest speakers from Africa's telco sector. This event is an ideal platform to learn all about new technologies and trends in the communications arena specifically suited to the African market.

"SkyVision is deeply rooted in Africa's fast-growing telco market and takes active means in bridging the digital divide across its rural areas. We view this event as the ideal venue for us to further expand our reach throughout the continent, meeting with customers, partners, prospects, and some of the industry's foremost decision-makers," said Dror Limor, SkyVision VP Sales & Marketing.

Social investment and sustainability in mining

Now in its third year, the Junior Mining & Exploration Conference & Exhibition, has firmly established itself as an important industry gathering for junior miners in South Africa. Taking place Bryanston, Johannesburg, from 4 to 6 November 2014, this year's programme was developed in consultation with the members of the 2014 Junior Mining Advisory Board - a process ensuring relevance of the topics and presenters alike.

This year's event was concerned with shaping the future of the industry, by facilitating an understanding of the opportunities available to junior miners - who face numerous and often harsh challenges when operating in diverse landscapes. In this regard, Kgomotso Tshaka of **Wesizwe Platinum Limited** shares expert views and focuses on the issues pertinent to sustainable community development, and the role junior miners can play in it.

Tshaka said, "It is this backdrop, which has compelled the industry to creatively explore innovative ways of ensuring that there exists a harmonious environment and relationship between the mining fraternity and mining



Kgomotso Tshaka, Executive Sustainability at Wesizwe Platinum Limited

communities. Ignoring this can lead to dire consequences. The approach one adopts is irrelevant - whether you are a junior or major miner; the resultant consequence can be detrimental to the company, regardless. The severity is compounded for a junior minor, as it has limited resources to expand. Junior miners are exposed to capital risks and financial challenges - especially post the financial meltdown, as most drive a one project concern. Junior miners thus have to run lean operations, with little capacity."

Livecom and NewTelco enable IP streaming

New Telco South Africa is facilitating the IP-based media **CDN** access to Chinese expatriates across the African continent. This has been enabled by the establishment of a point of presence (PoP) for **LiveCom** at the **Teraco** data centre in Johannesburg. LiveCom, a Hong Kong-based service provider, delivers telecommunication services for enterprises and telco carriers and across the globe. New Telco South Africa is assisting LiveCom to enter into the African market with colocation, equipment hosting, interconnects and managed services that enable media CDN access to the continent.

"In order to make Internet media streaming of the news of local communities and regions more convenient and rapid to transmit to Chinese content providers and introduce to ordinary Chinese public, it was necessary for LiveCom to establish hosting points in Africa. The PoP in Johannesburg is the first step in this process. As a re seller of Teraco datacentre space and a leading provider of carrier neutral co-location solutions, we were perfectly positioned to assist," said Eckart Zollner, head of business development at New Telco South Africa.

LiveCom has currently rented rack spaces in the Teraco datacentre in Johannesburg. New Telco South Africa is also providing all service and maintenance of the equipment, and adding interconnects to providers as and when necessary. The LiveCom PoP facilitated by NewTelco was installed in February 2014 and has been live since March. LiveCom is now looking to expand its offering through deployments in other parts of Africa, and Jasco will be providing the backhaul services between these PoPs.

"Ordinary citizens in China Mainland now can know what is happening in Africa and view the life and stories across the continent more quickly than before," said Yang Zhengrong, COO of Livecom Limited.

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Agenda / West

Financial support for solar project

The **European Investment Bank** is now set to provide Euro23mn (US\$28.9mn) to support investment in one of the largest photovoltaic power stations in sub-Saharan Africa. The Euro70.5mn scheme will be constructed at Zagtoui on the outskirts of Ouagadougou, the capital of Burkina Faso, and operated by the national electricity utility **SONABEL**. The new plant is expected to act as a reference for future solar investment across the continent.

Once operational the new solar plant will significantly increase power generation in Burkina Faso, reduce dependence on energy imports from Ivory Coast and Ghana and help prevent power cuts. It is estimated that less than a quarter of the country's inhabitants have access to electricity. In recent years, power demand in the country has increased annually by 10 per cent; however, power cuts and limited electricity access have seriously hindered economic growth.

"The European Investment Bank is a strong partner for Burkina Faso and this close cooperation over many years has enabled significant investment in new water and energy infrastructure that has created jobs across the country," said Lucien Bembamba, Minister of Economy and Finance for the Republic of Burkina Faso.

CWG extends Academy reach

The CWG Academy, which has successfully trained and placed over 500 ICT professionals into various fields of industry since its formation in 2010 in Lagos, has been extended to the other operational bases of the company - including Accra, Kampala, Port Harcourt and Abuja. There are also plans to incorporate Cameroon by the first half of 2015.

The goal of the CWG Academy is to bridge the workforce knowledge gap in Africa by equipping fresh graduates with the required skills that will make them employable or become successful entrepreneurs. Of the over 500 graduates from the Academy, about 85 per cent have been employed in leading companies such as **IBM, CWG, MTN, Standard Chartered Bank, Stanbic-IBTC, Chevron, Cadbury, Etisalat, Ericsson** and **Unilever**, while about 10 per cent have opted to become technology entrepreneurs.

Eager to tell their stories, some of the CWG Academy alumni shared their experiences; Ezekiel Oyerinde presently working with IBM West Africa as a storage systems specialist said, "Though, I have gone to a couple of computer schools, the CWG Academy was the opener for me into the world of endless possibilities in IT. During the interview stage of my previous employment at MTN, I was pleasantly surprised to see that among those shortlisted, the CWG Academy graduates emerged tops. I consider myself blessed to have had a solid foundation provided through this laudable initiative called CWG Academy. I am grateful to CWG management and the Coordinator of the programme."

With the extension into new frontiers, it is expected that beneficiaries of the Academy will quadruple over the next two years. Laying out the future plans of the project, CWG boss & entrepreneur in residence at CBS, Mr Austin Okere, said, "This project which started modestly as a means of maintaining the steady supply of high skilled engineers to the CWG enterprise has grown in leaps and bounds to become a succor for ambitious trainable youth, who would otherwise be locked out of reaching their full potential."



Graduates from the CWG Academy, which is being extended

Hershey acknowledged for Impact on cocoa

The Hershey Company has been presented with the prestigious P3 Impact award for its CocoaLink mobile phone programme in Ghana.

According to Mike Wege, senior vice president, chief growth & marketing officer at The Hershey Company, "The CocoaLink programme's success of improving the lives of small-holder cocoa



CocoaLink provides timely messages on planting, pruning, fertiliser use, labour, and improving farmer and family safety

farmers, their families and communities is directly attributable to the power of its public-private partnership. From the beginning, we believed that a public-private approach would be the most effective way to use mobile technology to improve farming and communities while enhancing literacy and digital learning."

Started in 2011, CocoaLink is a partnership between Hershey, the Ghana Cocoa Board and the World Cocoa Foundation. It provides a free, two-way information exchange between cocoa experts and cocoa farmers located throughout Ghana. Cocoa experts create weekly text and voice messages based on the cocoagrowing calendar and farmers use their own mobile phones to register for and receive the messages. An independent, three-year study in 15 villages during 2014 concluded that CocoaLink "significantly improved the

behaviour and livelihoods" of cocoa farmers who received weekly messages on best farming and labour practices compared to farmers who did not enroll in CocoaLink. Farmers in CocoaLink communities increased their yields by 45.6 per cent in three years.

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Events / 2014 / 2015

December

2-3

Mozambique Industry Forum

Maputo, Mozambique
www.mozambiqueindustryforum.com

2-4

GeoPower Global Congress

Istanbul, Turkey
www.greenpowerconferences.com

2-4

Valve World Expo

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www.valveworldexpo.com

7-11

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Bulletin / Communications

Mascus makes 300,000 equipment adverts online

Representing over 6,900 companies, online marketplace **Mascus** (www.mascus.co.za), which facilitates the sale of transportation vehicles, construction machinery, agricultural, material-handling and forestry equipment, has reached a new major milestone in its growth, with 300,000 online advertisements; Tim Scholte, Mascus CEO, said, "In the last four years, we have tripled the number of ads on Mascus - the most dynamic sectors are construction, transportation and agriculture."

Globalstar extends satellite services to Southern Africa

In partnership with **Broadband Botswana Internet (BBI)**, mobile satellite services (MSS) firm **Globalstar** has commenced construction of a gateway in Gaborone, Botswana, to provide a full line of Simplex services, including Globalstar's SPOT line of affordable personal tracking and life-saving solutions, as well as its line of commercial Simplex tracking and monitoring solutions; "We believe that southern Africa is a

significant untapped market for our traditional MSS solutions and we thank our partner at BBI for all of their efforts to make this opportunity a reality," said Jay Monroe, chairman and CEO of Globalstar.

Unity Bank is better connected with SkyVision solution

Communications provider **SkyVision** has formed a partnership with **Unity Bank**, a Nigerian retail financial institution, to connect Unity Bank's core applications - including peripheral applications - to its headquarters, enabling continuous, seamless business operations in its rural area branches; SkyVision provided its satellite-based virtual private network (VPN) services via its local Nigerian hub to support Unity Bank's local area network (LAN).

PAYFORT Launches pay@store service in Egypt

Arabic online payment service provider **PAYFORT** has launched its pay@store service in Egypt, to help bring the benefits of online shopping to millions of unbanked Egyptians,



while boosting Egypt's e-commerce industry by allowing merchants to cater to the large segment of the market that is still dominated by cash transactions; Omar Soudodi, managing director of PAYFORT, said, "With pay@store, unbanked users who don't have credit or debit cards will be able to take advantage of the benefits associated with online shopping - not least of all comfort and competitive prices - as they can now access the variety of products and services available in Egypt through leading merchants and service providers registered with PAYFORT Network."

Why e-learning is the right training solution for today's workplace

Electronic learning (e-learning) has gained massive traction in workplaces around the world, though African companies have been slower to embrace its potential. However, as enterprise software firm **Sage** demonstrates, its benefits are clear, and it can offer organisations more effective, cost-efficient ways of delivering training and educational content to employees scattered around the country. Here are five reasons why companies that have not added online learning to their training approach should consider doing so:

1. The workplace is digital

Today's businesses depend on digital systems to keep their workflow going - from cloud-based accounting and payroll systems to customer-facing e-commerce sites and intranets for their employees.

2. It's cost-effective

Without downplaying the costs and commitment a successful e-learning strategy will demand from the organisation, digital delivery

reduces training costs while maintaining or even enhancing the quality of the learning experience.

3. It's flexible

E-learning is flexible, both for the organisation and the employee, because it doesn't tie training down to rigid times and places.

4. It's fun and practical

Even if the training is done online, it can still be practical, interactive and use real-life examples.

5. No geographical barriers

Today, many parts of Africa have broadband Internet connectivity, so e-learning is a great option for companies with people to train in a lot of towns and cities.

Ansie Snyders, head of training and seminars at Sage VIP Payroll & HR

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Bulletin / Water

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options and temperature, the new Lowara e-NSC series of heavy duty end suction pumps from **Xylem Water Solutions South Africa** represents an ideal choice for a vast number of industrial and building applications -

incorporating innovations such as mechanical face seal options to eliminate leakages; when combined with Xylem Water Solutions South Africa's Hydrovar pump controller, the Lowara e-NSC's pump speed can be reduced by 50 per cent to save as much as 82.5 per cent of power consumption, compared to a traditional pump.

Pioneer pumps new iPhone app helps calculate requirements

Calculating system requirements has become much easier with the **Pioneer Pump** app (at <https://itunes.apple.com/us/app/pioneer-pump/id904950835?mt=8>), which allows users to enter flow rate, pipe type, size and length, and other details to determine total dynamic head, NPSHa and losses; easy to use onsite or remotely, the app saves time when selecting the right pump for a job based on

actual conditions, with case studies sections provide pictures of pumps in use around the world, while curves, specs sheets and drawings can be accessed through the eCatalog.

Local oily water separation technology for global industry

Through its commitment to the localisation, in South Africa, of its ProSpin oily water separation solution, environmental management expert **Procon Environmental Technologies** is offering world-class technology at significantly lowered costs, with substantially reduced turnaround times; Procon founder and director of sales & business development Andy Miller said, "The ProSpin solution offers considerable local benefits without compromising on efficiency and reliability."



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Bulletin / Energy

Vanguard to lift 20 generators on SA's Eastern Cape



Vanguard has been involved in a number of wind farm projects in South Africa

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and plant relocation, **Vanguard** is providing the craning solution for 20 wind turbine generators (WTG) at the new Grassridge wind energy facility near Port Elizabeth in the Eastern Cape; the company is lifting and positioning Vestas V112 3.0 megawatts (MW) WTGs at an average rate of two a week during Q4 2014 on the R1.2bn (US\$106mn) facility, which can generate up to 60MW of renewable energy - enough for about 40,000 homes.

Clear Sky Energy wins award for waste conversion solution

The Pitching Den competition, which featured at the recently-held SA Innovation Summit, with 34 local inventors and entrepreneurs, was won by **Clear Sky Energy**, a breakthrough waste-to-energy technology, which dramatically reduces

emissions; the company's unique patented vortex offers waste-to-energy plants that are cost-effective and highly efficient, while boasting a small footprint and negligible emissions.

IEA calls for clarity and credibility on solar energy

Two reports issued by the **International Energy Agency (IEA)** indicate how solar photovoltaic (PV) systems could generate up to 16 per cent of the world's electricity by 2050 while solar thermal electricity (STE) from concentrating solar power (CSP) plants could provide an additional 11 per cent; a central message in both publications deals with the need for clear, credible and consistent signals from policy makers, which can lower deployment risks to investors and inspire confidence.

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The *African Review* website has been redesigned with a brand new look, encouraging readers to click on and read breaking news stories across Africa's construction and mining, energy and power, transport and logistics, manufacturing, financial and IT sectors.

Readers can navigate through the website more easily and follow *African Review* on Twitter, as well as subscribe to both the magazine and e-newsletters.

The new website redesign offers advertisers more advertising space with a new featured content box and upcoming event bar. The website also features bigger banners, improving visibility and in turn providing better campaign results.

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The relaunched site allows readers to navigate through the latest news from across Africa with more ease and offers advertisers more advertising space

Rwandan hydropower to start generation

The Nyabarongo River Hydropower Plant in Rwanda will begin producing 28MW of power in November 2014.

Construction on the power plant began in 2010 and the Rwandan government enlisted the help of several companies to develop the project. The Nyabarongo dam comprises two generators, each capable of producing the power of 14MW.

africanreview.com/energy-a-power

Emirates to introduce new Africa routes

Dubai-based airline Emirates has announced plans to expand its network in Africa by introducing at least 10 new routes by 2030.

Tim Clark, CEO of Emirates, revealed the company's growth plan for the next 10 years, which includes investment for expansion by more than 40 per cent in Africa.

"Emirates will continue to channel traffic through Dubai, which has already become a key gateway to the African continent," said Clark. The carrier has been seeking African destinations with oil and gas reserves that require regular transport for people and cargo, Clark added.

africanreview.com/transport-a-logistics



In the last five years, Emirates has carried more than 1.6mn passengers between Africa and China (PHOTO: Milad A380)

Skyvision to support Unity Bank online

Nigeria's Unity Bank has partnered with communications provider Skyvision Global Networks to support the bank's local area network (LAN).

Skyvision will provide its satellite-based Virtual Private Network (VPN) services via its Nigerian hub to complement Unity Bank's online functions, said the company in a statement. This would help connect the bank's headquarters in Lagos to branch offices across Nigeria.

The VPN solution connects Unity Bank's core applications, including peripheral applications, to its headquarters, enabling continuous, seamless business operations in its rural area branches. Fully deployed and managed by SkyVision Global Networks, the VPN will enable Unity Bank to connect their LAN sites with no investment in additional infrastructure.

africanreview.com/it

Burundi launches activities at nickel mine

Burundi has started operations at a new nickel mine, which holds an estimated reserve of about 150mn tonnes of the metal, in the Musongati region.

The nickel mine will be operated by a joint venture of Burundi Mining Metallurgy

International and the federal government.

Danko Konchar, managing director of Burundi Mining Metallurgy International, said that other metals associated with the nickel such as iron, copper, cobalt and platinum also have also been traced in the region. Konchar said, however, that 800MW of energy would be required to exploit the Musongati mine site.

africanreview.com/construction-a-mining



Nickel deposits in Musongati were first discovered in 1972 (PHOTO: Romain/Flickr)

WesBank to offer vehicle finance in Nigeria

WesBank, a division of South Africa's FirstRand, has signed a memorandum of understanding (MoU) with the National Automotive Council (NAC) to offer vehicle finance in Nigeria.

The company said in a statement that the MoU will allow WesBank to work closely with NAC to develop vehicle financing solutions, specifically for those vehicles built in Nigeria with the aim to make them more affordable for the average Nigerian consumer.

Chris de Kock, CEO of WesBank, said that the Nigerian government recently restructured their local economy to attract investment from vehicle manufacturers and increase the supply of locally-manufactured vehicles.

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Changing dynamics and long-term growth

Capturing the business opportunity in Nigeria, which has become Africa's top economy

Nigeria is now the world's 26th biggest economy after recent rebasing of gross domestic product (GDP) and seventh most populous nation that possesses the means of becoming even a larger marketplace over the next decade. An Insparo Asset Management frontier market specialist said, "There are not many places in the world that are growing at seven per cent and can be reasonably expected to maintain that for some years."

The team at Investec Asset Management agree, saying, "Nigeria remains one of the most attractive long-term growth stories on the continent."

The newly rebased GDP from 1990 to 2010 at current market prices puts total 2013 value of economic output at US\$510bn - which is US\$158bn ahead of South Africa. The exercise revealed the changing dynamics of Nigeria, and how, over the past 20 years, the country has reduced its historic reliance on oil by developing a more diverse economic base mainly led by services. GDP now includes industries previously either uncounted or under-represented like ICT and telecoms, music and film-making, airlines, hospitality, online sales and especially banking/finance (see Table 1). The national account reveals the emergence of new sectors and technologies driving growth, which bodes well for future competitiveness. Ngozi Okonjo-Iweala, Coordinating Minister for the Economy and Finance, said, "With better information, we can see that our economy is more diversified than before. It underlines to foreign investors that this country has a large consumer base."

Table 1: Contribution to GDP by Sector, % of Total

	2008	2013
Agriculture	32.9	22.0
Oil & Gas	37.4	14.4
Manufacturing	2.4	6.8
Public Utilities	0.2	1.3
Construction	1.3	3.1
Wholesale & Retail Trade	14.8	17.5
Transport, Storage & Communication	3.0	12.2
Finance, Real Estate & Business Services	6.0	14.6
Public Administration	0.7	3.6
Other Services	1.1	4.5

Source: African Development Bank (AfDB).

In 1990, Nigeria had one telecoms operator with 300,000 phone lines. Now four major operators - MTN Nigeria, Globacom, Airtel Nigeria and Etisalat - dominate cellphone industry with 130mn subscribers (up steeply from 19mn in 2005) and about a quarter of users have a smartphone. Likewise, 24 years ago there was just one airline, and now there are many. The thriving entertainment industry, known as 'Nollywood', produces on average 50 films per week that are distributed across Africa and overseas on video CDs and DVDs.

Rapid expansion of services

The macroeconomic outlook remains broadly 'positive' (see Table 2). After the rebasing, the budget deficit and external debt-to-GDP ratio fell to lows of 1.0 and 2.8 per cent, respectively, thus providing more room for borrowing. Moreover, Nigeria is a net 'creditor nation' (i.e. gross sovereign assets exceed external liabilities), according to the Bank for International Settlements (BIS).

Table 2: Key Macroeconomic Indicators

	2010	2011	2012	2013	Proj. 2014	2015
Real GDP Growth *	8.0	7.4	6.7	7.4	7.3	7.1
Oil & Gas *	5.2	-0.6	-0.2	-1.8	6.8	3.4
Non-oil Growth *	8.5	8.9	7.8	7.7	7.4	7.5
Consumer Price Index **	11.7	10.3	12.0	7.9	7.0	7.0
Exports FOB /	77.4	93.3	96.0	93.8	93.8	93.4
Hydrocarbons (%) export	96.5	96.5	96.8	95.3	94.3	93.2
Price of Nigerian Oil (US\$/barrel)	79.0	109	110	109	104	98.5
Imports FOB /	46.8	62.2	53.6	57.2	60.5	63.4
Trade Balance /	30.6	31.1	42.4	36.6	33.3	30.0
FDI inflows (net) //	6,099	8,915	7,127	5,609	6,500	6,700
Portfolio Investment (net) //	2,600	3,600	15,100	9,600	9,600	9,300
Gross Forex Reserves /	32.3	32.6	44.2	43.6	44.5	44.3
External Debt Stock //	5,100	5,600	6,500	8,200	10,000	11,500

* Annual percent change; ** End-of-period; / US\$ billions; // US\$ millions.

Sources: Nigerian authorities, IMF, AfDB & UNCTAD.

The key driver of growth remains non-oil economy, which comprises two-thirds of total GDP, with growth averaging 8.2 per cent/year over 2010-13, according to the International Monetary Fund (IMF), the best performance for decades. By contrast, the oil sector grew at a meagre rate of 0.6 per cent/year in the same period - attributed to supply disruptions arising from oil theft and pipeline vandalism, and by weak investment in upstream activities with no new oil finds. Middle-class Nigerians are flourishing according to a survey of major cities (Lagos, Abuja, and Port Harcourt) by investment bank Renaissance Capital. Nearly 70 per cent of them are aged below 40. About half at any given time are in the market for durable consumer goods. By 2030, nearly two-thirds of Nigerians will live in cities and Renaissance Capital reckons the period until then could mark "very rapid [economic] growth" - with swelling demands for housing, home improvement, transportation, and leisure. Emeka Emuwa, managing director of Union Bank, said, "The development of the economy - power, oil, consumer goods, industries, agriculture - is increasing demand for banking. People are spending more and are willing to borrow."

Regional FDI hub

According to Geneva-based United Nations Conference on Trade and Development (UNCTAD), net foreign direct investment (FDI) inflows to



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➤ Nigeria were US\$71.8bn over 2004-13, equivalent to 58 per cent of West Africa's total (US\$123.8bn) during this period. FDI stock in 2013 totalled almost US\$82bn (Africa's third-highest) after South Africa and Egypt. Major investors are from China, Netherlands, Britain, the US and South Africa. A buoyant domestic market offers opportunities in food/beverages, ITC, power, financials, manufacturing and car assembly plants and real estate.

Multinationals likes of Unilever, Nestlé, SAB Miller, Procter & Gamble, General Electric and Nissan, among others, are expanding their production in Nigeria - gateway to West Africa. Nigeria remains 'natural hub' for intra-regional investment and trade thanks to its open borders, streamlined customs procedures and deep-water ports. It has attracted fair amounts of 'vertical' FDI from companies keen to tap the ECOWAS market of 300mn-plus customers. Martin McCann, head of infrastructure at US law firm Norton Rose, explained, "There is a clear pipeline of airports, ports and other projects in Nigeria being offered to investors. It is too important a country for bidders not to look at." Renaissance Capital believes, "You can get a much better return on capital than you can in Europe or even central Europe." Significantly, doing business is now easier and less costly than previously thanks to a 'One-Stop' Investment Centre that offers facility for obtaining customs, immigration and tax clearance."

Critical development challenges

Deep-seated structural deficiencies and social deprivation (with poverty affecting three-fifths of the population) highlight the paradox of Nigeria's economy, where roughly 2mn young people annually join the labour market. Therefore, revised GDP does not alter formidable socio-political challenges facing the country. Although the

demographics point to huge possibilities, "the government will have to press ahead vigorously with major economic reforms to sustain high rates of growth and foster shared prosperity if the country's potential is to be realised," advised the Washington-based Institute of International Finance (IIF). The IMF also cautioned despite sustained robust growth over past decade, unemployment and poverty are high and social indicators lag those of peers.

Nigeria continues to be hampered by infrastructure bottlenecks, especially in energy supply and transportation, and under-investment in human capital. Africa's most populous country produces on average 6,500 megawatts (MW) a day - with per capita consumption of 155-kilowatt hours (KWh) equivalent to about half the global average or a fraction of South Africa's average consumption of over 4,500KWh. Estimates indicate that privately owned diesel-powered generators produce an additional 7,000MW, hiking business cost by whopping 40 per cent. Transport and logistics constitute a major barrier on businesses. The ports are congested and the road networks running down.

Despite 70-75 per cent mobile penetration rates within just 10 years, broadband service in Nigeria is in its infancy due to limited availability of fibre-optic cables and regulatory barriers. Only nine per cent of households have Internet access directly. E-banking and online shopping, however, is taking off. The rate of adult financial exclusion in Nigeria is estimated at 46.3 per cent, one of the highest in Africa. The number of people with bank accounts is below 30mn - equivalent to 17 per cent of total population (173mn). There are estimated 12,000 ATMs across major cities and only 25mn bank cards in circulation. ■

Moin Siddiqi, economist



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Governing Ghanaian growth in industry

The pace of economic growth in Ghana has been rapid, but the nation now faces significant challenges to sustainability

Analysis of the key challenges and opportunities impacting affluence in West Africa

For a decade, Ghana's economy surged ahead as it won debt forgiveness, started pumping oil and achieved the much-coveted middle income status. The country enjoyed five years of economic growth above eight per cent, making it the toast of global analysts and the envy of other African countries. The growth has, however, hit a roadblock, forcing the government to go to the International Monetary Fund (IMF) to discuss new policy options.

A wide budget deficit, high inflation and a plummeting currency are taking their toll on the economy with the IMF forecasting gross domestic product (GDP) growth for 2014 falling to 4.5 per cent from the 7.1 per cent recorded in 2013 - well below the government's estimate this year.

"Ghana continues to face significant domestic and external vulnerabilities on the back of a large fiscal deficit, a slowdown in economic growth and rising inflation," the Fund said in a statement after talks with government officials in Accra late September.

The country has been hit by a fall in the

price of gold, a major source of government revenue, while analysts said fiscal difficulties and power shortfalls also hindered growth.

"These vulnerabilities are putting Ghana's medium-term prospects at risk," the IMF said. The government has its own reform programme, but the Fund said the fiscal deficit would end 2014 at 9.75 per cent, wider than the government's projection of 8.8 per cent. But Ghana's deputy finance minister Mona Quartey believes the government will hit the 8.8 target saying the Fund's projections signifies a worst-case scenario.

"The good thing is that we know and we have identified the same issues they [the IMF] are raising and we are working fervently to address them," she said.

Factors affecting investment

In late September 2014, the international ratings agency, Fitch, reaffirmed its sovereign rating for the country at 'B', five marks below investment grade and gave it a negative outlook. Fitch said its

affirmation reflected a number of factors, including the government's successful US\$1bn Eurobond and the Ghana Cocoa Board (Cocobod) successfully raising US\$1.7bn syndicated loan. These, Fitch said, have alleviated some short-term pressures on reserves and the currency.

The agency strongly believes that only by agreeing and implementing a strategy with the IMF can the government achieve a lasting reduction in funding pressures.

"A lasting reduction in funding pressures, for both the fiscal and current account deficits, is unlikely until an IMF programme is agreed and a credible deficit reduction strategy is implemented," it said.

According to Fitch, the magnitude of fiscal consolidation in the coming years will depend on the path of deficit reduction agreed with the IMF.

"Two years of double-digit deficits, combined with a cumulative 45 per cent depreciation of the currency since January 2013, has seen debt jump to 61.7 per cent of GDP in 2013, based on Fitch's calculations,



Traditional industries remain strong in Ghana, but the broad economic base is facing severe challenges









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from 39 per cent in 2011 - well above the 'B' median of 43.7 per cent. The Bank of Ghana's role in funding Ghana's budget deficit in the first half of the year [2014] illustrates the financing challenges the government faces," it said.

Other analysts are, however, bullish about the near-term outlook for the economy. They believe that Ghana sustain economic growth well into the future if the government improves its macroeconomic management which requires bold efforts to reduce its budget imbalance. "The near-term outlook for Ghana is positive, growth projected at 8 per cent in 2014," the Institute of Statistical, Social and Economic Research (ISSER) of the University of Ghana, said in study of the Ghana economy early October.

Despite this optimism ISSER notes a declining trend in GDP growth since 2011, pointing out that the 2013 growth rate of 5.4 per cent was short of the targeted 8.8 per cent. 'This negative out-turn is the largest since 2008. For instance, in 2012, the shortfall was 0.6 per cent, compared to the 3.4 per cent in 2013,' said ISSER director Felix Asante. The 2013 growth was buoyed particularly by oil exports, with the non-oil GDP growth rate of 3.9 per cent, compared with 5.4 per cent overall GDP growth.

Ensuring industrial engagement

ISSER identifies unemployment as a key challenge, saying opportunities for employment in the industrial sector remain limited and highly specialised. In addition, the composition of Ghana's trade continues to be dominated by primary exports - gold and cocoa.

"The reliance on a narrow range of commodities as well as a narrow range of markets makes Ghana's export earnings extremely vulnerable to volatility in these markets," ISSER said adding that "there is an urgent need to diversify exports in terms of products as well as markets". Also, to ensure that medium-term growth targets are met, "there is the need for massive investment in the agricultural sector - whose output is declining - as a whole and in infrastructure in particular".

Felix Asante attributed the agriculture sector's declining performance to the rapid expansion in the oil sector, which shrank the agricultural sector's performance in relative terms. According to ISSER, the advent of oil production seems to be changing the pattern of the country's exports, wondering whether the country is teetering toward an oil-dominated economy, and if the proceeds from oil exports would be used to diversify the economy.

In addition, Ghana's weak infrastructural systems, especially in the energy and transportation sectors, and ineffective public



administration structures undermine efforts to make investing in Ghana a worthwhile venture. In order to ensure industrial growth, the challenge of power shortages needs to be tackled with robust efficiency by the government.

On the fiscal side, there is the urgent need for prudent management of government resources. ISSER is urging the government to increase efforts to mobilise revenue through an expanded tax base, saying the main culprit for recent huge deficits is government expenditure, which should be reined in, in the short-term.

"Indeed the budget's credibility, particularly with respect to the overall fiscal targets, will improve if there are more concrete steps to reduce expenditure," it says, adding, "the rigidities in government expenditures can only be matched by increasing the limited fiscal space the country has."

It warns that unless revenues are able to match potential expenditure slippages that might occur, the overall fiscal target may be missed.

"There is no doubt that the IMF programme will help in the stabilisation effort for 2014, but it is unrealistic to expect it to change the potential fiscal slippage that is likely to occur in 2014." ■

Jon Offei-Ansah

Digital research

Developed at Meltwater Entrepreneurial School of Technology (MEST) in Ghana, PollAfrique is a research platform for Africa, which allows respondents to participate in incentivised surveys via a number of online channels.

CEO Samuel Dzidzornu leads a strong team that will bring a new perspective on big data. Recently featured on CNBC, PollAfrique has been highlighted as a "Venture of Pan-African Significance", and was recently selected by the Rwandan technology incubator, think, to support the development of digital infrastructure utilising Tigo resources.



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Steadying the ship

An interview with Albert Essien, who became the chief executive of Ecobank, the pan-African banking group, succeeding Thierry Tanoh

Albert Essien is every inch an 'Ecobanker'. He started his career with Ecobank, Africa's premier banking group, in 1990. After teaching economics in Nigeria, he started his banking career with the National Investment Bank in Accra, Ghana in 1986.

Almost a quarter century after joining Ecobank, he was tasked with focusing the group to restore stability and confidence. He had previously served the Lomé-headquartered Ecobank in various senior capacities, including that of deputy group chief executive and head of corporate and investment banking. It had been a bruising couple of years for the Ecobank brand after a boardroom tussle developed following the appointment of Thierry Tannoh, a former IFC Africa vice-president, to succeed Arnold Ekpe.

Seeking a unique strategy

Ecobank was created as a private banking institution, initially to serve West Africa, specifically the ECOWAS region. But in recent years, under a former chief executive Arnold Ekpe, it has taken on a pan-African vision, to serve what it defines as Middle Africa - south of the Sahara and north of South Africa.

Through a series of bold acquisitions, it now has a full-banking presence in 36 African countries, including its move into Mozambique, concluded in the middle of this year. One of the first questions I asked Essien was about the strategy he has executed as chief executive.

"It has been mainly about consolidation and optimising the banking platform," he explained. "My strategy can be summed up as basically to extract efficiencies. We have a unique banking platform, but the question everybody asks us is 'where is the value?'"

"So, for the period that I find myself as chief executive, working with my colleagues the objective is to show the value by extracting the efficiencies so that we can provide good returns to our shareholders."

However, Essien is also quick to note that customer service comes towards the top of his agenda.

"Customer service is very important for any commercial institution," he emphasised, reiterating his focus on consolidating, optimising the bank's human and financial resources most cost-effectively, making efficiency the watchword, and ensuring excellent customer service delivery. "That is what I am working on to achieve."

That might be interpreted to mean that Essien is going to focus on what Ecobank calls "domestic banking", sometimes described as "retail banking", as opposed to wholesale banking. The two parts of the bank's operations contribute near equal revenues of 51 per cent and 49 per cent respectively. But Essien says the main emphasis is on "commercial banking" in general, although he agrees with a renewed focus on domestic banking.

"We have spent considerable time and investment on the retail banking arm, that we call domestic banking, and we need to make sure the value is realised. But domestic banking is not an easy proposition, especially in this part of the world. You need to get your technology infrastructure in place, to drive the efficiencies, and you



Ecobank has inaugurated the new Ecobank Academy at its headquarters in Lomé

need to make sure that you deliver on customer service.

"We have moved to cards, ATM services, point of sale terminals, internet banking etc. And we have tried to ensure that when people walk into Ecobank branches, they get a great service."

The time to transition

However, Essien has just a short time to achieve what he wants for the bank. The Ecobank constitution requires that Essien steps down on reaching 60-years of age. Does he have enough time remaining as chief executive to really do all that he might wish to?

"I'm a Gemini, born May 24th, and I am now 59-years," he admits, "and next year I'll turn 60. So, technically, that's the limit, but I guess it all depends on how it is played, how it evolves. There is a subcommittee of the board that is looking into it. It's in their hands," he said. ▶

➤ But in the time remaining, Essien is intent to provide the leadership that will restore confidence and trust.

"I think for these intangibles, if I can put it that way, I am on the road to doing that, resolving any remaining problems without washing our dirty linen in public, so to speak. That strategy is, to a large extent and barring any last minute issues, on track," he said. "Now, on the issues of efficiency, customer service, and returns to the shareholder, I would say that by working with the team, I have been able to continue from where my predecessors left off. I came into a situation where we had virtually completed the bank's expansion plan. Whether I will finish that totally, I don't know, but I think that we will have now positioned the bank at a very good point, and we'll continue with all those metrics.

"Today, for the first time, our return on equity, at 18 per cent, is higher than our cost of equity, which is about 17 per cent. One can say that we have broken even and so now we need to move forward. That is what I intend to work on."

Essien is grappling with the issues of trust, which he admits frankly has been dealt a severe blow with the events of the last year or so.

"I am talking about the trust of the public, of our stakeholders, our shareholders, our regulators, our clientele. Banking is all based on trust, and banking doesn't want negative noise.

"I'm sure that we are restoring trust in the bank. People know me, and I guess that when I came in as chief executive, that created stability, because people know me; I've been around for a long time. There is always a lingering doubt and people still speculate about Ecobank, asking 'will they slip?' The important thing for us is to continue to build trust while walking the talk. That is what we will continue to do."

While I had not wished to dwell on the past, I had wanted to ask Essien about his views on the chief executive succession process, and whether he thought that, given past experiences, it was preferable that succession should really come from within the bank.

"That's an argument," he told me, "and I am sure that debate will be ongoing. But I think the important thing is to get the right person, and the right person for me should be somebody who appreciates our corporate culture and the uniqueness of the group. It should be somebody who can really continue to work on the domestic and wholesale banking. That is what we should work on, and I think we have that talent within the group."

His answer seemed to imply that he was sympathetic with the idea of an internal promotion for the next chief executive, but he added a rider.

"If you ask me, that's my preference. However, there would be a list of criteria. I do not think that we should just shut the door on the outside candidate but benchmark those we are looking at from outside with those inside the group.

"I think the paramount thing is a recognition of our unique culture, the corporate ethos of the institution is so important. You also need an experienced commercial banker. I guess in the past we thought that amongst other qualities, it would be good to find somebody who knows the world, perhaps might be politically savvy, and politically well connected.

"But I think those qualities can be acquired. The core thing is that the candidate appreciates the culture and the ethos of this institution and knows about retail and commercial banking."

Essien also discussed the proposition and desirability of finding a woman for the top job - in the bank's history there had been more than half a dozen male chief executives, but no woman.

"Yes. You never know what will transpire," he told me, "but the important thing is not to appoint just for affirmative action. We need the best person whether it is a man or a woman. The important thing is to get the right person."



Albert Essien, chief executive of Ecobank

Since the departure of Tannah, Ecobank has changed its Board of Directors quite radically. I asked Essien what lay behind this move.

"I guess the idea was to send a signal to the business community and the outside world that we wanted a break with our recent past, and to indicate that we also we take corporate governance very seriously. It's a shame to say this, but the old board was becoming dysfunctional. You cannot have a dysfunctional board going forward, and in fact the old board actually proposed that we overhaul its composition. We now have a new board with a new chairman, Emmanuel Ikazoboh, who is a very competent financier - he knows both the francophone and anglophone markets extremely well. He is

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from Nigeria where we have 40 per cent of our assets, and a very good team of directors from different backgrounds has joined him.

"We have experts in terms of risk management, a legal background, corporate governance, treasury etc. I think we now have a good mix; we have an excellent board."

Banking on important markets

Although Essien's mandate has been to consolidate the bank's position and reinstate stability and trust amongst the various stakeholders, Ecobank has lost none of its drive nor vision, and moved quickly to grasp the opportunity to move into a new market when it bought out Banco ProCredit, Mozambique and began trading in May of this year as Ecobank Mozambique.

"This is the biggest of the lusophone markets where we have a presence today," Essien said. "We think that Mozambique is really ready for business. Mozambique provides a very important link to our strategic SADC area because the port of Beira in Mozambique serves as an important entry point for Zimbabwe, for Zambia, for Malawi and for the DR Congo.

"We are in all these SADC countries and we need that access, we need that corridor to the Indian Ocean with our focus on regional trade. Also, Mozambique is one of the fastest growing African economies, so it makes very good business sense to be in Mozambique."

With the take over of Banco ProCredit, a relatively young bank established in year 2000, Essien explains, Ecobank has gained, at a stroke, 67,000 new clients, and a dozen new branches in the country.

I asked Essien if there were any particular challenges with bringing such a large lusophone economy into the Ecobank network. He replied, "Not yet, but in business you never know, there can be so many unexpected challenges. Bank of ProCredit came as a good opportunity, and a good fit for Ecobank as well as for our partner Nedbank, that has taken a 30 per cent stake in another Mozambican bank. It's more of an SME institution, it started as a microfinance institution. But we intend to superimpose our model of retail and corporate banking in creating Ecobank Mozambique."

And Essien also has his sights set on entering the Angolan economy, by some measures the fifth largest economy in sub

Saharan Africa. Ecobank already has a banking license in Angola, and there is already a representative Ecobank office in Luanda.

"If you take the banking pools in sub Saharan Africa, Angola has one of the biggest banking pool revenues," he said.

Mozambique and Angola have economies that are dominated by the hydrocarbons sector and the oil and gas business, with, in the case of Mozambique, the potential and in Angola the realised, extensive offshore assets.

For Essien, exposure and experience to the oil and gas industries in Nigeria, in particular, gives him the confidence that Ecobank can play an important role in the business. In fact, the oil and gas sector represents 18 per cent of Ecobank's total African portfolio.

"You need quite a big balance sheet to play a good role. However, you can also play an initiating role and not necessarily throw your full balance sheet at it," he noted. "You can be a good initiator, especially with regard to our investment bank angle. We intend to play these roles in Mozambique, and perhaps Angola too, going into syndications and partnerships."

But Essien is guarded about any future acquisitions, at least in the short time - "unless the proposition is so mouth-watering," he said with a chuckle. Rather, there is he says a fair amount of work to be done with what Ecobank has already and, as he repeats, ensuring efficiencies are extracted.

"We have always talked about our footprint. I think our shareholders, our stakeholders would first want to see what our current footprint can provide in terms on a return on equity," he insisted.

Nor does he believe there is an easy answer as to how long a new market should take in returning revenues to the group.

"As for the time it should take for a country to become profitable," he said. "It all depends on where you find yourself and the level of development of that country. We went into Zimbabwe, and despite all those problems with the economy, in the first year we virtually broke even. We went into Equatorial Guinea and in the second year became very profitable.

"Yet, when we went into Uganda, it was not so easy. We went into Tanzania, I think in 2010, and it is only this year that we began to show month-to-month profit. "I think that within two years, or by the third year, you should start to make money. The first year you put all the nuts and bolts in place. In some countries it's faster. I always look at it like a garden: in the first year you prepare the soil, plant your seeds and water them. Then you can expect to have results. If you have an acquisition and it is a relatively good bank, then you can ramp it up and expect results very quickly."

Ecobank has expanded with a variety of acquisitions and greenfield developments.

"We have done greenfield developments in Tanzania, Uganda, Zambia; we acquired in Kenya, Burundi and Malawi," Essien said. But it might be argued that Ecobank will be required to increase its capital to continue with even a medium-term expansion of its footprint. When asked whether this necessarily means finding fresh investors or looking to the existing shareholder base, Essien clarified that Ecobank should first consolidate its assets and increase its capital through retained earnings.

"But having said that," Essien went on, "we are also looking forward to Nedbank exercising their options and topping up their share capital, which will give us some head room - but as I said, within my period as chief executive I believe we have to consolidate, to take a breath - unless we get an offer that we simply cannot refuse!" ■

Stephen Williams



Ecobank offers cards, ATM services, point of sale terminals, and Internet banking

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Ready for enterprise mobility?

Interest in Africa's enterprise mobility market is rising, and companies must adapt working conditions

Enterprise mobility is a new buzz phrase for the workplace. It refers to a transformation in working habits, with employees doing more of their work remotely and in the field rather than in the office with the help of the latest technology, including mobile and cloud devices.

"The demand for enterprise mobility solutions varies across the continent," said Maged Wassim, vice president, industry and value creation at IBM Middle East & Africa. "In the markets where smartphone penetration is reaching or already exceeded 25 per cent such as South Africa, Egypt, Nigeria and few others we are definitely observing an increased interest in mobility solutions. The first area is mobile customer service applications such as mobile banking, eGovernment or Telecom Self Services. The second area is employee productivity and operation improvement solutions. The latter most often involves mobile device management systems."

Market intelligence firm IDC has predicted that enterprise mobility activity in Africa will intensify. According to the 2012 IDC Enterprise Mobility Survey, uptake has been low- 39 per cent of companies in Africa surveyed had enterprise mobility strategy

“ Many African firms have begun to embrace enterprise mobility as technology manufacturers prioritise their Africa strategies, reaching out to customers, employees, citizens and other stakeholders ”



There is genuine value creation from new architecture for enterprise mobility (Photo: IBM)

within their firms, 18 per cent of enterprises had plans to create one within the year. However, 43 per cent said they had no whatsoever plans to create one. Nonetheless, IDC anticipates that the number of mobile applications developed for the enterprise sector will increase, and adoption should consequently be on the rise. IDC has predicted a rise in "emerging market smart devices".

A reflection of growing excitement about Africa's enterprise mobility market is the buzz that one annual enterprise mobility-focused conference in Africa now produces. The 2014 Enterprise Mobility Africa Summit, hosted in Johannesburg in July, proved a huge success. The topics were probing, revealing that African companies are at an advanced stage when it comes to approaching enterprise mobility from different, complex angles.

Speakers included Brett Loubser from WeChat Africa, who discussed the future of the use of mobile phone applications in the workplace, particularly within the financial sector, and whether the development of native apps is the future. The head of the

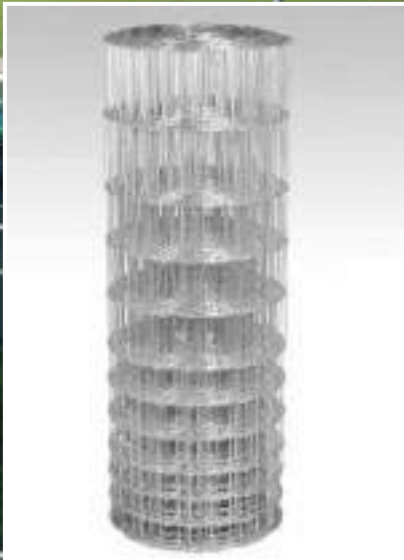
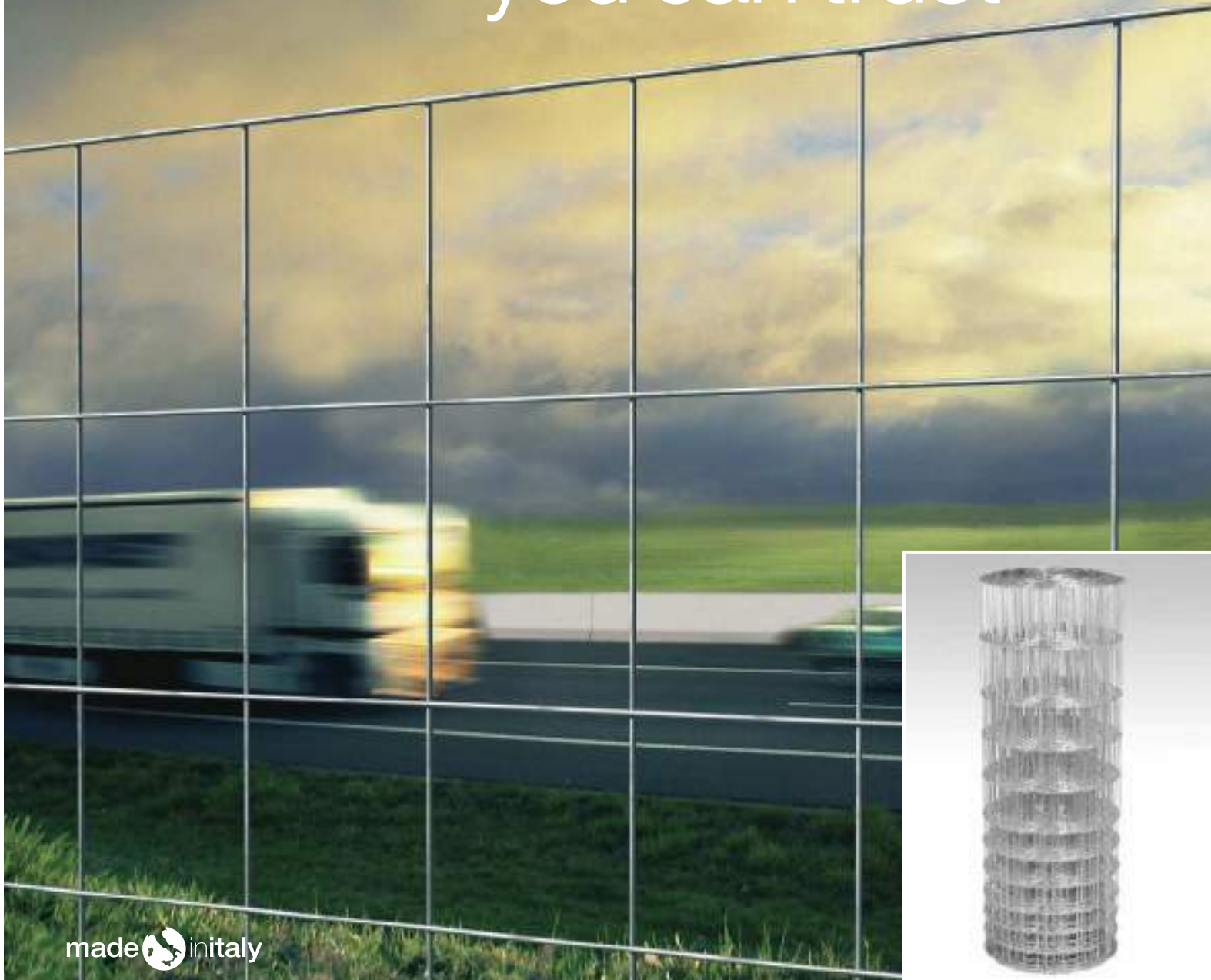
digital division at Santam also gave a presentation on mobile strategies within companies, with a focus on how blueprints fail when firms see enterprise mobility exclusively as about technical solutions, and fail come up with concrete objectives or secure necessary support from stakeholders.

In addition, the conference delivered a snapshot of which industries in Africa are most interested in exploring enterprise mobility strategies. Employees from the financial sector made up the biggest proportion- representing 35 per cent of attendees. Telecommunications and IT companies were not far behind, and provided a quarter of the attendees. Twelve per cent came from the manufacturing sector, eight per cent from mining and six per cent from FMCG and retail.

Smartphone adoption stimulates enterprise mobility market

According to experts, a number of factors are driving the enterprise mobility market in Africa. Rising mobile connectivity is an important contributor.

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► "The current demand for enterprise mobility very much depends on the maturity of the mobile market measured by the adoption of smart devices. Other factors include the general state of local economies and market size. Today there are already 100mn Smart-phone users in Africa," said Wassim, who also stressed that adoption of smartphones in Africa is still relatively low. "This, however, may quickly change in the coming years due to the growing availability of mass-market smartphones priced at US\$50 or less. This will drive the demand for enterprise mobility solutions across the continent.

"We see a move on the usage of mobile phones at an individual level. This is driven by inclusion of citizens in the local economy. One of the main tools is mobile phone, mobile wallets and micro payment. We believe this will drive growth that will reach the enterprise market."

Firms in Africa embrace enterprise mobility

Leading technology manufacturers are clearly making enterprise mobility a priority in terms of their Africa strategies and they insist that there is clearly a market.

"Enterprises across our region are asking the same question: How can we reach our customers, employees, citizens and other stakeholders on an individual basis? To capture the potential of this change, IBM in Africa is executing an agenda focusing on data, cloud, mobile and social," Wassim said. "We are working across many sectors including banking, telecommunications operators and government agencies for mobility solutions in Africa and the Middle East. We see great potential in other sectors such as energy and utilities, oil and gas, transportation, education and retail."

IBM has made significant investments in the enterprise mobility solutions, including a chain of important acquisitions. Its exclusive strategic partnership with Apple is set to provide world-class enterprise mobility solutions to serve IBM's mobility strategy for Africa and other emerging markets.

For example, IBM has been working recently with Apple to come up with a new version of MobileFirst, a mobile solution package geared towards enterprise mobility, especially for iOS. It includes a range of enterprise applications specially tailored for Apple smart phones and tablets. IBM plans to both deliver the applications and provide support in terms of product maintenance and support.

Enterprise mobility is proving to be of particular interest to financial organisations in Africa. Nedbank in South Africa is a case in point.

"Enterprise mobility is a priority for Nedbank," said Barry van Huyssteen, divisional executive, Nedbank infrastructure & operations. "We regard mobility as an essential part of our strategy to obtain our growth targets. Our current strategy is to integrate the various forms of communication applications and infrastructure pieces into a single interface which is already familiar to our staff and clients."

van Huyssteen added that the bank anticipates to make gains in productivity, cost reductions and improve customer experience by reducing the likelihood of delays when it comes to operations.

Nedbank already has an extensive enterprise mobility strategy that makes use of several different technology tools including mobile video banking, online real-time group communication and multimedia-enabled contact centres. To help employees to carry out work remotely, Nedbank also makes use of mobile phones and tablets, mobile video meetings, instant messaging and laptop telephony.

"Our mobility strategy is well-developed," said van Huyssteen. "Rather than adopting a 'big bang' approach, we prefer to enhance the mobile experience with every deployment we have. All deployments are naturally funded by the benefits we derive from either growth or the increase in efficiency or effectiveness. Our strategy includes components of mobile video banking- in fact, all accesses via any recognised device across the bank's own network. Underpinning the strategy is our transitioning across the group to Internet Protocol Telephony.

"Already, the Nedbank App Suite has enabled our workforce to make contact with people more quickly by accessing our enterprise directory from all mobile devices. Currently Nedbank allows staff access to our systems via secure methods from any location using bank-authenticated devices."

In fact, Nedbank has mapped out a clear path for the future in terms of its enterprise mobility strategy.

"The near future will see the complete virtualisation of our workstations, using the latest proven technologies to effectively set our people free from fixed, dedicated work desks," said van Huyssteen. "They will be able to access their Nedbank virtual desktops remotely from almost any access point using fixed line, Wi-Fi or broadband. We have already virtualised hundreds of desktops and our plan is to increase the formal rollout towards the end of 2014. This makes for a meaningful staff value proposition."

SMEs can profit, too

According to IBM, it is not just big companies

in Africa that stand to benefit from enterprise mobility technology.

"Actually African SMEs can benefit most from mobility solutions. There is evidence that a 10 per cent increase of mobile penetration results in 0.8 per cent increase of GDP in African markets," says Wassim from IBM.

"In this context, we should remember that about 85 per cent of African businesses have less than 10 employees. African SMEs are looking for cost effective and easy to deploy solutions that can bring them an instant business value. We see this as a great opportunity."

Overcoming obstacles to connect Africa

Nonetheless, enterprise mobility is still underdeveloped in Africa compared with the rest of the world. This is largely because connectivity infrastructure still has some way to go. Internet penetration in Africa in the fourth quarter of last year was 21 per cent compared with a world average of 39 per cent and the Internet penetration rate for the rest of the world, which was 42 per cent. In 2011, the total available international bandwidth in Africa was under one terabit per second- around one-seventieth of the international bandwidth capacity in Europe. Internet is also an extremely expensive service in Africa, with organisations often paying fifty times the amount they would in Europe for connectivity. This all makes the use of Internet-based enterprise mobility technology out of the office tricky - especially as tools like Internet-based video conferencing require reliable and high quality Internet connections.

Connectivity is improving, however, particularly when it comes to mobile networks. In August, Ghana became the sixth country in sub-Saharan Africa to get high speed Internet. Surfline Communications established the West African country's 4G network along with its partner, French technology firm Alcatel-Lucent. Ethiopia, Kenya and Angola are among those countries which already have 4G.

Another challenge that enterprise mobility enthusiasts will have to grapple with in Africa is affordability.

"Probably, the main barrier today is still the availability of affordable and simple enterprise mobility solutions combined with the cost of smart devices and data packages," said Wassim, who is adamant that there is strong enthusiasm for using mobile technology in the workplace in Africa. He added, "People in Africa simply love their mobile phones."■

Sherelle Jacobs

IBM and SAP work together on enterprise cloud adoption

SAP has selected IBM as a premier strategic provider of cloud infrastructure services for its business-critical applications - accelerating customers' ability to run core business in the cloud. The SAP HANA Enterprise Cloud service is now available through IBM's highly scalable, open and secure cloud. The expansion of SAP HANA Enterprise Cloud to markets with the addition of the IBM cloud data centres is expected to enable customers to deploy their SAP software around the globe in a faster and more secure environment, with support from IBM's proven cloud capabilities.

"The demand for SAP HANA and SAP Business Suite on SAP HANA in the cloud is tremendous and this global agreement with IBM heralds a new era of cloud collaboration. We anticipate customers will benefit from this collaboration and expansion of SAP HANA Enterprise Cloud," said Bill McDermott, CEO of SAP.



50 per cent of enterprises will have hybrid clouds by 2017 (Credit: IBM)

Dimension Data's managed services deployment

ICT solutions and services provider Dimension Data has been deploying globally standardised managed services for data centres since mid-September 2014 - built on the group's Managed Services Automation Platform, the portfolio manages server, storage and networks for on-premise, cloud and hybrid data centres.

Dimension Data is committed to quadrupling the size of its data centre business to US\$4bn by 2018. This suite of managed services represents the next step in a set of strategic initiatives to expand the group's capability to support domestic and multinational clients' data centre transformation requirements.

Steve Joubert, Dimension Data's group executive for data centres, said, "We're seeing a shift away from clients owning and managing their own data centre to outsourcing the entire infrastructure, or the management of the environment.

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Data centres at the core of information processing

With technology and digitisation rapidly changing the world, data centres have been aiding the process of change at a steadily pace. Power generation equipment solutions provider Cummins elaborates the evolution of data centres and the latest technology to stabilise them in day-to-day operations

A data centre is defined as a company or facility within a company that houses servers and network equipment, processes data, hosts web sites and generally provides Internet connectivity. This market is driven by our increasingly connected world and digitisation. The rise in popularity of mobile devices, e-commerce, video on demand, big data and social media are all underlying reasons for increase in demand for data centres.

A data centre ideally needs power, space and bandwidth. It is imperative to have a reliable power source, optical fibre routing, more major Internet exchange points (IXPs), stable geographic location and economical cost of energy to establish an efficient data centre.

Co-location and enterprise segments

The end user data centre market is comprised of two segments – co-location and enterprise. Co-location

refers to the building and selling of data centre space to others, and this is the fastest growing segment. Co-location can be further segmented into retail and wholesale providers. Retail providers sell on the basis of individual racks/cabinets or cages to customers, which typically range from 46 sqm to 464 sqm in size. Ideally, large enterprises with significant IT expertise, SMB (small and medium businesses) looking to outsource data centre requirements, Internet application providers, social networking providers, entertainment and content providers, telecom carriers and hosting providers are among those seeking co-location. In addition to providing data centre facilities, additional maintenance, systems, fire suppression, security backup and HVAC are also included.

Meanwhile, the enterprise segment comprises customers who build and utilise data centres to support their businesses. This includes mid-sized to

large corporations such as Facebook and Walmart, financial institutions and banks, large manufacturers that have a high requirement for computing, web-hosting and cloud providers such as Google and Amazon, and telecommunication companies like AT&T, Verizon and Huawei.

However, enterprise companies, with the exception of cloud provider and telecoms, do not feel data centres are part of their core competency.

The need for power

A good power source should have a generator large enough to carry the load of the data centre and should be able to run endlessly as data processes never really stop. Diesel generators are a major source of power for data centres, in addition to being an economic alternative. Specifically, the Uptime Institute has stated diesel generators as the primary source of power for data centres and its utility an economic alternative.

Power requirements within a data centre facility is growing due to the increased power density of servers and the associated cooling. Today, the most common power density for server racks is 5kW/rack, but this is increasing to 20kW/rack and larger. Larger customers such as Google, Microsoft and Amazon design their own servers and the power density goes up to 40kW/rack. This increase in density creates more heat, thus requiring more cooling to reduce hot spots within the raised floor. Energy efficiency is of paramount concern, which has led to a number of different cooling architectures. These have reduced the overall power requirements for data centres, and consequently changes the overall building load profile which can impact equipment.

Components that make a data centre function

It is vital to understand the varying power requirements of a data centre. Cummins has devised an algorithm to calculate electricity consumption of technology units, which would help determine the amount of power needed. This algorithm is especially useful as it aids the understanding of how the technology required to cool the data centres also consumes similar amounts of power as the data centre itself so the whole setup has to have a balance.

Another factor to consider while setting up a data centre is the reliability architecture. The Uptime Institute's Tier Classifications Define Site Infrastructure Performance provides basic guidelines to follow while setting up a data centre and establishing its infrastructure. Once this structure is defined, it helps determine the power

infrastructure accordingly. For example, if a reliability architecture that meets Tier II guidelines is chosen, certain power system elements will have redundant components, i.e. an N+1 configuration. Accordingly, a facility that needs one 2,000 kW generator to support the base electrical load would purchase and install two 2,000 kW generators.

Power and reliability infrastructure consequently influences operational complexity – if a higher tier level is chosen, it means a slew of add-on devices such as switchgears and controls have to be added, which makes the operation more complex.

Procuring space for a data centre

Data centre space can be leased out by wholesale providers, and this could range in size from 464 sqm to 1,858 sqm, and up to 4,645 sqm. These providers sell to enterprises and retail co-location providers. While they typically do not provide technician, remote-hand services or network monitoring, they do assist with the provision of security guards, maintenance of fire alarm systems, security systems, generator, HVAC and UPS systems. Several wholesale providers also offer build-to-suit services, providing flexibility to enterprises looking for single tenant data centre facilities.

Industry structure

Within the data centre segment, there are three key influencers throughout the sales cycle – the end user, contractor and consulting engineer. Contractors are looking to work with distributors who are easy to work with, have experience with consulting engineers, offer competitive price and

lead times and can execute projects. Consulting engineers want to work with reputable suppliers who have expertise they can bring to the design phase and have the ability to integrate to meet system specifications and requirements, while end users value relationships and build trust through experience with equipment and service personnel. They want consistency and support wherever they have facilities and a reliable power systems partner.

In the data centre industry, end users that are repeat customers put up facilities across distributor territories and geographical regions. Hence, it is increasingly important to establish relationships with end users – especially those that are in the business of building and/or operating data centres as they exert more influence than a consulting engineer or contractor as opposed to conventional standby applications.

Data centre market trends

- Customers to move towards co-location and the cloud, which will increase influence of the Uptime Institute
- Co-location firms continue to spend on demand – supply chain impact
- Energy efficiency drives advancements in cooling – changing load profiles
- Increasing emphasis on after-sales support
- Customers testing renewables (primarily fuel cells) technology
- States and countries providing incentives for data centres providers to build facilities.
- Interconnected Data Centres offer users workload mobility, business continuity and disaster recovery

Trends are towards large or mega data centres with above 9,000 rack yield and more than 22,500 sqm of space.

“Cummins leverages application expertise, system design experience, an industry-leading sales and service network to build a reliable long-term partnership with our customers. We're there with you before data processing starts and we'll ensure it continues throughout the life of the data centre.” ■

For more information

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Iceland invests in African geothermal energy

In East Africa, the Rift Valley's geothermal potential is attracting more attention than ever before, thanks to a slew of major deals in key countries

A divergent plate boundary that stretches from the Afar Triple Junction, an area dividing the Nubian, Somali and Arabian plates into eastern Africa, the Rift Valley encompasses thirteen countries - from Eritrea at its northern tip down to Mozambique in the south. Experts estimate that the geothermal potential in the area is around 15,000MW.

"The East African Rift could generate tens of thousands of megawatts through geothermal energy and its potential is beyond doubt," said Magnus Dagur, regional director for Africa and Middle East at Iceland-based Reykjavik Geothermal (RG). "Kenya and Ethiopia are clearly the leaders for the region. That said I would not discount

countries like Tanzania, Djibouti, Rwanda and Eritrea, which are slightly less far along."

Despite the significant geothermal potential in the area, only Kenya makes it into the top ten geothermal energy producers in the world. On the whole, geothermal energy generation in the East Africa Rift Valley has been very limited. Lack of investment, technology and skills have all contributed to limited development in the geothermal sector to date.

Nonetheless, there has been an uptick in geothermal activity in Africa recently. Icelandic organisations and firms are playing a heavy role. This is perhaps unsurprising. Iceland is the leading geothermal energy producer in the world. The European country's installed geothermal capacity is 665Mg, making up 26 per cent of the country's total energy generation to serve its population of 300,000 people. Moreover, geothermal energy is used to heat 90 per cent of buildings in Iceland.

Moreover, the European country has long been a leading centre for geothermal research and training. The United Nations University launched a geothermal education centre in Iceland in 1979. So far 515 postgraduate scientists and engineers from around 50 countries, including African nations, have attended the centre for six month training stints that touch on areas including drilling technology, exploration and thermal liquid chemistry.

Looking to Ethiopia

Furthermore, Reykjavik Geothermal is involved in a US\$4bn project to harness geothermal energy from three sites - Corbetti, Tulu Moyer and Abaya. In October this year, the firm signed a deal with Ethiopia's government to construct a power plant at Corbetti on top of an



African countries can draw lessons from Iceland when it comes to dealing with the carbon dioxide, which is emitted as a waste during geothermal energy generation.

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imploded volcano that should produce 500MW of power in its first phase by 2020. The location should generate 1,000MW of electricity by the conclusion of its second phase according to those involved.

“We have been in Ethiopia for the last three years, working with the country’s government on the development of geothermal power,” said Dagur. “We already have the funding for the first 70MW of the project. So we have already secured all the equity for some of the first phase of the project. There’s a lot of financial support for developing geothermal in the region coming from development finance institutions and the US government.”

At present, Reykjavik Geothermal is preparing the project and finalising the paperwork. Dagur spoke of the time it takes to large-scale construction projects like this started, to get the stakeholders involved together, but he also reported that the Ethiopian government had offered excellent support.

In October 2013, the Icelandic International Development Agency (ICEIDA) inked a deal with the Ethiopian government to ramp up the country’s geothermal surface exploration and work on building capacity. The focus is on low emissions geothermal development. ICEIDA is to help Ethiopia to decide on the best sites to drill through various geophysical and geochemical studies for geothermal energy, and make the final arrangements for surface exploration. The areas of Tendaho Alalobeda and Aluto Langano have been identified as target areas for surface exploration. Boosting the country’s geothermal capacity will also be a priority.

A capacity building project is also due to be launched in Gedemsa. The focus will be on optimising the processes for geothermal drilling and best practices for maintaining geothermal power plants. Ethiopia

“ Looking at the next 10 to 15 years, a lot will depend on how governments and power companies go about the development of geothermal. There is definitely a lot of appetite for geothermal in Africa.

— Magnus Dagur, regional director for Africa and Middle East at Iceland-based Reykjavik Geothermal



Reykjavik Geothermal team in Africa.

has been supplied with technical assistance in terms of drills and other related equipment through its cooperation with ICEIDA as well.

“The overall objective of the cooperation is to assist the government of Ethiopia to increase their renewable energy access through low emissions geothermal energy development for the social and economic benefit of the country,” said ICEIDA in a statement.

Iceland eyes geothermal in other African nations

ICEIDA is involved in helping to develop the geothermal industries within other countries in the East Africa Rift Valley. Earlier last year, ICEIDA signed a deal with Rwanda to develop the latter’s geothermal sector. Reykjavik Geothermal had won a contract to carry out the project. It would do a reconnaissance and surface exploration studies and start up exploratory drilling where possible, the company said.

Engilbert Gudmundsson, director general of ICEIDA, said, “I am pleased to see this cooperation result in the take-off of this exciting geothermal exploration project, and that ICEIDA can continue to provide support to the implementation of this project.”

According to Jon Örn Jonsson, director of Reykjavik Geothermal, it is clear that the project has been well prepared, with clearly defined outputs and milestones. The experience of ICEIDA and the regional knowledge and experience of the EU delegation in Rwanda will be of

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considerable benefit for the project. This is the first time that RG and [international consulting firm] Mannvit collaborate on geothermal exploration and development in East Africa and the award of this contract to the companies demonstrates the strength and competitiveness of Icelandic geothermal knowledge.

Iceland is supporting the development of geothermal in other African countries as well. This includes Kenya, the biggest producer of geothermal energy on the continent. ICEIDA is making preparations for cooperation with Kenya's state-owned Geothermal Development Company. Focus will be on creating a new geothermal training programme that is intended to attract not only Kenyans but energy specialists from across the region.

ICEIDA has also been in talks with the Ugandan government about potentially lending support to the country to develop its geothermal activities. It has worked with the World Bank in Zambia to produce a pre-feasibility study on a potential geothermal site in the country. Iceland's development agency has also been working on a regional geothermal project for Burundi, East Congo and Rwanda. ICEIDA has been in talks with Djibouti's government and the World Bank about supporting geothermal projects in Djibouti and also been in similar discussions with the Tanzanian government.

Finally, ICEIDA has been overseeing a project to create a new geothermal database for Africa, which puts material related to projects, resources and reports all in one place. ICEIDA said, "Over the last months, it has become apparent that compiling and storing information in one place on geothermal resources, projects, reports as well as stakeholders in geothermal development in the countries concerned is of paramount importance. The database will respond to this need and enable access to data for all relevant stakeholders."

Learning from Iceland

According to experts, there are specific areas where Iceland's competence and experience when it comes to geothermal can particularly contribute to problem solving and dealing with challenges in Africa. One is how to produce electricity at low temperature geothermal sites - as many of Africa's potential geothermal sites are low temperature. An Icelandic engineering

“ Despite the significant geothermal potential in the East African Rift, only Kenya makes it into the top ten geothermal energy producers in the world.

consultancy, Verkis has completed a report that has estimates for electricity production costs per kilowatt-hour at varying temperatures. This could be an extremely useful resource for African countries trying to work out exploitation costs in low temperature geothermal areas.

African countries can also potentially draw lessons from Iceland when it comes to dealing with the carbon dioxide, which is emitted as a waste during geothermal energy generation. For example, Iceland is currently working on the construction of a methanol fuel plant that will pump carbon dioxide from geothermal activities into the country's basalt rock. It would then combine with the rock to form limestone. These are the kinds of solutions that African countries can potentially learn from.

Dagur maintained that Africa can gain inspiration from Iceland's broader story as well. He said, "Until the seventies, the UNDP classified Iceland as a developing country. One of the big things that helped transform the country's economy was the development of renewable energy and the move away from fossil fuels. There is no reason why African countries cannot do the same." Nonetheless, Dagur argues that although several African countries are blessed with geothermal resources, they will have to work hard at developing them.

"Looking at the next 10 to 15 years, a lot will depend on how governments and power companies go about the development of geothermal. There is definitely a lot of appetite for geothermal in Africa. The big question is how active and serious governments are going to be about getting the right legislation and institutional framework in place to get deals off the ground." ■

Sherelle Jacobs

Energy sector to power sub-Saharan Africa

Increasing access to modern forms of energy is crucial to unlocking faster economic and social development in sub-Saharan Africa, according to the International Energy Agency's (IEA) Africa Energy Outlook.

More than 620mn people in the region or about two-thirds of the population live without electricity, and nearly 730mn people rely on inefficient forms of cooking. The use of solid biomass, mainly fuel wood and charcoal, outweighs that of all other fuels combined, and average electricity consumption per capita is not enough to power a single 50W light bulb continuously.

"A better functioning energy sector is vital to ensuring that the citizens of sub-Saharan Africa can fulfill their aspirations," said IEA executive director Maria van der Hoeven.

In the IEA's first comprehensive analysis of sub-Saharan Africa, it said that the region's energy resources are more than sufficient to meet the needs of its population, but that they are largely under-developed. The region accounted for almost 30 per cent of global oil and gas discoveries made over the last five years, and it is already home to several major energy producers including Nigeria, South Africa and Angola. It is also endowed with huge renewable energy resources, including widespread solar and hydro potential, as well as wind and geothermal.

The report also finds that investment in sub-Saharan energy supply has been growing, but that two-thirds of the total since 2000 has been aimed at developing resources for export. Grid-based power generation capacity continues to fall very far short of what is needed, and half of it is located in South Africa.

The report goes on to add that the sub-Saharan economy will quadruple in size by 2040, the population nearly doubled and energy demand to grow by around 80 per cent. Power generation capacity also quadruples: renewables grow strongly to account for nearly 45 per cent of total sub-Saharan capacity, varying in scale from large hydropower dams to smaller mini- and off-grid solutions, while there is a greater use of natural gas in gas-producing countries.

Natural gas production reaches 230bn cu/m in 2040, led by Nigeria, which continues to be the largest producer, and increasing output from Mozambique, Tanzania and Angola. LNG exports to the global market will triple to around 95bn cu/m. Oil production will exceed six million bpd in 2020 before falling back to 5.3mn bpd in 2040. Nigeria and Angola continue to be the largest oil producers by far, but with a host of other producers supplying smaller volumes. Coal supply will grow by 50 per cent, and continue to be focused on South Africa, but is expected to be increasingly joined by Mozambique and others.

In 2040, energy consumption per capita will remain very low, and the widespread use of fuel wood and charcoal will persist. The outlook for providing access to electricity is bittersweet: nearly one billion people gain access to electricity by 2040 but, because of rapid population growth, more than half a billion people remain without it. Sub-Saharan Africa also stands on the front line when it comes to the impacts of climate change, even though it continues to make only a small contribution to global energy-related carbon dioxide emissions.



The outlook for providing access to electricity is bittersweet: nearly one billion people gain access to electricity by 2040 but, because of rapid population growth, more than half a billion people remain without it.

"Economic and social development in sub-Saharan Africa hinges critically on fixing the energy sector," said IEA's chief economist Fatih Birol. "The payoff can be huge with each additional dollar invested in the power sector boosting the overall economy by US\$15."

In an African Century Case, the IEA report shows that three actions could boost the sub-Saharan economy by a further 30 per cent in 2040. These actions are:

- An additional US\$450bn in power sector investment, reducing power outages by half and achieving universal electricity access in urban areas.
- Deeper regional co-operation and integration, facilitating new large-scale generation and transmission projects and enabling a further expansion in cross-border trade.
- Better management of energy resources and revenues, adopting robust and transparent processes that allow for more effective use of oil and gas revenues.

As well as boosting economic growth, these actions bring electricity to an additional 230mn people by 2040. They result in more oil and gas projects going ahead and a higher share of the resulting government revenues being reinvested in key infrastructure. More regional electricity supply and transmission projects also advance, helping to keep down the average cost of supply. But the report warns that these actions must be accompanied by broad governance reforms if they are to put sub-Saharan Africa on a more rapid path to a modern, integrated energy system for all. ■

Intelligent maintenance for viable investment

Permanent monitoring of machine and plant states can equate to optimal power productivity

High system availability is the most effective lever for increasing productivity. Less the downtime, the better. This is why it is important to identify potential sources of error early and to perform scheduled maintenance at the right time within the production cycle.

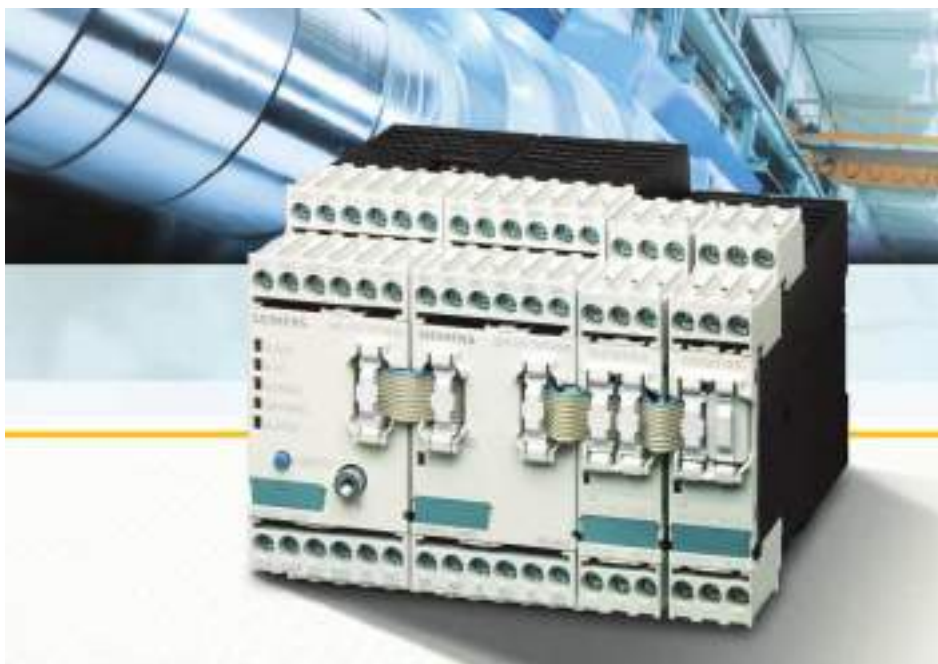
The Siplus CMS condition monitoring systems developed by Siemens have proved ideal for monitoring mechanical components. All of an operator's machines and its entire system are constantly in view. This facilitates predictive maintenance, allowing an operator to plan and implement maintenance operations in due time.

After prolonged operating periods without interruptions, significant irregularities resulting from wear or other damage-related causes can be detected early on with the help of documented trend histories.

Foreseeable problems can be corrected at an early stage, before resulting in major damage or even total failure, with the often costly consequences.

Permanent monitoring and predictive maintenance

Siplus CMS proves its worth day after day in applications all around the world and in many industries contributes to a significant increase in machine and plant availability due to the permanent monitoring of levels of vibration in machines, bearings and gear units, which in turn makes a huge contribution to increasing productivity. The systems can be applied to automotive industry, chemical production, renewable energies operations, mechanical engineering, metals and mining environments, food and beverages sectors, oil and gas operations, pharmaceuticals firms, water and wastewater enterprises, pulp and paper companies, and a host of cross-industry applications. In terms of system components, Siemens has optimised integration in automation systems (TIA, PCS



The VIB-MUX module from Siemens expands the Siplus CMS2000 condition monitoring system with additional inputs for vibration sensors.

7), simple connection to SCADA systems (WinCC or other), and remote services.

Mechanical wear, imbalances, defective bearings and other damage scenarios can cause machinery to increase its energy consumption. Siplus CMS facilitates the early detection of such deficiencies which are then signalled via the SIMATIC Maintenance Station, for example. This allows appropriate maintenance measures to be taken to ensure restoration of the system's scheduled energy efficiency levels.

The Siplus CMS system portfolio comprises CMS1000, CMS2000, CMS4000 and CMS X-Tools.

CMS1000 is compact and simple solution. It offers characteristic value-based monitoring through RMS (machine vibration), DKW (bearing monitoring), and a traffic light display of machine status. CMS2000 is a modular and configurable

solution, a web-based system delivering detailed damage detection using frequency-selective diagnostics, utilising raw data recording and output for trend recording and analysis, and monitoring of process variables. It is modularly expandable with VIB-MUX and temperature modules.

CMS4000 is a powerful proposition, a scalable and freely configurable analysis system for detailed and comprehensive diagnostics and condition monitoring. It offers configurable analysis models with know-how protection, easy integration into existing automation systems, and recording of process signals.

With the powerful CMS X-Tools diagnostics software, it is possible to create and protect own analysis models, to integrate process data of the control, to use function block libraries, and to archive data for quality assurance. ■

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Using the friction value procedure

Processing reliability for the assembly of self-forming and self-cutting screws

Screwdriving technology is the most popular form of joining technology. In the automobile industry for example, aluminium, light metals and plastics are used more frequently due to the need for lightweight construction. Housings for pumps, electronic control units (ECUs), airbags, interior components – all these products are normally assembled using self-forming or self-cutting screws. In the processing of these screws a tapping drill hole is used, the screw itself however acts as the thread forming or cutting tool. However for assemblies usually in series assembly, for self-forming or self-cutting screws tightening based on a defined end torque is the established screwdriving procedure. The torque-guided screwdriving process is always the most adequate solution if the forming torque required lies at a constant value.

Screw-in torque on pre-load force

Screw shaft diameter tolerances in the tapping drill hole, varying materials and divergent surface properties of the components to be assembled or the connection element can directly influence the forming or cutting torque. They also directly influence the share of the torque which is responsible for applying the preload force. Jürgen Hierold, sales manager at Deprag Schulz, explained, "Imagine the following case: A connection element with a shaft diameter at the upper end of the tolerance parameter comes into contact with a tapping drill hole whose diameter is at the lower end of the tolerance range due to tool wear. We establish during the screw joint analysis that the thread forming or cutting process requires approx. 60 per cent of the applied torque and just 40 per cent is left to generate the preload force. If however the tolerances alter and a smaller shaft diameter comes into contact with a larger tapping drill hole then the screw assembly to torque seems at first glance to be ok. However the screw joint analysis will show that the



forming and cutting process requires just 30 per cent and the share of the torque responsible for the preload force is 70 per cent. This can either lead in one case to the destruction of the component or in the other to an insufficient, faulty and unreliable screw assembly".

If you judge the quality of the screw assembly of self-forming or self-cutting screws on the basis of the torque values then the results received seem at first glance to be OK. The sensors in the screwdriver spindle register the specified end tightening value as ok. "However we know that the applied torque is proportionally shared in the forming or cutting process to preload force", Mr Hierold stressed. "The aim for every screw assembly is therefore not a constant end torque value but a constant preload force". In

order to ensure a constant preload force even with fluctuating drilling torque the specialist for screwdriving technology Deprag has developed the friction value procedure.

"The friction value procedure guarantees a constant preload force as the drilling torque has already been registered and calculated during the assembly process in order to determine the end torque required for the preload force."

Generate force using the friction value

Screw assembly using friction value procedure from Deprag is based on results from the screw joint analysis. In the torque development graph a threshold value for the angle measurement is assigned and based on the analysis a range for the friction value measurement is defined. From a sequence of torque measurement results an average or peak value – the friction value – is calculated. A difference torque is added to this. The shut off torque is the sum of the friction value and difference torque. "Using this method the differences in this procedure to those of other providers is clearly shown. We generate the friction value over the angle range rather than as others who use the connecting surface", outlines Jürgen Hierold. "The friction value determination via connecting surface is reliant on the increase in measurement value; we are reliant on a measurement range with many individual values and take the average from this. It is the more reliable method".

The preload force is applied reliably via the friction dependent torque screw assembly despite the appearance of fluctuations in the forming or cutting process. "Unfortunately as well as all these advantages there is also a disadvantage in this procedure", said Hierold. "The end tightening values are not constant due to the fluctuation forming torque. A quality evaluation of individual screw assemblies which is usually determined via the end tightening value e.g. using the Cmk-Index, is in this way, no longer an option." ■

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The way forward to control in construction

Developments in electronics and control technologies for machinery are having a significant impact on building operations

Electronics and control technologies are becoming increasingly important in construction machinery, which has long been dominated by hydraulic systems. Sensors such as encoders or potentiometers are being used to provide control units with positioning and angular and speed data. This application places high demands on sensors. Outdoor operation is subject to varying climatic conditions such as extreme temperature fluctuations and the ingress of dirt, dust and liquids. The resulting requirements for high ruggedness and a high degree of protection form the basis of Hengstler's newly designed encoder families, available locally from Countapulse Controls.

Encoders are used for positioning, angular, speed and length measurements in construction machinery applications where they facilitate both the driver's work and enhance productivity, such as straight-to-the-point positioning of loads for hoisting equipment or restricting work zones in order to protect against collisions.

Encoders used in construction equipment always prove their capabilities under extremely harsh conditions by providing reliable feedback on the positioning, excursion angles or speeds. The robust encoder families from Hengstler have proven technology that is completely free from sliding contacts and therefore ensures high reliability and longevity. The programmable absolute encoder types in particular do not necessitate any re-adjustment as compared to other technology products.

The proper function and accuracy of potentiometers for example is adversely affected by temperature fluctuations and wear and tear. In addition, encoders offer full 360° scanning, which allows obtaining accurate feedback over a full turn or even several turns. Multi turn versions make it possible to read the exact number of turns at any time, even after voltage drops or complete power failures.



Technology and flexibility are the key characteristics of the Hengstler Acuro series range

Machinery manufacturers have valid reasons to use reliable sensors, such as legal requirements for the prevention of accidents or registration of vehicles in addition to achieving increased productivity. For example, an overload warning device is required for both crane systems and hydraulic excavators in order to warn the driver as soon as the permissible load is exceeded. For hydraulic excavators, this can be implemented by means of a measuring element that determines the operating pressure in the cantilever (jib) cylinder and which transmits a warning signal to the driver as soon as a defined pressure is exceeded. This function can be assumed by encoders and supplemented by feedback to the system. By determining the angle of excursion of each rotating axis of the excavator arm and the slewing ring between the upper and lower trolley, the maximum permissible load in the excavator bucket or crane suspension can be calculated at any time.

Construction work often has to be carried out in confined areas such as close to electrical overhead power lines or on sites where several hoisting cranes may impede each other or in pedestrian zones. Hoisting equipment such as hydraulic excavators may be used in buildings with restricted ceiling height or mobile cranes in railway loading stations with overhead power lines. In such

cases, crane systems use a so-called electronic safety working range. An electronic control system protects against obstacles by decelerating the crane when it comes too close to an obstacle and thus preventing a collision. Anti-collision systems are also used for large construction sites with several cranes. They monitor each crane position and reliably prevent them from getting too close to the neighbouring crane. In this regard, encoders determine the exact position and excursion angle of the machine and transmit it to the control electronics. The work of crane operators is made easier if loads are positioned directly. To achieve this, an encoder continuously provides feedback to the control unit on the position and speed of the crane. Set points can be selected by micro fine turning adjustments and compensating for the effects of wind or load conditions.

Hydraulic wheel excavators are generally only approved for road traffic conditions if equipped with a sensor ensuring that the upper trolley is aligned in the driving direction. Inductive sensors are often used for this purpose. However, installing an encoder in the rim between the upper and lower trolley has opened up new possibilities. The essential technical requirements for using encoders in construction equipment include a high degree of protection, wide temperature range, high shock and vibration resistance, high resistance to water and humidity, as well as high load resistance of the shaft. Encoders should have a protection rating of IP67 or even IP69.

Rugged technologies make it easier for electronic components to enter and become established in the field of construction equipment. They also respond to the requirements for high safety, productivity and operator convenience. Even if it might take another few years for electronics to replace hydraulics, it is already obvious that the role of sensor technology will become increasingly important. ■

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Rubust IT for hard workers

A truly rugged computer is so much more than just a normal device wrapped in a tough outer case

First of all, let us distinguish between a “rugged” computer and a “ruggedized” computer (or tablet or smartphone). A rugged computer is designed to operate reliably in very harsh environments and conditions. The term “ruggedized” gives the sense that fragile internal components have been somehow protected. Truly rugged devices are not simply wrapped in a tough shell.

Tough and durable mobile computers and smartphones are gaining in popularity – because the customers demand more durable products! – and there are actually some mainstream devices that could be described as ruggedized (and are often advertised as rugged). But they are not truly rugged. They might be waterproof but lack other aspects of ruggedness, like the ability to withstand vibrations/shocks and function well in extreme temperatures.

A device, to be deemed rugged, should have passed some of the MIL-STD tests (the American military standard for equipment). They must be highly rated on the ingress protection (IP) scale for protection against dust and liquids.

Tests carried out on rugged computers

Drop and shock testing. This is one of the most important tests for rugged computers, simply because rugged computers are dropped all the time by workers in the logistics, forestry, public transportation, construction, mining, security and other industries where rugged computers are in high demand. Drop a normal computer and you will easily break the display or the hard drive. Drop a rugged computer and nothing will happen – at least it is highly unlikely that the device will break if it has passed all the relevant tests. All rugged mobile computers are tested to ensure they can survive falls as well as high force impact to the devices’



casings. Drop tests are certified by independent test laboratories and performed in accordance with MIL-STD-810G.

There are eight different procedures to choose from that each use different ways to cause shock or impact. The “transit drop test” is the most cited. It requires items to survive a total of 26 drops from the height of 122 cm, on each face, edge and corner, onto a hard surface like concrete. Mobile field computers are inevitably exposed to rain, spills and splashes. The second number of the IP code describes the liquid ingress protection, i.e. how well the unit is protected against water. The scale ranges from dripping water to continuous immersion in water. Water resistance tests are often carried out by the manufacturers of rugged computers by exposing the computer to powerful water jets from many directions without harmful effects. The test duration, water volume and water pressure varies depending on the rating. The water temperature is lower than the device.

Ordinary mobile computers are sensitive to vibrations and are not built to handle vibrations. Hard drives disks are especially vulnerable when subjected to vibration.

Rugged computers, however, must be able to handle vibrations since they are often used in vehicles that travel on bumpy and rough surfaces. Vibration tests are performed in accordance with MIL-STD-810G. They are designed to determine if a device can withstand the vibrations it would be exposed to during its lifecycle. The tests use laboratory shakers set to different levels to simulate being on a vehicle or carried by a person, with variations in the vibrations' wave form, frequency and intensity depending on the type of device and the environment being simulated.

A rugged computer must be able to keep out particles. Almost all field workers are exposed to dust and dirt at some point that would slow key functions and damage components if not protected. The dust resistance procedure tests ingress of small dust particles. Flour and sand is projected onto the device at high wind speeds and high temperatures for several hours, rotating the device and varying the temperature and wind speed. The blowing sand resistance procedure is basically the same as the dust test but the test is done in higher wind speed. The high end test simulates being near an aircraft. Extreme temperature testing. Rugged mobile computers must be able to handle



extreme temperatures and wild temperature swings. For example, Handheld's recently launched Nautiz X1 smartphone is designed to function well in temperatures ranging from -20°C to 60°C (-4°F to 140°F). High temperature and low temperature tests are

conducted in accordance with MIL-STD-810G. When testing for operability during high temperatures, the devices exposed to high temperatures while it is turned off (storage), while being turned on used (operation), and how it works under operational temperatures after having been exposed to higher storage temperatures (tactical-standby to operational). When testing for operability during low temperatures, again three procedures are carried out to determine how the device will behave in low temperatures. They are much the same as in the high temperatures tests, except being done in freezing conditions.

In addition to liquid resistance testing for IP rating, many manufacturers of rugged mobile computers test their devices in highly humid conditions as a separate test that is defined by the MIL-STD-810G standard. The computers are exposed to humidity well over 90 per cent for several days in tropical heat. Many of the same features that make mobile computers liquid resistant also help prevent damage from high humidity.

Rugged computers are built - inside and out - to be rugged. No fragile parts wrapped in a hard shell here. ■

Jerker Hellström, CEO, Handheld Group

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The potential of African transport corridors

The key to unlocking Africa's potential is new investment in sustainable networks to connect economic hubs

A panel discussion hosted by Aurecon at the Southern African Road Federation (SARF) and International Road Federation (IRF) conference, held at the CSIR Convention Centre, Pretoria recently, focused on transport infrastructure. The discussion was attended by representatives of road agencies, funders, private sector transporters and consultants, and moderated by Abbas Jamie, African and Middle East transport leader at Aurecon.

Transport corridors have been on the African agenda since the 1970s. Africa's trade with itself is low and declining in comparison with other regions: 11-15 per cent of African trade is with itself and Africa's contribution to global trade is only 2-3 per cent. Solving this challenge is inextricably linked to country economic objectives of increasing primary exports while diversifying the economy. The solution will also mark the achievement of a vision: a continent capable of growing and sustaining itself. A transport corridor needs to efficiently connect hubs of economic activity and areas of potential growth along its alignment. The African continent has the highest transport costs in the world, accounting for above 20 per cent of the total imported price of goods within landlocked countries. This inefficient and expensive transportation restricts business, competitiveness and intra-regional trade, consequently stunting job creation and poverty reduction.

"Trade is by its nature cross-border and potentially multimodal," remarked Paul Lombard, general manager for the rest of Africa and Middle East at Aurecon, during the introduction to the discussion. With 92-97 per cent of Africa's international trade passing through ports, while 80 per cent of intra-African trade takes place via road, being able to plan and incorporate multimodal chains, including rail, into transport corridors is an important factor in efficiency. To an even greater extent, is the recognition that a corridor consists of operational systems as well as hard infrastructure. Much of the requirement for efficient corridors extends beyond better provision of road infrastructure, although this is important.

The Federation of East and Southern African Road Transport Associations (FESARTA) Executive Director, Barney Curtis, raised the example of one stop border posts which were implemented along the Northern Corridor in East Africa. During implementation, surveys showed dramatic reductions in border transit times with delays of days receding to under 6 hours. These gains in productivity and cost reduction for transporters were based on improved coordination resulting from operational changes rather than infrastructure remodelling, which is often seen as a panacea for border performance. While not all one stop border posts were producing the intended results, Curtis pleaded for them not to be abandoned. The closure of TradeMark Southern Africa (TMSA) and the East Africa Trade Hub was regretted since they had contributed to infrastructure and policy development and trade facilitation.



The panellists at the panel discussion held recently in Pretoria

Wim van Schalkwyk, formerly from TMSA and now a development planner at Aurecon, provided the background on how information systems were crucial to the virtuous cycle of better coordination, planning and implementation. He emphasised that there was a still a need to avoid duplication, and to integrate all the datasets and information management systems into a single open data platform across the tripartite regional economic communities.

The COMESA-EAC-SADC Tripartite is a platform for harmonising policies and programmes within those regional economic communities. Information openness was also raised as a factor in ensuring that corridor performance remained accountable and transparent. However, interested stakeholders in the audience advocated for real-time monitoring as the next step to achieve true transparency - a move that would require further donor or regional body funding.

Good corridor development and optimisation requires coordination of multiple stakeholders to be successful. Lovemore Bingandadi, programme manager of the Tripartite Transport and Trade Facilitation Programme (TTTFP), spoke of the complicated nature of this multilateral process whereby the movement from technical and economic studies to consensus on harmonisation of transport laws, regulations and technical standards was in itself a very slow process. This was only exceeded by the tedious procedure of domestic consultation and then ratification and implementation within multiple national governments. It was up to regional coordinating bodies such as the TTTFP to provide technical assistance to governments in domesticating the protocols. At a project implementation level, the infrastructure project would involve robust coordination between multiple governments, navigation of harmonised and non-harmonised regulations and policy, as well as coordination with the SPV and its appointed facility managers. ■

Funding for building

Housing microfinance has given several people a new lease of life in Egypt

Ibrahim Bakr is an Egyptian government employee, a proud family man, and owner of his own modest home in Dakahlya - in the heart of the Nile Delta region. However, until recently, life was not so straightforward for the 40 year-old father of four. He was forced to live in tough conditions with his extended family in a rundown apartment building.

"Living conditions were really hard, and I was short on money. I wanted to move away quickly from the family house, but I couldn't afford to," said Ibrahim. With the support of Dakahlya Businessmen's Association for Community Development (DBACD), a microfinance institution (MFI) in Egypt and a key partner for IFC, which is part of the World Bank Group, it was easy for Ibrahim to get a loan of 20,000 Egyptian pounds (US\$2,800). That was all he needed to finish building his own house on a patch of inherited land.

"The process was so simple," said Ibrahim. "And it only took me a week to apply for the loan and then receive it."

The market for housing microfinance
DBACD was founded in 1995 and has risen to become one of the largest and most successful MFIs in Egypt. As of December 2013, the association had reached 115,000 active borrowers - over half of whom are women - with a portfolio of 220mn Egyptian pounds (US\$31.5mn).

Since 2012, IFC has been helping DBACD move into housing microfinance (HMF) - an important untapped market in a country with immense demand for affordable housing, but sorely lacking any sort of serious mortgage financing. Indeed, the government estimates that about 560,000 families need new homes every year, but only 90,000 units are supplied.

Most existing banks and MFIs in Egypt simply have not provided the kind of loan products and services required to help build or renovate homes.

Whereas, in Egypt, the the public sector has historically been the only provider of low income housing, they have not been able to meet demand and, as a result, many low income families turn to poor quality informal housing. The construction or refurbishment of this informal housing is usually paid for by money borrowed from family or friends, since very few people have access to the financial services that can lift them out of poverty. IFC's support has been instrumental in helping DBACD develop a type of loan that could appeal to people like Ibrahim, who want to buy an affordable property or to upgrade/improve conditions in an existing home. ■

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Refurbishing Arusha

A city-wide building project to improve basic urban services through core infrastructure and innovations for improved urban management

With lush green mountains draped by a spectacular blue sky and simple green spaces, Arusha is known for its natural beauty. With a deliberate campaign to improve the city's infrastructure further, its allure has been enhanced by improved city streets, access to basic services and a better quality of life for its citizens.

The ongoing infrastructure development in Arusha is being financed through the Tanzania Strategic Cities Project (TSCP), with funds of about US\$213mn by the World Bank Group and US\$6mn from the Danish government. The programme, which started two years ago, targets Tanzania's growing medium-sized cities, including Arusha and six other local government authorities (LGAs) – Tanga, Mwanza, Kigoma, Mbeya, Mtwara and Dodoma.

According to Saumu Kassim, a taxi driver, traffic is much better today thanks to the improved roads. "Previously, Father Babu and NHC roads were not usable despite their strategic connection to different places in the city. Today however, with the roads in good shape, traffic has been freed up everywhere as more cars can now pass through these key routes. The city altogether looks much better and we also see that property value has appreciated in several areas, which were once very dusty. It is appropriate now to use our label 'the Geneva of East Africa.'"

Residents are also relieved with the 800-metre storm water drainage system which has contained flooding in the city. "Before construction, it was dangerous to walk in the rain in this part of the city, but that is now a thing of the past," said James Mshumbushi, a businessman on Bondeni Street, which was once severely affected by flooding. "Compared to earlier, more people come to shop in this area as the traffic is less congested."

Innovating urban integration

As Tanzania continues urbanising rapidly, with 27 per cent of the population residing in cities in 2012, up from 5.7 per cent in 1967, it is estimated that there will be more people



Tanzania is achieving rapid growth in urbanisation, with 27 per cent of the population residing in cities from 2012

living in cities than in rural areas by 2030, increasing pressure on already stretched public services. Against this background, the TSCP aims to improve the quality of and access to basic urban services through the building of core infrastructure and the introduction of innovations for improved urban management.

A key innovation has been the integration of geographic information systems (GIS) with the Local Government Revenue Collection Information System (LGRCIS). The systems work together to ensure that all properties – commercial, residential and others – are mapped and assessed for their tax revenue potential. Equipped with this information, city authorities will have a clearer picture of the tax earnings needed to finance the services to improve the quality of life and business environment. "With the GIS mapping, we have been able to define the commercial buildings in the whole of Arusha," said Daniel Mruma, the quality assurance team leader for the GIS unit of the City Council. "These are the ones that can generate more revenues for the council, rather than residential buildings."

Full completion of the GIS mapping and evaluation is underway, but several areas have been entered into the LGRCIS system

and invoiced since December 2013. Once the taxes are paid and a receipt is issued to a proprietor, the electronic revenue collection system automatically changes the code in the computer to show compliance. LGRCIS replaces the old paper and cash-based systems with a more transparent and convenient means of payment. Soon, residents and businesses will be able to pay online or through mobile banking.

"Supporting cities' efforts to collect their own source revenues using technology is part of our overall efforts to improve financial sustainability of urbanisation in the long run," said Mehmet Onur Ozlu, senior urban specialist and task team leader for the TSCP. "Arusha's successful launch of LGRCIS is an example of how this can be done with tangible results."

An operational LGRCIS system has also meant the city is in a better position to keep up with the expectations of the residents who are enjoying the benefits from the upgraded infrastructure. Not only have the new roads drastically reduced traffic congestion and provided motorists with better alternative routes, they are also making it easier to collect taxes as happier residents have become more welcoming of the taxman.



► “Our experience has been that people always try to avoid paying taxes, but what we have seen here is what has also been documented in studies; tangible developments compel citizens to pay their taxes,” said Bruno Mlacha, revenue accountant for the city council. “The new roads, which are of exceptional quality, have been a great incentive for them to pay up. Whenever we announce that we are visiting an area to check on tax compliance, we find that people

from different locations come to our offices on their own volition before we even visit their area. Some call you and say, ‘can you come and pick up your cheque?’”

Transparent systems

The numbers support Mlacha’s account. In the three months between December 2013 and February 2014, the city collected US\$103,650 – nearly double the amount

US\$52,866 collected in the five months before the LGRCIS became operational. “The computerisation has made the tax system more transparent and credible for payers and it gives them confidence that they are paying for something genuine as opposed to concocted,” Mlacha added.

The city’s overall revenue outlook looks promising. The city has already generated US\$1.6bn in property taxes, services levies, hotel levies, business licenses and billboards (which is nearly double) in just the first three months of the new LGRCIS system. These figures are expected to grow once the property evaluation process is completed and more tax-paying units are harnessed under the new system.

“The new revenue enhancement and urban management systems developed in Arusha and the other TSCP cities are best practice - we already see a lot of interest from cities around the world in the work being carried out in Tanzania,” said Andre Bald, senior urban specialist at World Bank. “And not only is the new technology improving revenue collection - LGRCIS is a powerful tool to support municipalities with their planning, land management, and operations and maintenance roles.” ■

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The perfect tool for telegraph poles

JCB's Polemaster concept represents the potential for massive productivity improvements for projects connecting communities with power and communications

JCB has been busy, developing an innovative, low-cost solution for transporting and placing telegraph poles in East African markets. Its new Polemaster specification can be supplied with any 3CX, 3DX or 4CX backhoe loader that is equipped with a six-in-one loader bucket and can be supplied as a new machine or retro-fit to existing backhoe loaders.

Equipped to install

Two V-shaped carrier brackets are securely bolted to the bucket, one to the top of the back plate and the other to the top of the six-in-one clamshell. This allows the operator to easily raise the telegraph pole into a carrying position, where it is then securely chained to the bucket using sturdy mountings on the side of the bucket.

The machine operator can then lift the pole into position to install in the ground, or rotate it onto a third V-shaped bracket mounted ahead of the cab, if the pole is to be carried across site. As part of a complete one-machine pole installation solution, the backhoe is equipped with an auger on the rear arm, allowing the operator to provide a placing hole for the pole. A dedicated hand-held hydraulic circuit on the side of the machine delivers hydraulic flow to power hand-held breakers where installation involves breaking through roads and pavements. This circuit can also be used for hydraulic cutting equipment and other hand held tools, adding to the versatility of the Polemaster specification.

East African evaluation

Early tests show that the system can be used to install a telegraph pole in just 15 minutes, or up to four poles per hour, greatly improving productivity on site. JCB currently has field test machines at work in Tanzania, Kenya and Uganda, while Sudan is also being



The JCB 4CX PoleMaster is innovative, low cost solution for transporting and placing telegraph poles in East African markets

considered, though as Sudan mainly uses a concrete pole rather than timber, the engineers are looking at secure straps rather than chains and a roller system on the bracket ahead of the cab.

With up to 1.6mn poles to be installed in Sudan, a further 1.2mn in Kenya and an

estimated 1.4mn poles for Tanzania, there is a huge market potential for the Polemaster attachment. The attachment further enhances the versatility and flexibility of the JCB backhoe loader, while bringing much needed power and communication to communities throughout the developing world. ■



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Delivering domiciles next to Durban

There has been considerable investment in a new city on South Africa's east coast, a mixed-use development of housing, commerce and industry

The day that Vusi Shabangu was handed the keys to his new home was the best day of his life. Early in March 2014 he moved into a two-bedroom house in the Cornubia housing development outside Durban, a place where a single room was larger than the shack he had called home. In 1995, excited by a new democracy and the promise of opportunity, Shabangu had moved from rural KwaZulu-Natal to Durban in search of a better life. For almost two decades, he worked as an itinerant labourer, moving from one backyard room to a shack in one of the informal settlements that ring eThekweni.

It does not matter to Shabangu that he is a resident in a landmark development; all that matters are the keys in his hands. Along with the keys, he gets to enjoy the parks and recreation, and the communal hall as well. He will grow to appreciate the fact that Cornubia, which was renamed in April 2014 by President Jacob Zuma when he handed over keys to another set of residents, is designed as a community with schools, clinics, recreational and shopping facilities. Work opportunities are also easily reached by the new mass transit routes that are part and parcel of the infrastructure improvements included in the design.

Cornubia has been created and is being developed by the eThekweni Municipality and agriculture giant Tongaat Hulett. Once completed – expected to be in 20 years – the mixed-use development of housing, commercial and industrial sites will change the skyline between King Shaka International Airport and Umhlanga.

Karen Petersen, the human settlement executive at Tongaat Hulett, explained that Cornubia will provide over 24,000 residential units, catering to all races and across income bands. More than just a housing development, the vision is to provide residents with access to employment and retail opportunities as well. She said, "By



The first 482 houses in the initial phase at Cornubia have been finished and handed over to residents (Image: GCIS)

offering a safe and secure environment, traffic accessibility, and access to other urban amenities and services, Cornubia's mixed-use development will provide a place for all residents to live, work and play."

Communal spaces

But its importance extends beyond amenities. She said that Cornubia puts an end to the stereotype that social housing is simply about putting a roof over someone's head. The communal spaces are designed to encourage social interaction and create a sense of ownership and commitment to community.

"There is a real social implication of poorly designed housing. If you don't create places where people are proud to live, then you're

just reinforcing the idea that neither the building nor the tenant is worth the effort."

A key principle behind Cornubia is the integration of different income levels and a mix of freehold and rental housing. In line with international design concepts, provision has also been made for social infrastructure. "The planning was driven around the need for accessibility, so all facilities – schools, health and other social infrastructure – will be within a five-minute walk."

Social and environmental sustainability are important considerations for Tongaat Hulett, and the buildings going up in the commercial and industrial sections are designed to be environmentally sensitive, and totally green where possible. "There are financial

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limitations, which restrict major green interventions in the subsidised housing components of the project. However, Tongaat Hulett where appropriate is encouraging the adoption of these principles. Unfortunately, for now, this will, in all likelihood, only take place in the higher intensity commercial/mixed-use areas like Cornubia Town Centre," Petersen said.

By the time the US\$2.1bn site is completed in 2030, the 1,200ha property will consist of 24,000 housing units, of which 15,000 will be low-cost homes; there will be two million square metres of commercial space and an 80-hectare industrial development. The construction phase will create up to 15,000 new jobs, while the completed development will create space for about 48,000 permanent retail and industrial jobs. Residents will contribute about US\$27mn in rates to the eThekweni coffers and a further US\$190mn in VAT receipts for the national fiscus.

Cornubia is important for the potential benefits it will create in housing, employment and economic opportunity. It represents a shift in thinking in the housing programmes of local and national housing departments and is proving to be a benchmark for future development in South Africa.

Human settlements

Connie September, minister for human settlements explained, "We have shifted from housing to human settlements. We

now have an integrated approach that includes better spatial planning. Today, we want to build communities planned around water and sanitation, with schools and recreation facilities in close proximity, and economic opportunities close by. We want to plant trees."

To promote the creation of vibrant communities that have access to adequate social and economic facilities, the government agreed that the former department of housing should have its mandate widened to facilitate sustainable human settlements. In addition to housing, the new mandate includes integrated provision of services, social facilities and economic opportunities.

September said that her department is committed to addressing the legacy of spatial poverty by developing human settlements in well-located areas with sufficient social and economic opportunities. "This will be a key priority of the department in the future. In simple, we are striving to create new settlements that are conducive for human habitation and growth."

Taking a leaf from the National Treasury's successful public-private partnership unit, the department has also been more receptive to working with the private sector when building new housing.

Petersen said Tongaat Hulett refers to Cornubia as "a joint initiative or collaboration between public and private

sector partners". It is built on land acquired from Hulett at below market rates with the understanding that it will be used for low-income housing.

Housing backlog

When negotiations began for a new political dispensation in South Africa, there was a backlog of 1.3mn homes. Each year, the demand has grown by a further 200,000 with just 50,000 new homes being built to meet the demand.

From 1994 onwards, through the Reconstruction and Development Programme, the new administration began building homes at a rapid pace. To date, almost three million homes have been built, providing accommodation to nearly 13mn South Africans for the first time.

Critics of the RDP build have slated the poor build quality of these houses. Their biggest complaint though, has been aesthetic – RDP homes resemble the building programmes of the apartheid government – bleak, massive settlements far away from work opportunities, decent public transport and retailers.

Containing the growing backlog while meeting existing demand meant "good design" and "communities" were concepts that were not considered. However, in the last few years, there has been a growing recognition that it's not just houses that need to be built, but communities and places where people want to live.

Cornubia is one of four projects nationally that signal this shift in the way the department of human settlements views development. It was one of the first when construction began in March 2012, in line with the department's Breaking New Ground policy. Nationally, there are two other projects that have been receiving new residents. In the Waterberg District, the Lephalale Project's 29,709 houses are being built adjacent to a retail and commercial precinct. It has been fast-tracked to deal with a housing backlog aggravated by the influx of workers to the Medupi power station, which is 21 km away. The Khutsong Project in Merafong was fast-tracked to move 25,000 households living on geographically unstable dolomitic land. Khutsong is a community being designed and built from the ground up and will include subsidised housing, retail and industrial sites as well as social and educational amenities, September explained.

"These new projects are beginning to reshape the spatial legacy of apartheid into the non-racial integrated settlements that we dreamed of." ■

Sulaiman Philip



There is a strong focus on ensuring the delivery of affordable housing in sustainable and habitable settlements (Image: GCIS)

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Exhibiting at Electra Mining

What was seen and what to expect in the mining industry, as promoted at the continent's key industrial mining event

With over 40,000 people expected to attend in 2016, the next Electra Mining event is expected to dwarf all previous events for mining, industrial, machine tools and electrical trade show in southern Africa. With that many potential customers in one place, mining equipment and services companies are asking whether they can really afford not to exhibit at the next Electra Mining Africa, taking place 12-16 September 2016 at Nasrec Expo Centre in Johannesburg.

Companies exhibiting and attending will be able to generate on-site sales and pre-qualified sales leads, launch new products, services and technology, showcase product ranges, position their company as a market leader - and host, entertain and engage with existing and new clients.

Exports and product applications

Exhibitors at the most recent event, the 2014 Electra Mining in September, were able to benefit from exactly this kind of coverage and networking. At *African Review of Business and Technology*, we learned about many suppliers and operations, old and new. What follows is a roundup of key enterprises at the event.

ATI Systems, which is made up of four divisions. Elsteel LV assemblies is a specialist electrical assembly division, involved with the design of power distribution and motor control assemblies. ATI Systems' DC drives division supplies SSD Parker speed drives - including AC drives, DC drives, servo drives and soft starters. The company's Position Feedback division supplies rotary motion and linear displacement sensors. Its Standard Enclosures division imports and distributes the Eldon range of enclosures; ATI is the largest stockist of electrical enclosures in Southern Africa.

Based in Cape Town, South Africa, Absolute Ablutions manufactures mobile toilets. Over



There were many new and innovative products at Electra Mining

10 years it has created a comprehensive range of toilets, showers and associated systems. It also offers kitchen and catering units, vendor and display units, industrial caravans, and mobile offices.

Shortly before the 2014 edition of Electra Mining was held, gas-cleaning and dust control specialists Actom Air Pollution Control were appointed the sole distributor for Southern Africa of an innovative compact and energy-efficient filtration system for use in light industrial applications where low levels of dust and fumes are generated.

The Novus Air Tower is designed for use typically in many pharmaceutical and food processing and milling applications, as well as for welding, grinding and plasma or laser cutting operations. It is a free-standing unit that can be easily transported and installed wherever it may be required. It can be plugged into electricity and compressed air supply sources and go into operation immediately. It is also much less expensive to purchase and run than conventional dust control and gas-cleaning systems.

A software development company based in South Africa, Adroit Technologies has been developing award winning real-time software for the industrial automation markets for over 25 years. The principal activities of the company are product development, consulting and solutions development, primarily in the industrial sector.

Manufacturing single wall and double wall fluorinated high density polyethylene HDPE pipe, Advantage Earth Products (AEP) provides sales, technical support, manufacture and warehousing. It sells and services additional petroleum-related equipment through exclusive agreements and from its own manufacturing capabilities. Products include fluorinated sumps, fittings, pumps and fuel purifiers.

Fromix has been producing mixing and pumping equipment in South Africa since 1975. Its products have been utilised in mining, chemical, pulp and paper, pharmaceutical, petrochemical, and waste and water treatment sectors. Its main product lines include agitators and the AFX series of

peristaltic pumps and hoses. The company's manufacturing facility in Uitenhage, in the Eastern Cape, was chosen due to the availability of high quality machining facilities and a competent labour force in the area, and shipping access to export markets.

Air Liquide specialises in gases, technologies and services for industry and health. Oxygen, nitrogen, hydrogen and many other gases are at the core of Air Liquide's activities. Using these molecules, Air Liquide continuously reinvents its business to anticipate the needs of current and future markets and meet its customers' needs.

Airgas Compressors is the sub-Saharan subsidiary of Aerzener Maschinenfabrik (Aerzen) in Germany. Aerzen specialises in rotary lobe blowers, turbo blowers, screw compressors, rotary lobe compressors and rotary piston gas meters for air and process gases. Aerzen machines are internationally renowned for their quality and high performance features. In conjunction with new machine sales, the company offers numerous after sales services including field service, repairs and overhauls to the entire range of Aerzen blowers and compressors.

A J Charnaud & Co (Pty) Ltd supplies personal protective clothing and safety



Companies such as Dynamic Weigh Systems showed at Electra Mining how firms optimise operational costs

equipment. Its protective clothing products range from protection against heat, flames, fire, electric arc flash to molten metal splash. Alpinist Safety Consultants (Pty) Ltd (ASC) was the first company in Africa to obtain training and operational membership with IRATA International, the only global trade association in the work at height industry with member companies on every continent. Its sales division provides a large range of internationally certified personal protective equipment for your staff to work safely at

height. Its training division offers a range of standardised internationally-recognised courses as well as bespoke courses that can be conducted at any of our three indoor facilities or conducted at your site with some minimal arrangements. Its operational division has a range of services from on site surveys, protective equipment installations to full service teams covering offshore maintenance work, geotechnical rock slope stabilization services, telecommunications and signage installations.



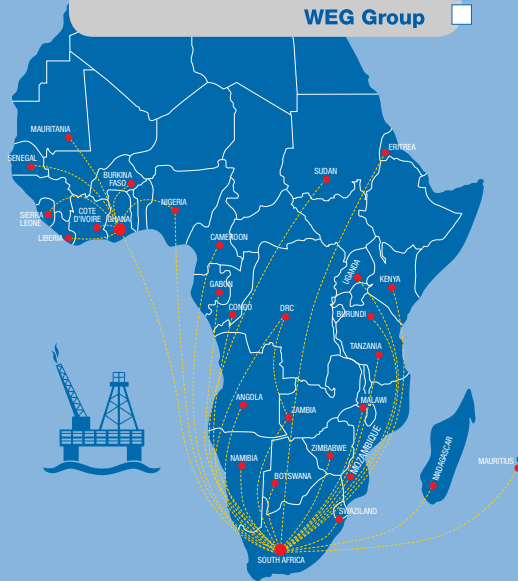
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➤ The personal protective equipment supplied by Aludar Safety keeps users safe and productive. Its technologies are tested to industry standards, and then validated by performing extensive field testing with industrial end users.

Present in South Africa and Southern Africa in the sales and service of sheetmetal and bandsawing equipment. Japanese company Amada services its customers' needs through a professional and dedicated sales, service and administration team. Amada Johannesburg has been operating in South Africa as a branch of Amada Japan since 1984. It also has offices in Durban and Cape Town, supporting the Amada range of equipment throughout South and Southern Africa as well as the Southern Indian Ocean islands.

AMC-CEMA has been established in the electrical rotating machinery market since 1994 with a focus on power generation and electric motor suppliers, and has acted as a major source to suppliers in sub-Saharan Africa with a diversity of products and technical support including alternators, electric motors, generator components, change over switches, sound attenuation and accessories, generator controllers, generator automatic voltage regulators (AVRs), anti vibration mounts, generator control panels, and custom-designed control and distribution panels.

Meeting the market with advanced solutions

DAMM concentrates on developing terrestrial trunked radio (TETRA) radio communication, as an important link in virtually any business process. Aside from its application in mining operations, TETRA has been designed for use by government agencies, emergency services, (police forces, fire departments,

ambulance) for public safety networks, rail transport staff for train radios, transport services and the military.

Dongfang Measurement & Control Technology Co., Ltd. is a specialised mine automation company, combining instrument and apparatus research and development, software development and system integration together, offering production informatisation solutions and carrying out whole-process automation for industrial production processes of metallurgical, mine, building materials, chemical, coal and other industries.

A manufacturer of gearing solutions and services, David Brown has been providing engineering expertise to a range of industries for more than 150 years. Its gear systems and service solutions have underpinned critical applications in industries where failure is not an option - including defence, mining, power generation, oil and gas, rail and metals.

Dongying Taida Rubber Co, Ltd produces advanced conveyor belt technology and tires. The company strictly adheres to ISO9001 for quality management, to ensure that reliable service to market. The main brands - Lu Debao, Roadbull, and Hongfei, are exported to Europe, the Middle East, Africa, South America and Southeast Asia.

Tsurumi Pumps (Pty) Ltd has been marketing and selling submersible pumps in South Africa for more than 25 years. Its products enable dewatering, sewage and wastewater operations, plumbing, and dredging.

DuPont, which specialises in body protection, launched Tyvek 800J at Electra Mining, which uses proprietary technology to combine oil repellency and durable protection against pressurised jets of liquids and water-based chemicals with fabric

breathability. It presented, also, Tychem 4000S which presents wearers with optimum barrier against a range of chemicals while also being supple and lightweight.

Duratrax provides dump body trays and components, professional support and other services to meet and exceed its customers' expectations in all aspects of their business activities. It seeks to help protect the environment by taking all practical steps to prevent contamination. It supports efforts towards maintain a safe, healthy and secure environment for its stakeholders, too.

Durmazlar is a Turkish company specialising in metal working machines, exporting to 82 countries around the world. Its metal working machines are capable of bending, cutting and punching. Its metal bending range includes press brake machines, profile rolling machines and plate rolling machines. Its metal cutting products include laser cutting machines, plasma cutting machines, metal cutting saws and metal cutting shears. Its metal punching range includes metal pressing machines and CNC punching equipment.

Dymot specialises in the design and manufacture of winches and winching equipment for a variety of applications. The company's main area of expertise is winches for conveyor tensioning applications. Its automatic take-up systems are widely used in the mining industry and involve using electric winches, strain gauges and programmable electronic controllers to control the start up and running tensions on any conveyor. These systems are extensively used underground where the conventional gravity tensioning systems are difficult to accommodate. There are currently over 250 systems operating both underground and overland.

At Electra Mining, Dynapower was a sponsor.

"Dynapower sets the standard for innovation and performance of bidirectional inverters for use in energy storage applications with innovative features like multi-port inverters, combining PV and battery energy storage, and Dynamic Transfer, which enables backup power applications through seamless transition to grid tied mode", said Adam Knudsen, the company's resident. "With a recent product line expansion Dynapower will continue to lead the distributed energy storage market and the commercial and industrial energy storage marketplace, capitalizing on previous successful installations in these market segments."

Recently, Dynapower opened sales offices in Johannesburg, South Africa and Kitwe, Zambia. Dynapower offers an extensive portfolio of services and can provide



Duratrax helps companies to protect the environment by taking all practical steps to prevent contamination

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A focus on quality support

African Projects Consulting (APC) Storage Solutions SA has been supplying leading storage technology to a number of industries since 1991. From its beginnings as a racking and shelving manufacturer and supplier to the retail industry, over the years, the company has migrated to turnkey warehouse storage solutions and automated warehouse systems. Since becoming the official South African distributor of Mecalux, APC Storage Solutions SA has installed more than 25,000 tons of storage equipment in more than 750 warehouses across the African continent. Its African footprint now extends also to Angola, Botswana, Egypt, Ghana, Ivory Coast, Namibia, Nigeria, Seychelles, Swaziland and Zimbabwe.

ATS 2000 offers heavy duty pneumatic equipment. Its products are technologically advanced, efficient and cost-effective, and are designed for application in the mining, petrochemical, heavy engineering and general industries. In 2013 ATS 2000 became one of only four manufacturers internationally and the only company in Africa to produce air hoists at 15 tons.

Avir (Pty) Ltd serves mining markets as exclusive agents for Kaishan compressors and JAC forklifts. Avir has also focused on transforming Southern Africa over to energy-saving screw compressors and working within markets including South Africa, Botswana, Zimbabwe and Namibia forward with efficient, cost-effective and easy to maintain products.



Electra Mining supports companies seeking solutions to maintain a safe, healthy and secure environment

Beckhoff implements open automation systems based on PC control technology. The product range covers industrial PCs, I/O and fieldbus components, drive technology and automation software. Products that can be used as separate components or integrated into a complete and seamless control system are available for all industries. Its South African subsidiary, Beckhoff Automation (Pty) Ltd supports its customers directly through experienced staff, as well as through a network of certified system integrators.

With a comprehensive range of replacement parts for leading crusher and material processing equipment, Caldas Engineering is seeks to ensure customer operations run efficiently while reducing downtime due to component replacement or failure. The company is committed to delivering quality parts and customer service.

Changsha Tianhe Drilling Tools and Machinery Co., Ltd offers down-the hole

(DTH) hammers and bits with capacity of drilling holes from 3" to 32" (76mm-800mm) in diameters, DTH drilling tools with large diameters for deep holes drilling, eccentric (ODEX) casing system and concentric casing system, reverse circulation hammers and bits, accessories of rock drills and some other equipment. Its products are popular in open-pit or underground mining, hydraulic engineering, oil and gas engineering, bridge engineering, construction engineering, and geotechnical engineering.

CIMEC Engineering Machinery Import & Export Co. Ltd., is a subsidiary of CMEC (China National Machinery & Equipment Import & Export Corporation), mainly engaged in the manufacture, sale and distribution of machinery equipment, electric equipment, instruments and meters, electronic lighting and light industry products, and associated services. ■

A new facility for Ampcontrol Africa

Electrical engineering and manufacturing company Ampcontrol Africa now operates at a new 10,000sqm engineering and manufacturing facility in Boksburg, Johannesburg.

Ampcontrol brings over 40 years of accumulated knowledge, experience and skill to South Africa, opening up their vast range of electrical and electronic solutions to the local industry, from large power products such as transformers and substations to advanced mining electronics. The factory represents a new phase for Ampcontrol's development, not just locally but internationally, as it will be the backbone of



future growth for Ampcontrol and plays a central role in the expansion of Ampcontrol as a global company. It also supports Ampcontrol's aim of becoming South Africa's premier supplier of mining electrical infrastructure and a strong partner to their local customers.

For customers, the facility means faster lead times, higher quality products and also the capability to manufacture a wider range of products, such as their gas filled transformers. It also enables Ampcontrol to produce greater volume and get involved in large projects, such as full electrical systems and vast electrical support services and overhauls.

Excavators

Versatile, fuel-efficient, and feature-rich: Cat's M315D2/M317D2 wheel excavator

The German-designed Cat M300D Series wheel Excavator models have earned a worldwide reputation for reliable performance, long-term durability, versatility, fuel efficiency, and low operating costs. The new M315D2 and M317D2, with operating weights of 15 and 17 metric tons (with heavy counterweight), build on these strengths with design refinements that include added operator comfort, improved visibility, production-enhancing features (such as the SmartBoom), and time-saving serviceability features.

New for the M315D2 and M317D2 is an operator's station that adds increased comfort and visibility, while maintaining the same sound levels, ample size, and ergonomic layout of controls. Two available seats, all fully adjustable and with lumbar support and weight compensation.

"Our ability to continually evolve our products to meet the ever-changing needs of customers, in a market that is more competitive than ever, has been key to FG Wilson retaining its global leadership position in power generation," added McKinty.

FG Wilson has 48 years of industry-leading experience in the supply of diesel and gas generator sets from 6.8 – 2,500 kVA with over 370 authorised Dealers in more than 150 countries

The 32 – 125 kVA range has been designed for non-regulated markets and non-mobile applications within Europe, and is available in non-emissions compliant variants.

FG Wilson has 48 years of industry-leading experience in the supply of diesel and gas generator sets from 6.8 – 2,500 kVA, with over 370 authorised Dealers in more than 150 countries. This enables the company to offer local support.

The manufacturer's ONE Global Quality Standard guarantees that every generator set is designed and manufactured to the highest UK standards. With production processes repeated at all FG Wilson manufacturing facilities (Brazil,

China, India, USA and UK), each achieving ISO 9001 and ISO 14001 certification, a quality product is delivered every time.



The new M315D2 and M317D2 have operating weights of 15 and 17 metric tons



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Raising quality, across the factory floor

JCB's investment in raising the quality of compact excavators

The products of JCB's investment in raising the quality of compact excavators.

Globally, the compact excavator market is expected to increase to over 200,000 units by 2017. Equipment manufacturing group JCB has invested heavily in order to seize the opportunities to come, particularly in the emerging markets of Africa and the Middle East. At its manufacturing facility in Cheadle, in the United Kingdom, JCB offered insights recently into the results of its £20mn (US\$32.7mn) investment into its compact products line, and specifically into manufacturing technology and new products. Examine the new line closely, examine the innovations built-in, the technical detail of the new design direction at JCB, which the company stresses have been developed in consultation with customers. As JCB's chief innovation and growth officer Tim Burnhope said, "We have undertaken the biggest benchmarking and customer evaluation exercise in JCB's history to come up with a range that is truly world-beating on all fronts: performance, reliability, cost of ownership, safety, durability, comfort and serviceability."

A new design direction

The 85Z-1 zero-tail swing model and 86C-1 and 67C-1 conventional tail swing excavators, for example, herald a completely new look for JCB midi excavators.

These new machines feature 100 per cent steel bodywork for improved durability. There is also a new 30-degree tilting cab offering six per cent more space and eleven per cent more visibility, and

enabling improved service access. Service and operation itself is easier and cheaper,



JCB's 86C-1 conventional tail swing

with 500-hour greasing intervals, and a 10 per cent reduction in fuel consumption over previous models. Furthermore, JCB has improved the grouping of components to reduce maintenance times - and introduced removable side-skirts and in-fill panels for better access to machine component parts.

These three new machines in JCB's compact excavator line all bear a revised H-design undercarriage, which can be supplied with steel, rubber or Bridgestone GeoGrip tracks. They feature, too, a redesigned dozer blade, which has been optimised for smoother material flow and less risk of damage. Safety is improved, also, with the introduction of JCB's 2Go servo control isolation system, which

comprises the standard hydraulic cut-off activated by lifting the left-hand lever pod, whilst also requiring the operator to activate

the hydraulic system through a button on the righthand console - so improving safety on site by reducing the risk of operators working hydraulic levers from outside the cab.

A premium on performance

Much work has gone into delivering more power across the compact excavator range. The 8.5 tonne midi excavators are powered by all-new JCB by Kohler diesel engines, generating 64hp (48kW). They drive Bosch Rexroth hydraulic valves and Nachi slew motors and track drives and incorporate an additional patented reduced loss hydraulic system. Operating with reduced back pressure, eliminating parasitic losses, the hydraulic system puts less demand on the engine - hence, reducing fuel consumption. All hoses feature O-ring face seal technology and are colour-coded for rapid identification. ■

Excavators

Productive and powerful: JCB's all-new 65R-1

JCB's 65R-1 incorporates several innovations in performance, durability, comfort, safety and maintenance.

JCB has introduced to market a 6.5 tonne reduced tail swing midi excavator, both anticipating the growing global demand for compact excavators and meeting operator demands for greater durability, efficiency and productivity. The 65R-1 replaces the 8065 RTS in the JCB line-up. It offers a number of innovations not seen on its predecessor, including a 30-degree tilting cab to enable better service access, longer greasing intervals, bodywork made completely from steel for better durability.

According to Tim Burnhope, JCB's chief innovation and growth officer, the company has undertaken the biggest benchmarking and customer evaluation exercise" in the company's history.

The result is a product portfolio that offers greater performance, reliability, safety, durability, comfort and serviceability than anything seen from the company before. The 65R-1 exemplifies JCB's new standards in design. Like all its new range of midi excavators, the machine boasts a revised H-design undercarriage, as well as the robust steel body panels, a spacious operator environment and fuel-efficient engines that deliver increased productivity and a lower operating cost. The 6.5 tonne machine is powered by a proven 48hp (36.9kW) Tier 3 diesel engine.

Supremely safe and sturdy

JCB's new range of midi excavators incorporate the company's 2Go hydraulic safety system, which has proved successful already on its larger JS excavators. There is the standard hydraulic cut-off, which is activated by lifting the left hand lever pod, but now the operator is required also to activate the hydraulic system through a button on the right-hand



The 65R-1 features an H-frame undercarriage and a choice of tracks for strength, durability, and flexibility

console. This improves safety on site by reducing the likelihood of operators working the hydraulic levers from outside the cab.

This is also a robust digging machine. The 65R-1 features a sturdy kingpost design with widely spaced bearings to prevent wear. It also uses a new graphite-based pin and bush design, which support 500-hour greasing intervals for reduced daily maintenance and lower operating costs. With a 1,900mm dipper arm, the 65R-1 also delivers a maximum digging depth of 3,957mm and a ground level reach of 6,572mm. Bucket

tearout is rated at a powerful 47.5kN.

JCB delivers the machine with steel, rubber or GeoGrip tracks on a new H-pattern track frame. It has, also, a completely redesigned dozer blade and arms. Blade edges are angled to prevent damage.

Comfortable, quick and easy-to-clean

The blade profile has been optimised for smooth material flow and there is no requirement for strengthening gusset on the rear, allowing easy cleaning of the machine. The 65R-1 cab structure is new, with flat glazing all round for ease of repair.

A revised heating and ventilation system, with optional air conditioning, offers greatly improved airflow throughout the cab, improving operator comfort and rapidly clearing windscreens in colder months. The machine is quick as well as comfortable, however, with tracking speeds increased to 4.6km/h, allowing faster repositioning on site and cutting downtime.

The prospects are good for this new machine, which has been introduced ahead of an expected upturn in demand for machines of this type. As Tim Burnhope said, "The compact excavator market is expected to increase to over 200,000 units by 2017."

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Reltex offers to improve the quality of relief at AidEx

Taking place 12-13 November in Brussels, Belgium, the 2014 AidEx trade show is an international humanitarian and development aid event comprising a conference and exhibition, and a programme for practical workshops to help professionals improve the efficiency and sustainability of aid.

Specialist manufacturer Reltex Africa is exhibiting at AidEx, showcasing its high technology relief materials to the humanitarian sector, within an extensive range of non-food items (NFIs) used in humanitarian contexts to support those affected by natural disasters or conflict - particularly, where life-saving is a priority.

Reltex uses plastics technology to create premium, high-quality products private and public sector applications in Africa and internationally. The company has created and sustained 158 jobs at its factory in Athi River, Kenya, many of which are occupied by unskilled workers from the local area.

Aidex visitors can explore the Reltex portfolio in the Developing World Supplier Zone. The company's products include tarpaulins approved by both the United Nations and the Red Cross, which feature reinforcement strips that are 60 per cent stronger than eyelets, allowing the user to create fixing points appropriate for each application. Designed to provide temporary shelter, the company's tarpaulins and plastic sheeting warrant special attention, as they are manufactured to standards that meet or exceed the specifications established by the International Technical Committee (ITC), a consortium made up of members from the UNHCR, UNICEF, ICRC, IFRC, OXFAM, MSF and other (NGOs). Complementing the tarpaulins is a range of tents, available in three types, with cots and sleeping bags also available.

There is demand for making shelter roofs in relief camps, and Reltex meets this demand by supplying high-strength galvanised sheets

and coils, which can be supplied as plain sheets or as corrugated boxes in several metal grades.

Reltex manufactures mats, too, which are available in a variety of colours, patterns and sizes. Importantly, they are light, durable, and washable. It also supplies linen and towelling products.

To obtain and manage water, Reltex supplies hand pumps, pipes and fittings, bore hole equipment, and submersible pumps. The company also makes buckets and foldable jerry cans. The cans, which are used mainly for individual or family water collection and storage, are available in collapsible and semi-collapsible form, and with 10- and 20-litre capacities. The buckets are tough and durable, made from UV-treated plastic, and can hold up to 14 litres of liquid.

Visit www.aid-expo.com and reltexafrica.com to learn more

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