

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

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Hydrogen fuel cell vehicles
and hi-tech highways

Analysis

Supply chains
get sustainable

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EDITOR'S NOTE

WHILE DATA, AI and machine learning transform sectors from energy and construction to media and education, the UAE government has also enthusiastically embraced technology. In its search for creating a smart, sustainable and happy society, the UAE's found an unlikely ally on the other side of the world. Our feature on Finland's pavilion at Expo 2020 (p26) gives you an exclusive peek at what to expect next year. In the run up to Expo2020, how is the increased investment in knowledge and sustainability, and the push for economic diversification disrupting the region's industries? Read more about this in our annual UAE construction review (p 22), our special report on new tech in mobility (p32) and an analysis of how supply chains are going greener (p20). Lastly, if you are attending The Big 5 in Dubai, do let us know - we'd love to meet you!

Comments? Questions? Feedback?
Reach us at trme@alaincharles.com

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إلى خدمة شركات التخطيط منذ 1984

SERVING THE REGION'S BUSINESS SINCE 1984

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

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Briefly

GCC can save US\$76bn by 2030 from green energy adoption, says IRENA

THE GCC IS expected to generate cumulative cost savings of US\$76bn by 2030, if it realises its renewable energy plans, according to a report by the International Renewable Energy Agency (IRENA).

The GCC's installed power capacity grew four-fold between 2014 and 2017, Irena said, adding that the UAE, which already hosts 68 per cent of the GCC's installed renewable energy capacity, hopes to generate 50 per cent of its power from renewables by 2050.

The figures were released ahead of the World Future Energy Summit's Energy Expo & Forum, to be hosted by Masdar from 13-16 January, 2020 as part of the Abu Dhabi Sustainability Week.

Globally, US\$3.2tn must be spent every year until 2050 to achieve the transition, according to IRENA.

The Energy Expo & Forum is expected to support the adoption of renewable energy and showcase innovations ranging from solar PV panels and wind turbines to hydrogen fuel cells and waste-to-energy solutions.

Balmoral Tanks gets NSF certification for epoxy coated storage tanks

BALMORAL TANKS HAS received NSF certification for its Efusion and Efusion 1500 range of epoxy coated storage tanks. The certification covers drinking water system components and provides assurance that the product has been tested by an independent certification organisation.

The NSF mark means that the product complies fully with stringent test requirements including periodic unannounced facility inspections and product testing to verify that the product continues to comply with the standard.

Simon Scott, exports sales director at Balmoral Tanks, said, "Following a truly rigorous process to gain full NSF/ANSI/CAN 61 accreditation we are delighted to bring this level of supply chain confidence to our clients, particularly in North and South America, the Middle East and Asia."

NSF International retains a professional staff of engineers, microbiologists, toxicologists, chemists and public health experts.

Virgin Hyperloop One and Saudi Arabia's KAUST sign deal for transport technology

VIRGIN HYPERLOOP ONE (VHO) has signed a MoU with the Saudi Arabia's King Abdullah University of Science and Technology (KAUST) at Future Investment Initiative to work together and support the development of the country's technology and transportation sector.

The announcement comes only days after the leading developer of hyperloop technology and King

Abdullah Economic City (KAEC) have published their findings on the feasibility of creating a VHO Centre of Excellence, which includes the world's first full-speed testing track and a manufacturing facility from which Hyperloop parts would be exported to other market.

The report illustrated how the Centre will drive domestic value by adding to the creation of more than 124,000 high-tech local jobs, supporting the technology sector by incorporating advances in robotics and AI and driving an estimated US\$4bn increase in Saudi Arabia GDP by 2030.

Sultan Ahmed bin Sulayem, group chairman and CEO of DP World and Chairman of Virgin Hyperloop One, said, "The study highlights that hyperloop is more than a high-speed connectivity for passengers and cargo. The findings have shown a positive alignment between the project and Saudi Arabia's ambitious national economic and social development agenda."

Representing KAUST at the signing, Tony Chan, president at KAUST, said, "Partnering with one of the most innovative technology companies in the world presents us with great opportunities. Having visited the first VHO test site in Las Vegas myself, I believe the hyperloop technology is hugely impressive and will truly transform the way passengers and goods are being moved in the 21st century."

Commenting on the Centre, Jay Walder, CEO at VHO, said, "With Virgin Hyperloop One's technology we are transforming inspiration into practical innovation. We have developed patented technology and are building a strong network of public and private partners committed to making hyperloop the catalyst of a transportation revolution in years to come."



In 2017, Virgin Hyperloop One had started its journey through technology collaboration with Saudi Arabia's MiSK Foundation.

Photo Credit : Virgin Hyperloop

GCC chemical industry's investment exceeds US\$140bn

THE GCC'S investment in chemicals has exceeded US\$140bn in the first ten months of 2019 led by consolidation, joint venture agreements and increased number of merger and acquisition (M&A) deals, according to estimates by the Gulf Petrochemicals and Chemicals Association (GPCA).

"The recent series of joint ventures, consolidation deals and acquisitions demonstrate the role of partnerships in the industry's future strategic direction and continue to build on the region's reputation as a reliable, long term partner in the global chemical arena," said Dr Abdulwahab Al Sadoun, secretary general, GPCA. "These developments will result in greater competitiveness in the regional chemical industry by enabling it to leverage economies of scale, accelerate innovation and greater market leadership,"

With the theme, 'Winning through Strategic Partnerships', the 14th Annual GPCA Forum to be held on 3-5 December, 2019 at the Madinat Jumeirah, Dubai, will discuss the role of fostering partnerships across the entire value chain to increase the chemical industry's



In announcing their new organisational structure, Oman Oil Company and Orpic Group have pledged to invest US\$28bn next 10 years.

Photo Credit : Adobe Stock/jmmmx

competitiveness in the GCC and globally. Representatives from the largest industry players including SABIC, Saudi Aramco, LyondellBasell, ExxonMobil Chemicals, BASF, Oman Oil and Orpic Group, Siphchem, Maaden, Evonik, Total and others will provide progress updates on the milestone deals signed this year and highlight the role of collaboration to build market leadership and create value within industry, economy and society, while meeting the needs of the future.



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Briefly

Emirates Red Crescent to begin two water projects in Yemen

THE UAE'S HUMANITARIAN arm Emirates Red Crescent (ERC) is set to launch two vital water projects – the Thubab Water Project and the Al Wazeeyah Water Project, according to a report from the UAE's state news agency WAM.

The Thubab Water Project will involve the installation of 48 solar panels and a 100,000-litre concrete tank, as well as the maintenance of a 30-km water network, which will benefit 6,000 people.

The Al Wazeeyah Water Project will involve the restoration of two artesian wells and the installation of an integrated solar power system containing 88 panels, as well as the maintenance a 60-km distribution network, which will benefit over 21,000 people in Taiz Governorate.

The ERC, which began implementing water projects since the liberation of the Red Sea Coast, has maintained the supply of clean drinking water in Yemen's Red Sea Coast, through implementing 31 projects benefiting 155,678 people.

The ERC restored the Qataba Area Water Project by digging a well and installing a solar-powered water pumping system.

DP World JV secures French port concession contract

THE JOINT VENTURE between DP World and the France-based international container operator Terminal Link – PortSynergy Group (GMP) – has been awarded the service concession for the construction and operation of berths 11 and 12 at Port 2000 in Le Havre.

The terminals of Port 2000 in Le Havre are trade-enabling gateways for cargo entering the French consumer markets.

The new terminal represents an additional operational capacity of one mn TEUs and will include a 700 metre-long quay and a 42-hectare site. The concession agreement is for a term of 34 years, including two years of studies and design, two years of civil engineering work and 30 years of operation. GMP will make significant investments in the development of this new terminal.

Siemens equips desalination plants in Saudi Arabia with process automation

SIEMENS HAS RECEIVED a follow-up order from the A3C consortium (Rawafid Industrial, Advanced Water Technology, SETE and Al Fatah) to equip eight seawater desalination plants in Saudi Arabia with electrical equipment.

The new plants for seawater desalination using the principle of reverse osmosis are spread along the west coast of Saudi Arabia. The total capacity of the plants will be 240,000 cubic metres per day, with a power consumption of 3kW per cubic metre of produced water.

The scope of supply from Siemens includes hardware and software engineering, power distribution, PCS7 automation, medium and low voltage converters, industrial ethernet communication technology and process instrumentation for eight reverse osmosis plants, plus plant commissioning. The project will follow a tight schedule, with commissioning planned from autumn 2019.

In 2017, Siemens was commissioned by Rawafid Industrial and Advanced Water Technology (AWT) to set up a drinking water production plant on the coast of the Gulf.

The completed Al Khafji reverse osmosis desalination plant in North East Saudi Arabia is the world's largest solar-powered plant of its kind. Here, seawater is converted to freshwater through a two-stage reverse osmosis process powered by photovoltaic energy. Rawafid Industrial relied on solutions from Siemens for the electrical equipment, automation with integrated drive technology, communication and instrumentation.



Photo Credit: Siemens

The desalination of seawater provides an opportunity to obtain additional drinking water or process water for people, industry and agriculture.

Through the efficient use of solar power, the plant reduces carbon dioxide emissions significantly compared with plants supplied with energy from non-renewable sources.

In addition, the Siemens technology ensures system availability of around 98 per cent. The vertical and horizontal integration of all electrical components reduces OPEX (Operational Expenditure) costs as well as maintenance times. Centralised process monitoring and automation ensure maximum energy efficiency and sustainable water supply.

Federal budget 2020: UAE allocates 14 per cent to infrastructure and economic resources

THE UAE HAS approved a zero-deficit federal budget of US\$16.6bn (AED61.354bn), its highest ever, for the 2020 fiscal year.

According to state-run WAM news agency, the budget is distributed to various sectors related to Emirati citizens and services, with 31 per cent being allocated to social development, 14 per cent to infrastructure and economic resources, 6.5 per cent to social benefits, and 32.6 per cent to government affairs.

For the 2019 fiscal year, the UAE allocated a zero deficit US\$16.4bn (AED60.3bn) budget.

"The year 2020 will be the start of a new and rapidly developing decade. The federal budget is balanced and reflects our national priorities," said His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE, and Ruler of Dubai, while approving the budget during the cabinet meeting at the



Photo Credit: WAM

The cabinet approved the budget.

Presidential Palace in Abu Dhabi, reported the news agency.

The cabinet approved the establishment of the Emirates Council for Climate Change and Environment to be chaired by the Minister of Climate Change and Environment with government agencies and representatives of the private sector being its members.



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Briefly

Bahrain among the top 10 most improved economies in the world

BAHRAIN HAS BEEN ranked among the top 10 most improved economies in the world in this year's *Doing Business 2020* report, up 19 places to 43 since last year, in the World Bank's assessment of 190 countries. The most improved economies are selected based on the number of economic programmes and legislative reforms each country has enacted, and on how much their ease of doing business score improved.

As part of its Economic Vision 2030, Bahrain has implemented a comprehensive economic reform programme, making it easier to do business in nine areas measured in the *Doing Business* ranking, which evaluates a number of vital indicators of various commercial activities. This has contributed to the kingdom benefitting from increased levels of Foreign Direct Investment (FDI), which grew from US\$65 million in 2015 to US\$1515 million in 2018, according to the *UNCTAD World Investment Report 2019*. In 2018, Bahrain recorded an annual real GDP growth rate of 2.2 per cent as well as three per cent growth in non-oil sectors.

Dubai to harness RO technology to increase water production

BY 2030, DUBAI will use reverse osmosis (RO), to increase the production of desalinated water by 305 million imperial gallons per day (MIGD), thus increasing the total capacity of desalinated water production to 750 MIGD, compared to the current 470 MIGD, said Saeed Mohammed Al Tayer, MD and CEO of DEWA. He was speaking at the International Desalination Association Leaders' Summit in Dubai, the UAE state news agency WAM has reported.

"To support the vision of our wise leadership, DEWA has world-class infrastructure, with a capacity of 11,400MW of electricity and 470 MIGD of desalinated water to meet the growing demand in Dubai. We are currently desalinating water through Combined Cycle Co-Generation, which is efficient and depends on using waste heat created by the production of electricity for water desalination," Al Tayer said.

Global energy efficiency progress drops to slowest rate: International Energy Agency

ENERGY EFFICIENCY HAS tremendous potential to boost economic growth and avoid greenhouse gas emissions, but the global rate of progress is slowing – a trend that has major implications for consumers, businesses and the environment, according to the International Energy Agency (IEA).

Global primary energy intensity – an important indicator of how heavily the world's economic activity uses energy – improved by 1.2 per cent in 2018, the slowest rate since the start of this decade, according to *Energy Efficiency 2019*, the IEA's annual report on energy efficiency.

The rate of improvement has now declined for three years in a row, leaving it well below the three per cent minimum that IEA analysis shows is central to achieving global climate and energy goals. If the rate had reached three per cent over that period, the world could have generated a further US\$2.6tn of economic output – close to the size of the entire French economy – for the same amount of energy.

"The historic slowdown in energy efficiency in 2018 – the lowest rate of improvement since the start of the decade – calls for bold action by policymakers and investors," said Dr Fatih Birol, IEA's executive director. "We can improve energy efficiency by three per cent per year simply through the use of existing technologies and cost-effective investments. There is no excuse for inaction: ambitious policies need to be put in place to spur investment and put the necessary technologies to work on a global scale."



Photo Credit: Michael Schwarzenberger/Pixabay

The rate of improvement has declined for three years in a row.

The need for stronger action underpins the work of the Global Commission for Urgent Action on Energy Efficiency, which the IEA announced in July. Headed by Irish Prime Minister Leo Varadkar, the commission's members include national leaders, government ministers and top business executives. It will produce recommendations next summer on how to achieve major breakthroughs in energy efficiency policy.

The slowdown in energy efficiency is also the vital reason the IEA has been the driving force behind the Three Percent Club, an initiative under which 15 countries have already signalled their commitment to helping the world get on a path of three per cent annual improvements in energy intensity.

The new report includes a special focus on the ways in which digitalisation is transforming energy efficiency and increasing its value.

Q3 2019: Solar technology tender activity falls 13 per cent in Middle East and Africa

MIDDLE EAST AND Africa solar technology tenders announced in Q3 2019 amounted to 27, marking a drop of 13 per cent over the last four-quarter average of 31, according to GlobalData's power industry tenders database.

GlobalData has tracked the proportion of solar technology tenders by category in the quarter. This includes project implementation with 20 tenders and a 74.1 per cent share; consulting and similar services: six tenders and a 22.2 per cent share; repair, maintenance, upgrade and others: one tender and a 3.7 per cent share.

Mozambique was the top country in the Middle East and Africa region for solar technology tenders recorded in Q3 2019 with three tenders and an 11.1 per cent share, followed by Syria with three tenders and an 11.1 per cent share and the UAE with two tenders and a 7.4 per cent share.

The top issuers of tenders for Q3 2019 in



Photo Credit: Adobe Stock / Jam

Mozambique was the top country in the Middle East and Africa region for solar technology tenders in Q3 2019.

terms of power capacity in Middle East and Africa were: Emirates Water and Electricity (UAE): 2,000MW from one tender; Oman Power and Water Procurement: 1,000MW from one tender; and the Infrastructure Development Bank of Zimbabwe: 286.7MW capacity from one tender.

Foster + Partners to design Saudi Arabia's Red Sea airport

SAUDI ARABIA'S THE Red Sea Development Company (TRSDC) has awarded the design contract for its new airport to British firm Foster + Partners.

"Awarding the contract for the design of our airport is an important milestone and the first of the underlying infrastructure projects of the destination," said John Pagano, CEO at The Red Sea Development Company.

"Foster + Partners and their engineering subconsultant, WSP Global, have demonstrated

their ability to deliver projects in line with world-class development and our sustainability standards. We look forward to collaborating with them to develop an innovative design that will enhance the visitor experience, meet our sustainability goals and enable us to deliver an airport for the future."

The airport, due for completion in 2022, will serve an estimated one million tourists per year with a schedule of domestic and international flights, and a peak of 900 passengers per hour.

In line with the company's sustainability goals, the airport will have an eco-friendly and sustainable design. Its architecture will be informed by the natural beauty of the surrounding landscape and represent the vision of The Red Sea Project, according to the company's statement.

Gerard Evenden, head of Studio, Foster + Partners said, "The Red Sea Airport has been envisaged as a gateway to one of the most unique resorts in the world and an integral part of the visitor experience."



The Red Sea Project development plans to open by end 2022.

Photo Credit: TRSDC

Turkey produces 46 per cent of power from renewable resources

RENEWABLE ENERGY RESOURCES have accounted for 46 per cent of Turkey's electricity generation so far this year, Energy and Natural Resources Minister Fatih Dönmez said at the 8th Turkish Wind Energy Congress organised by the Turkish Wind Energy Association (TWEA) in Ankara, according to a news report.

Combined local and renewable energy resources saw a total share of 64 per cent in electricity production between January and October this year, marking a record high, reported *Daily Sabah*, citing the minister.

"With these figures, we reached our objective of producing two-thirds of our electricity in the short-term from local and renewable resources," Dönmez said. Currently, Turkey produces eight per cent of its electricity from wind energy but with increasing energy demand expected over the next three years, the report mentioned.

Orascom completes Ras Ghareb wind energy project in Egypt

ORASCOM CONSTRUCTION HAS announced that it completed the construction and commissioning at Ras Ghareb Wind Energy project in Egypt 45 days ahead of schedule.

The wind farm has been fully connected to the grid and ready for commercial operation at maximum capacity as of 31 October, 2019.

The wind farm has a power generation capacity of 262.5MW and is the first renewable energy Independent Power Producer (IPP) project of its kind and size in Egypt.

The project is executed on a build-own-operate (BOO) scheme by Ras Ghareb Wind Energy SAE, a company established by a consortium of ENGIE (France), Toyota Tsusho Corporation/Eurus Energy Holdings Corporation (Japan) and Orascom Construction. The generated power is sold under a 20-year Power Purchase Agreement (PPA) to the Egyptian Electricity Transmission Company (EETC). Orascom Construction was the EPC contractor for the civil works and electrical systems, and owns a 20 per cent stake in the project.

Furthermore, Orascom Construction completed over 3.5 million man hours without Lost Time Injury (LTI) on the project.

The consortium arranged non-recourse project financing from The Japan Bank for International Corporation (JBIC) in coordination with Sumitomo Mitsui Banking Corporation and Société Générale under a Nippon Export and Investment Insurance (NEXI) cover. Commercial International Bank (CIB) Egypt is acting as working capital bank and Attijariwafa Bank provided an equity bridge loan to Orascom Construction.

The wind farm has a power generation capacity of 262.5MW.



Photo Credit: Orascom

Briefly

Merck to set up sustainability centre in District 2020

GERMANY-BASED SCIENCE AND technology company Merck has announced the establishment of its Sustainability Centre in District 2020, Dubai.

With a special focus on countries of the Global South, the centre comprises diverse programmes that address and accelerate solutions for sustainable challenges through the application of advanced science and technology, which will be launched during Expo 2020 Dubai.

The centre will be a home to a start-up incubator focused on nurturing the growth of new innovative businesses in the sustainability space. Moreover, it will facilitate unique access to the broad expertise and infrastructure of Merck as a leading science and technology company.

Merck is the recent organisation to join District 2020 alongside Siemens, Accenture, and most recently announced, Shanghai-based Atlas Capital Holding.

Abu Dhabi Ports' Maqta Gateway pairs up with Etisalat for Digital Services

MAQTA GATEWAY, A subsidiary of Abu Dhabi Ports, has signed a memorandum of understanding (MoU) with Etisalat to enable connectivity and bring digital innovation across the port facilities.

The partnership is set to transform the port with technologies like cloud computing, IoT and big data, paving the way for a new era of digital transformation in the maritime sector.

Noura Al Dhaheri, CEO, Maqta Gateway, commented, "We aim to transform our port facilities with smart solutions and technologies. Etisalat as a partner will help us achieve our vision by delivering digital services that are in line with the Abu Dhabi Vision 2030 and ultimately improve customer experience."

Sultan Al Dhaheri, general manager of Etisalat Abu Dhabi region, said, "Etisalat looks forward to working with Maqta Gateway, enabling connectivity and giving them capabilities to bring in efficiency and manage business operations across the port."

ON THE WEB

A round-up of the leading developments and innovations featured online on *Technical Review Middle East*. To read more or to stay up to date with the latest industry news, visit www.technicalreview.me

GCC starts investigation to protect steel industry

THE GCC HAS initiated a safeguard investigation on certain steel products to protect the region's domestic steel industry, said the World Trade Organisation (WTO).

A safeguard investigation seeks to determine whether increased imports of a product are causing, or is threatening to cause, serious injury to a domestic industry, according to the WTO.

www.technicalreviewmiddleeast.com/manufacturing/metals/gcc-starts-investigation-to-protect-steel-industry



Photo Credit: photoheuristic.info/Flickr

The investigation covers the period from January 2014 to June 2019.

Gulf CEOs remain positive on business outlook: OBG

CEOS INTERVIEWED FOR the 2019 edition of the *Business Barometer: Gulf CEO Survey* carried out by Oxford Business Group (OBG) remain largely upbeat about the outlook.

As part of its survey on the economy, the global research and advisory firm asked around 300 C-suite executives from across the region a wide-ranging series of face-to-face questions aimed at gauging business sentiment. Almost three-quarters (72 per cent) of those interviewed described their expectations of local business conditions as positive or very positive for the coming 12 months, up from 70.3 per cent in OBG's 2018 survey on the region. www.technicalreviewmiddleeast.com/business-a-management/business-a-management/gulf-ceos-remain-positive-on-business-outlook-obg

Applications in construction to elevate loader crane market

THE INCREASING DEMAND from construction, logistics and building activities will continue to create an overall positive growth scenario for the loader crane market, according to a report from Persistence Market Research.

The study reveals steady growth is projected for the loader crane market over the next eight years. While construction and industrial activities continue to flourish, manufacturers are increasingly becoming aware of benefits associated with loader crane in terms of efficient loading, unloading and goods transferring operations, without extra equipment.

www.technicalreviewmiddleeast.com/construction/machinery/applications-in-building-and-construction-to-elevate-loader-crane-market

Saudi Ports to set up huge integrated logistics zone

AS PART OF its plans to make Saudi Arabia a hub in the trade exchange movement between the continents of Europe, Asia, and Africa, Saudi Ports Authority (SPA) is planning to set up the kingdom's largest integrated logistics zone, according to a news report.

Trade Arabia reported that the logistics zone will be built in phases, with the phase one exceeding 2 million sq m. www.technicalreviewmiddleeast.com/logistics/logistics/saudi-ports-to-set-up-huge-integrated-logistics-zone



Photo Credit: Jason Goh/Pixabay

The logistics zone will be a customs depository and re-export platform.

ECC worked for world's largest 3D printed project

ENGINEERING CONTRACTING COMPANY (ECC) has revealed that it was the main contractor of the largest 3D printed project in the world that has achieved the Guinness World Record in partnership with Dubai Municipality.

Located in Al Warsan, the project will be utilised as an office spanning over 640 sq m with two levels, 9.5 meters in height making it the largest 3D printed project in the world.

www.technicalreviewmiddleeast.com/construction/buildings/ecc-dubai-municipality-worked-for-world-s-largest-3d-printed-project



Photo Credit : ECC

3D printed project

Etisalat partners with DMCC to set up first 5G-powered smart district

ETISALAT DIGITAL HAS partnered with DMCC, one of the world's flagship Free Zone and Dubai Authority on commodities trade and enterprise, to transform Jumeirah Lakes Towers (JLT) into an innovative smart and sustainable district powered by 5G network.

This move will make the DMCC and the JLT community the first smart and sustainable district of its kind in the region. Feryal Ahmadi, CEO of DMCC, said, "This is an exciting announcement and one that will come as welcome news to everyone connected to DMCC, the JLT community and the emirate of Dubai, as a whole. DMCC's Smart and Sustainable District Strategy is about the intelligent application of data and technology to deliver a better quality of life for thousands of residents and companies at the JLT." www.technicalreviewmiddleeast.com/it/communication/etisalat-partners-dmcc-to-set-up-first-5g-powered-smart-district



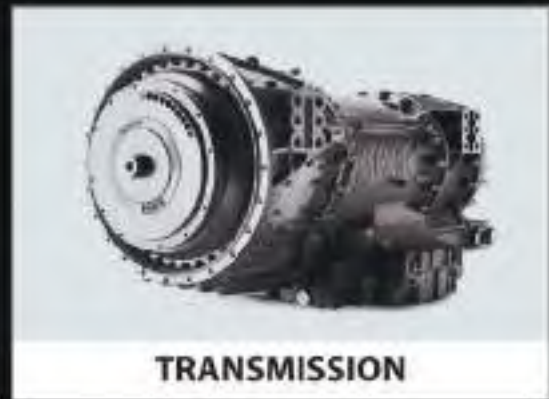
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EXECUTIVES' CALENDAR 2019-2020

NOVEMBER 2019

19-21	MEE Saudi	RIYADH	www.middleeastelectricitysaudi.com
24-25	Dubai Health, Safety & Environment Forum	DUBAI	www.hse-forum.com
25-28	Middle East Concrete	DUBAI	www.middleeastconcrete.com
25-28	The Big 5	DUBAI	www.thebig5.ae
25-28	HVACR Expo	DUBAI	www.hvacrexpodubai.com
25-28	Middle East Stone	DUBAI	www.middleeaststone.com
25-28	The Big 5 Solar	DUBAI	www.thebig5solar.com

DECEMBER 2019

10-12	Saudi Arabia Smart Grid	JEDDAH	www.sasg2019.com
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JANUARY 2020

13-16	World Future Energy Summit	ABU DHABI	www.worldfutureenergysummit.com
19-21	Intersec	DUBAI	www.intersec.ae.messefrankfurt.com

FEBRUARY 2020

2-4	Kuwait Health, Safety & Environment Forum	KUWAIT	www.hse-forum.com
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Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

Kuwait Health, Safety & Environment Forum to renew the focus on health and prevention

THE KUWAIT HEALTH, Safety & Environment Forum 2020, to take place from 2-4 February 2020 under the patronage of Kuwait's Ministry of Health, will once again bring together health and safety professionals, government regulators, policy makers and solutions providers to explore topical health, safety and environment issues.

Kuwait is seeing a big push on sustainable healthcare, tying in with the unified Gulf Health Strategy and the UN Sustainable Development Goals (SDGs), to raise standards of health and wellbeing throughout the country.

This year's event will have a renewed focus on health and prevention, and will be preceded by a one-day workshop on Hospital Occupational Health and Safety Management on 2 February, prepared and presented by the Ministry of Health. Aimed at hospital health care staff, senior staff of public health, quality and infection control departments and all those interested in the field of occupational and environmental risk assessment, it will enable those attending to obtain CME points.

"Regular occupational health training is urgently required to spread the concepts and importance of both a culture of safety and decent work," said Dr Ahmed Al-Shatti, director, Occupational Health Department at the Ministry of Health, Kuwait, who also stressed the importance of international, regional and local exchange of expertise.

The Forum on 3-4 February will address subjects such as health promotion; sustainable healthcare as a way forward to achieve the unified Gulf Health Strategy; improving competency and safety in high rise construction sites; protecting workers with 3D modelling; driving safety; leadership and safety culture; mitigating risks in hostile

environments; IoT for monitoring potential workplace hazards; the effects of greenhouse gases on health and environment; and preventing environmental contamination by hydrocarbons.

The line-up of eminent speakers includes Dr Ahmed Al-Shatti, director, Occupational Health Department, Ministry of Health, Kuwait; Nasser Al-Buhairi, chief security officer and head of Emergency Coordination Unit, Kuwait Oil Company; Dr Ghaida Mubarak Al-Shoraian, senior general practitioner, Kuwait National Petroleum Company; Qusai Al Shatti, acting director-general, Central Agency for Information Technology (CAIT); Dr Muhammad Alamgir, HSE manager, Petrofac, Kuwait; Dr Ahmed Haji, senior doctor, Petrochemical Industries Company KSC; and Jason Woods, Middle East & India representative for the International Powered Access Federation (IPAF).

Soumen Chakraborty, event producer, commented, "The Kuwait HSE Forum 2020, with the theme of 'Prevent, Prepare, Protect', is all set to deliver. Visionary speakers from KNPC, KIPIC, Petrofac and more will present the latest case studies and share best practices. This will also be an avenue for safety professionals to embrace the future and help define what new technology (AI & IoT, data) can bring to their professions. Considering the huge emphasis on having a clean and green environment, the two-day gathering will have an exclusive session on some of the key areas of concern in this space. And this time we are providing enhanced professional development opportunities with the addition of the Ministry of Health workshop."

For further information and to register, see the website at www.hse-forum.com/kuwait.

Dubai HSE Forum: Focus on critical industry issues

Topical health, safety and environment issues will be highlighted at the fifth edition of the event.

THE HIGHLY ACCLAIMED Dubai Health, Safety & Environment Forum returns to Dubai this November, with a stellar line-up of confirmed speakers from Ministry of Health & Prevention, UAE, Dubai Municipality, ADNOC, DEWA, Emirates Global Aluminium, as well as senior executives from leading international and regional companies.

On the agenda for this year's forum are topical health, safety and environment issues. With a raft of infrastructure and construction developments underway in the UAE in the run up to Expo 2020, safety and sustainability issues will be highlighted by speakers and delegates.

Taking place from 24-25 November 2019 at Habtoor Grand Resort, Autograph Collection Dubai, the Dubai Health, Safety & Environment Forum brings together industry experts from across the region; including health and safety professionals, government regulators, policy makers and solution vendors.

Advisory panellists include Raed Marzoqqi, head of HSE, Dubai Municipality; Dr Rehab Al Ameri, director of National Accreditation System, Emirates Authority for Standardisation and Metrology; Salman Dawood Abdulla, executive vice-president of HSSEQ, Emirates Global Aluminium; Professor Janvier Gasana, chair of department of Occupational Health, Kuwait University; Nasser Al-Buhairi, head of Emergency Unit, Kuwait Oil Company; and Dr. Ola Ahmed Mira, Accredited Physician, International Coach Federation

Topics that will be discussed at The Dubai HSE Forum 2019 include wellness and



The fifth edition of the Dubai HSE Forum presents an opportunity for attendees to gain deep insights on policy, strategies and technical expertise.

Photo Credit: Alain Charles Publishing

prevention management, challenges to occupational health and safety, changing the construction industry safety mindset in the Industry 4.0 era, human factors vs. process safety, the impact of digital transformation on workplace health and safety, mitigating work-related risks using artificial intelligence (AI) and monitoring hazardous environments with IoT (Internet of Things).

These topics are crucial for sectors such as oil and gas, construction, utilities, logistics and transportation, manufacturing, and food and beverage. The forum presents an opportunity for attendees to gain insights on policy, strategies and technical expertise.

Held in association with Vin Technology, Lloyds Register, Clyde & Co, Ideagen, Board of Certified Safety Professionals, JLG,

Universal Site Monitoring and Arasca, the Dubai HSE Forum builds on the success of the highly acclaimed inaugural event that was first held in September 2015.

"The forum gives a chance to step out of the daily routine and to think and reflect about the subjects that have been spoken about – to relate experiences to what is going on. It gives the visitors a platform to connect and network," said Andrew Barker, general manager – group health and safety, Rezayat Group.

Soumen Chakraborty, event producer, Dubai HSE Forum 2019 commented, "While the UAE's vision and ambition is showcased in world-class events such as Expo2020, there is a need to significantly strengthen the workforce by providing appropriate training in issues related to occupational health, safety and environment. The Dubai Health, Safety and Environment Forum is the perfect platform for safety professionals to explore how new technology such as AI and IoT is transforming their profession. We look forward to delivering an informative, enriching and vibrant fifth edition of the Dubai HSE Forum." ■

With a raft of infrastructure and construction developments underway in the UAE in the run up to Expo 2020, safety and sustainability issues will be highlighted.

New opportunities ahead

Booming development and a growing utilities sector have stimulated the region's demand for cables made in the UAE, says Ducab head of marketing Ashish Chaturvedy.



Photo Credit : Ducab

Given that aluminium is considerably lighter than copper, it is much easier to transport greater distances.

WITH ITS BUSINESS-FRIENDLY policies and plenty of natural reserves with proven hydrocarbon supplies, the UAE is ideal for setting up manufacturing facilities including aluminium products manufacture. This is particularly relevant at a time when the global demand for aluminium and aluminium alloy-based products is expected to continue to grow.

After studying the market, Ducab inaugurated a US\$59.8mn (AED220mn) joint venture with Senaat, Ducab Aluminium Company DAC). The factory produces aluminium rod and overhead conductors, which finds applications in the entire electrical supply chain.

Part of the decision to create DAC was linked to our existing business; since we already sold copper rod to cable makers, the diversification of our portfolio was a natural extension. But part of it was connected to what was happening in the UAE in terms of business, and the aluminium market globally.

Growing demand

Aluminium has certain benefits such as its weight and its recyclability, which make it a viable substitute for copper in some markets. Recently some markets in the Middle East are choosing to use aluminium and KSA happens to be one of the prominent markets for this product.

With regards to insulated wire and cable usage and application-based comparison, if aluminium is to be used in an application where copper was previously used, it is

typically enough to use an aluminium conductor two sizes larger than that of copper (based on the required current rating). To get the same current ratings, aluminium conductor needs more cross section area (therefore higher cable diameter) than copper by about 56 per cent.

This growing demand for aluminium locally has coincided with a continued and developing demand globally. Currently we export 98 per cent of what we produce. We sell to 28 countries in markets such as North America and Africa, to mention just a couple. Given that aluminium is considerably lighter than copper, it is much easier to transport greater distances. We expect America to be one of our largest markets this year. Demand in the GCC in particular has been driven by Saudi Arabia and groups like Saudi Electricity Company, which has reported substantial savings by swapping copper for aluminium.

It is not just that the demand for aluminium is increasing. There has also been a shift within the UAE to create a more diversified economy. As a result, the UAE has developed its downstream industries – and one of our main DAC partners, Emirates Global Aluminium, is contributing to these diversification efforts through providing raw materials for downstream industries.

We built DAC in close proximity to EGA, the fifth largest aluminium producer in the world. Our prime location provides us a supply chain link that's both eco-conscious and budget-friendly – and it wouldn't be possible without the natural resources of the UAE. We receive molten aluminium

directly from EGA's smelter. This means there is no need to cool and re-melt the aluminium, helping us reduce environmental emissions as well as cut down on resources and costs. We are able to optimise local resources in line with the Abu Dhabi Economic Vision 2030.

The booming development and construction taking place around the region, as well as a continuously stronger manufacturing industry and a constantly growing utilities sector, make it an especially good time for made in UAE cables – particularly aluminium.

Each project is unique by itself, which necessitates careful consideration when weighing your options and selecting whether the conductor should be copper or aluminium. Cost of material, installation time, safety and overall maintenance must all be considered when determining which conductor is right for the job.

Copper cables, along with lead sheath construction, is still considered the best and ideal material to be used for oil, gas, marine/salt water, poly-olefin and aromatics, hydrocarbon and hazardous applications across the GCC for example.

With activity across the GCC, and indeed further afield, showing no signs of slowing down any time soon, we expect the demand for aluminium to continue to grow.

DAC is an important milestone in the UAE aluminium sector and is linked to the UAE's ambitions to further diversify its national economy. With such success in 2018, we are looking forward to all that 2020 will bring. ■

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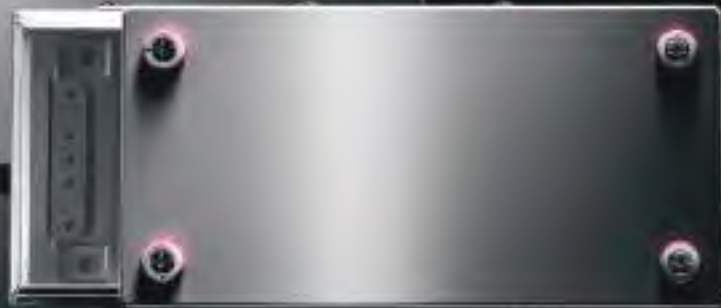
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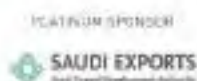
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Greening the supply chain

The Middle East's construction sector is putting sustainability right at the heart of operations, integrating environmental thinking into supply-chain management, reports Martin Clark

DISRUPTIVE FORCES ARE having a major and unsettling effect on a host of industries across the Gulf right now, including the construction sector and all along the supply chain. That includes not only unprecedented advances in technology — from autonomous trucks to increased computer modelling power — but greater awareness of environmental issues too, from the use of new materials to the safe disposal of waste.

Rather than view this as a problem, leading industry players are seizing the initiative. This means potential threats are being turned into challenges and opportunities, bringing technology, innovation and sustainability all together to deliver cleaner, greener solutions for big infrastructure and commercial projects, from roads to real estate.

Across much of the world, supply chains are undergoing radical restructuring, reckon analysts Ernst & Young, as they meet the challenge of improving performance in a world of unprecedented complexity and opportunity — and one where eco issues are rising to the fore.

In a recent article, it notes that high demand for homes and all other infrastructure — a key feature of current demographics in the Middle East with its rising populations and burgeoning economies — will force the issue even more. “With demand for new buildings and urban infrastructure only set to increase, the construction and engineering sector will struggle to meet this growing demand

Logistics specialist Agility said that it has now invested US\$18mn in green supply chain technologies so far through its corporate venture arm.



Across much of the world, supply chains are undergoing radical restructuring.

Photo Credit : Agility

without significant improvements to its productivity and ways of working.”

That means not only investing in technology and innovation, but also placing sustainability right at the heart of operations, integrating environmental thinking into supply-chain management, from materials sourcing and manufacturing processes through to delivery as well as end-of-life management of products after their useful life.

Rules and regulations

Much of the change follows government-led initiatives to nurture sustainability more broadly across all levels of society, right down to shaping consumer behaviour.

The UAE's Ministry of Infrastructure Development, for example, is exploring the use of alternative and more sustainable materials in its road construction. It recently teamed up with French tyre maker Michelin for a pilot project to develop a greener road network, built using a mix of asphalt with recycled rubber. A separate project, using an asphalt concrete mix with waste rubber, is also being built for Dubai's flagship Expo 2020 project.

In Abu Dhabi, the Department of Urban Planning and Municipalities (DPM) is implementing new road initiatives using environmentally friendly and more durable methods and materials. These include the use of asphalt pavement reinforcement using geogrid, reducing the thickness of paving layers and the number of raw materials used, as well as cutting the time required for the road construction works.

Mohamed Al Khadar Al Ahmed, DPM's strategic affairs sector executive director and chairman of the technology committee, cited by WAM, said the work is driven by a desire to be a “model for all cities in the region in the field of sustainable urban development.” Another initiative seeks to improve asphalt mixes by combining them with polymer materials.

Innovation is vital

UAE developer Emaar Properties is building its first 3D printed home in Dubai, part of its plans to be a “leading adopter of advanced construction technologies”. It says the 3D printed model home, at Arabian Ranches III, underscores its commitment to build faster and at a lower cost while achieving higher design and architectural flexibility. 3D printing will also “promote the sustainable use of resources by reducing waste of construction materials and noise pollution.” Mohamed Alabbar, chairman, says the project will bring numerous advantages such as reduced cost of construction, more efficient use of materials and higher levels of sustainability. “We are also supporting the vision of the leadership to build smart and sustainable cities.”

Emaar's goal is to create a real estate landscape where customers can ‘design, download and print’ their own homes. It says 3D printing is environment-friendly, with sustainable home construction techniques significantly lowering waste and noise pollution during wall construction, with lower cooling costs as customers can choose the thickness and type of insulation;



Expo2020's supply chain contracts are designed to drive sustainability

the thicker the insulation used, the lower the cooling costs.

Away from such eye-catching projects, there is plenty of time and effort — and money — going into the greening of the supply chain throughout the region's construction sector. Logistics specialist Agility said in August, for example, that it has now invested US\$18m in green supply chain technologies so far through its corporate venture arm. That includes renewable energy pilot projects and building to green standards as it rolls out its portfolio of warehousing and light industrial facilities across the Middle East and elsewhere to boost logistics services.

These are challenges faced by all players along the supply chain in construction, in today's sustainability-driven world, one that is facing up to climate change and big environmental threats. Technology will help with answers but, as always, the industry must respond with finite resources and limited funds — which means treading a careful path to not only deliver sustainable solutions, but to do so on budget. ■

Expo2020: Steep learning curve

DUBAI'S US\$9BN EXPO 2020 aspires to be one of the most sustainable World Expos ever. Its construction is underpinned by a mix of eco initiatives to minimise its overall environmental footprint, from generating clean energy to reducing waste and water consumption. (Visitors can even explore a Sustainability Pavilion.) Behind the emirate's largest current construction project is the use of sustainable building materials. Expo 2020's supply chain contracts are embedded with critical Key Performance Indicators (KPIs) covering a host of materials such as steel, concrete, timber, aggregate and PVC, among others.

For all tenders, contractors must incorporate a sustainability assessment into their procurement process for all materials and products. This drills down to tiny details such as, where possible, for contractors to arrange with their suppliers to take back packaging of products delivered to site. It calls for a huge amount of administration. In 2018 alone, Expo 2020 Dubai awarded a whopping 2,336 contracts.

Among other major directives and initiatives is a commitment to retain 80 per cent of all permanent construction facilities long after the Expo is finished, while 85 per cent of all waste is being segregated during construction, operation and decommissioning to be diverted from landfill.

The mega event is a major sustainability learning curve for all UAE suppliers, rdown to the smaller players. Of the contracts awarded in 2018, more than half went to small and medium sized enterprises. That alone should ensure a lasting legacy for the nation's construction sector.

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Al Wasl dome encircles the Al Wasl Plaza that sits at the heart of the Expo 2020 Dubai site.

The future is digital

Traditionally labour intensive and slow to change, a slew of innovative digital technologies are disrupting the UAE's construction sector to achieve sustainability, affordability and meet timelines. Shalaka Paradkar reports

Photo Credit: EXPO 2020

CONTRIBUTING 13 PER cent of global GDP and an estimated US\$12.9tn market by 2022, construction is the largest industry in the world. The World Economic Forum estimates within ten years, full-scale digitisation could lead to savings between US\$700bn to US\$1.2tn (13 per cent to 21 per cent) in design, engineering, and construction.

The UAE's construction sector is expected to grow between 6 and 10 per cent in 2020, according to a KPMG survey. KPMG's annual *Global Construction Survey*, which polled senior executives from 223 engineering and construction companies, found that the biggest concerns for executives in the UAE are being able to deliver projects on time and within budget, citing them as the largest hurdles to overcome.

Sidharth Mehta, partner and head of Building, Construction & Real Estate at KPMG Lower Gulf says, "As the pace of disruption accelerates, leaders will have to consider implementing a three-pronged approach to rationalise governance and controls, optimise human performance and innovate with technology, to become more future-ready."

The UAE is already seeing technological disruption in the sector, through 3D printing and automation. According to KPMG's global findings, the use of robots, unmanned aerial vehicles (UAV) and intelligent tools and equipment will continue to automate less complex and high-risk tasks on site, leading to a leaner, more specialised and digitally enabled workforce.

The benefits of digitalisation

Construction organisations need data to predict outcomes, avoid operational issues, reduce waste and downtime, improve safety, and reduce risk and liability. Logistics and on-site materials can be managed using digital tools to reduce waste and optimise for just-in-time delivery, increasing productivity on the construction site. For instance, Digital Construction Works (DCW) a new digital solutions company formed by Bentley Systems and Topcon Positioning Group, will help transform the construction industry with solutions for every phase of the project – from planning to construction and operations through to asset management.

Digitalisation is not only changing how buildings are designed, constructed and used but also how they are managed. With installed sensors collecting and analysing data on usage, intelligent buildings can regulate the internal environment to be more energy efficient, increasing profits from improved productivity and better rental yields and return on investment.

In sync with the Dubai Plan 2021 that has sustainability at its heart, a number of new builds have facades that minimise heat gain and internal cooling loads, reducing HVAC requirements and including photovoltaic cells to produce energy. SageGlass has integrated some of its products with voice-controlled systems such as Amazon Echo, now available in the Middle East. "The use of technologies such as voice commands in buildings is growing in popularity as building owners place more emphasis on occupant

comfort, convenience and productivity," says Alain Garnier, sales and business development manager at SageGlass Middle East. "Customers in the Middle East value innovation and convenience. SageGlass can already be integrated with most building management systems and controlled via a mobile app, so the next natural technological progression for our dynamic glass is the use of voice commands as an added convenience to building owners and occupants."

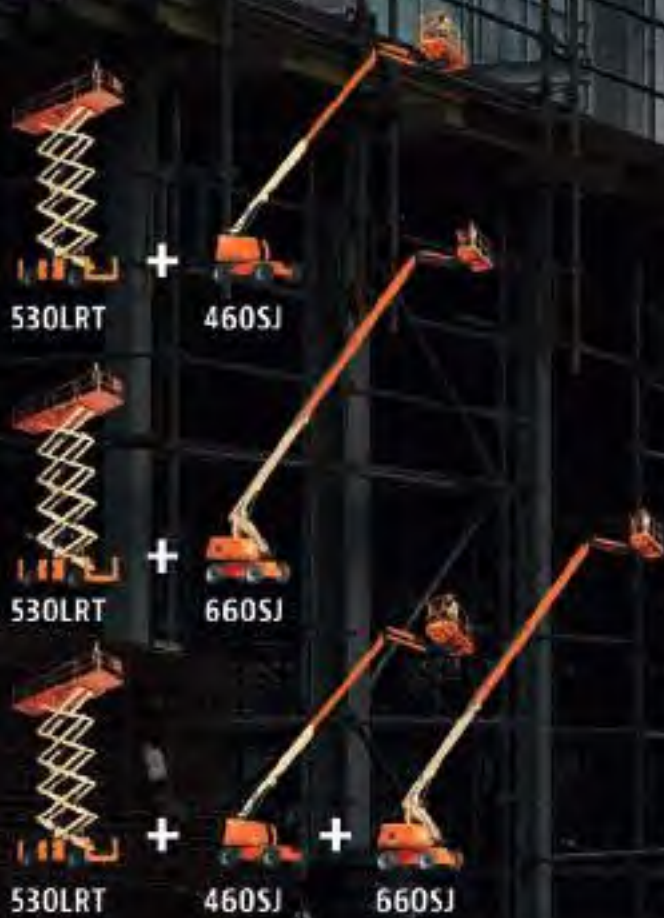
Modular construction

Over 80 per cent of UAE industry leaders surveyed by KPMG felt that digital modular fabrication will be widely implemented within the next ten years, followed by intelligent construction equipment (56 per cent) and robots (25 per cent). The use of data analytics and predictive modeling will also play an important role in the next five years.

Modular design and off-site construction company DuBox has already demonstrated the UAE's first locally 3D printed concrete building in partnership with the University of Eindhoven in the Netherlands and engineering consultancy firm, Witteveen+Bos.

The UAE government plans to have 25 per cent of its buildings 3D-printed by 2030, while Dubai aims to be "a global capital for 3D printing technology". This October, Dubai Municipality unveiled the world's first two-storey printed building. Officials said 3D printing techniques would transform how the construction sector operates.

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“This project is a major turning point in the construction sector,” said Dawoud Al Hajri, Dubai Municipality director general. “3D printing technologies in construction will increase the speed of execution and [lead to the] completion of buildings in record time. This will reduce construction costs and contribute to the development of solutions to demographic challenges by reducing the number of construction workers. It will also support the Emirate’s sustainability trends using local materials and reduce construction waste, where printing is done electronically according to engineering plans directly without human intervention,” he added.



Photo Credit : SRTI Park

Hussain Al Mahmoudi,
CEO of SRTI Park

Looking to the future

However, technological investment can only be as good as the people at the helm. Finding skilled people to drive digital disruption can be a challenge. “If we think about the cost in construction, a large percentage of it is from labour. In this region it’s still common to do things the traditional way as cost of labour is lower. While technology has been around a long time, it’s really how organisations take the initiative,” says Paul Walleit, regional director, Trimble Solutions Middle East and India. “We should be more critical of how we put together a project and expect the contractors working on projects to have the right technology to do so. There is a

significant benefit to contractors, reducing health and safety issues.”

Advanced technologies will shrink the global market and carbon footprints as well, predicts Walleit. “We have developed technology that is very resource friendly – allowing small file sizes to enable information to be shared easily. 5G will bring another change in the industry when file sizes will not be a challenge. We will probably see more people working in outsourced markets – it’s competitive, price sensitive as well and helps achieve sustainability goals.

“In construction, it’s not only the material but also the people on site creating carbon footprint. Higher the number of people working on a project, bigger the carbon footprint. Technology is going to enable people to be more selective about how many people are required on site, allowing project teams to get leaner, more efficient and organised on site.”

Hussain Al Mahmoudi, CEO of Sharjah Research, Technology and Innovation Park believes the UAE’s model of public-private partnerships is the way forward. “The UAE is one of the few countries where the public sector is surpassing the private sector in terms of adopting and promoting new technology. The need of the hour is raising awareness and explaining to people how these technologies are good for their business and make them more competitive.

“Of course, there is some amount of pushback as people don’t always like changes but in the UAE we are seeing all kinds of new technologies being



Photo Credit : Trimble

Paul Walleit, regional
director, Trimble Solution
Middle East & India

implemented. I think what we need to do is democratise these technologies so the benefits reach all and are not only promoted and marketed by builders – that’s an opportunity we need to capture.”

Al Mahmoudi believes that emerging technologies give the UAE a fantastic opportunity to take leadership. “Countries around the world are struggling to implement them for reasons such as legislations, funding availability, and lack of champions. But the UAE government has created different platforms – SRTI Park is one platform – to enable these technologies. The UAE federal government has created different innovation labs, such as Masdar for example, where companies can work together with these labs to implement innovative technologies. What will differentiate the UAE from countries like India or Finland is the synergy between the government and private sector.” ■

THREE UAE PROJECTS TO WATCH

Bee’ah Headquarters

Scheduled for completion in 2020, the Zaha Hadid-designed building will also be the first AI-powered building in the UAE. Bee’ah’s new headquarters will be equipped with an array of smart building solutions powered by Microsoft. Masdar, a subsidiary of Mubadala Investment Company, will develop the ground-mounted solar power plant on the site, backed by Tesla Powerpacks to power the building by night.

Museum of the Future

One of the world’s most complex construction projects, the Museum of the Future will serve as an exhibition space for innovative and futuristic concepts, services and products. A concrete structure from the basement to the top supports a steel diagrid structure up to Level 7, with composite concrete floor slabs, to create a column-free interior space. Fabricator Eversendai was able to successfully complete the complex structure using Tekla software to design, fabricate, and coordinate processes.

UAE Pavilion, Expo2020

Designed by Spanish architect Santiago Calatrava and inspired by a falcon in flight, the UAE pavilion will be one of the most important landmarks at Expo 2020 Dubai. Set on an area of 15,000 sq m, with a built-up area of 19,200 sq m, the pavilion will represent the UAE to the 25 million visitors and participants from over 180 nations expected to visit the Expo from October 2020 to April 2021.

Digitalisation is not only changing how buildings are designed, constructed and used but also how they are managed.

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Unveiling Finland's tech solutions to the world

Finnish under-secretary of state, Petri Peltonen and Business Finland reveal the country's Expo2020 plans.

Photo Credit: Adobe Stock/Scannrail

FINLAND IS ONE of the first countries to have started building their pavilion in preparation for Expo 2020 Dubai.

Set to be the largest-ever staged event in the Arab world, Expo 2020 Dubai will be welcoming 190 countries and millions of visitors from across the world. And for Finland, it will be the perfect platform to present their companies and enhance their business relations with UAE and the rest of the Middle East.

"This expo is an excellent platform to promote relations between the government and businesses, and for our companies to express their commitment to the UAE and the Middle East," said Severi Keinälä, commissioner general Finland at Expo 2020 Dubai. "It also gives them an excellent platform to do various promotional events within the Finnish pavilion."

Metso, Wärtsilä, Kone and Nokia will be among the major companies to be located within the Finland Pavilion. In line with the Expo 2020 Dubai motto: Connecting Minds, Creating the Future, the pavilion is set to resemble a white snow-covered tent, taking its inspiration from Finnish nature, design and innovation.

So far, more than 100 Finnish companies

and 40 partners have registered to attend the expo, with many more expected to come on board before the event on 22 October next year.

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Finnish companies
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The expo also provides ample opportunities for small-to-medium sized companies to showcase their high-tech innovative solutions to the UAE and other Middle Eastern markets.

"There is a lot of potential in relation to environmentally-related projects taking place, for example, in Muscat and Dubai, where there is a lot of interest in waste to energy solutions, incineration

technologies and collection techniques," said Keinälä. "In addition to that, healthcare and education sectors also have a lot of potential. We have various companies interested in Dubai, Saudi Arabia and all the Middle Eastern countries.

He added, "This [expo] will definitely be a pinnacle in our country to country relations over the next decade."

Petri Peltonen, under-secretary of state, Ministry of Economic Affairs and Employment of Finland, said, "We see this as a long-term endeavour for business delegations before and after the expo, and to build connections over a longer period of time." The minister explained bilateral relations between Finland and the UAE have been robust over the last decade.

The UAE is Finland's second biggest export country, after Egypt in the Middle East and North Africa (MENA). In 2018, exports to the UAE amounted to US\$ 268 million. Traditionally exports have consisted of mobile phones, telephone networks, cranes, elevators and other machinery and equipment. Last year, the largest exports were paper and cardboard products, specialty machines of various industries, electrical machinery and equipment, plastics, iron and steel, industrial machinery

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and equipment, power engines, telephone, radio and TV equipment, and timber and cork.

“Metal technology industries are our biggest exports overall, especially in Dubai,” Keinälä added. “There are Kone elevators and cranes operating in the ports, for example in Jebel Ali. Outotec and Metso are making big machinery for energy and recycling energy industries.”

Exports from the UAE to Finland were modest in comparison, generating only US\$14 million in 2018.

Entrepreneurship in Finland

In a country of five and a half million, there are now around 280,000 enterprises. “We have seen a positive development in the start-up boom. There have been a lot of digital companies especially in the gaming industry, which is largely a spin-off from large digital companies such as Nokia and



Photo Credit: Expo 2020

others,” the under-secretary of state said.

“When Nokia transitioned from being a mobile phone company to focus on telecom

networks, it meant there were a large number of skilled workers on the labour market, and we saw 500 digital start-ups taking place, showing again our entrepreneurial spirit at its best. Setting up a company in Finland is very straightforward, we offer a smooth environment.”

“The venture capital market in Finland is still active and government policies are capitalising on the growth,” Peltonen added. ■

The UAE is Finland’s second biggest export country after Egypt in the Middle East and North Africa. In 2018, exports to the UAE amounted to 242.4 million Euros.

Key to success

iLOQ is one of the major partners of the Finnish Pavilion during Expo 2020 Dubai and will utilise its participation as a platform to increase business opportunities and build its reputation in Middle Eastern markets.

All locking and access management solutions in the pavilion will be done with iLOQ digital and mobile locking solutions. Joni Lampinen, iLOQ’s chief marketing officer said, “We will display iLOQ S10 digital locking and iLOQ S50 mobile access sharing solutions.”

When asked if iLOQ has any plans to penetrate the African markets, he added, “We have discussions and projects ongoing together with partners in South Africa as well as Francophone countries.”

USING YOUR SMARTPHONE TO ACCESS BUILDINGS

iLOQ S50 is the world’s first NFC self-powered lock cylinder. It generates the energy for unlocking from a smartphone running the iLOQ S50 mobile app. Utility providers, such as power production and distribution companies, telecom network services, data centers, water treatment plants, property services and transportation services, regularly face the challenge of simultaneously managing numerous sites and vast numbers of locks. A huge number of keys are in constant circulation. With iLOQ S50, a smartphone is the key. Access rights to property locks can be remotely shared and multiple sites can be consolidated into one secure cloud software platform.



Photo Credit: iLOQ



Photo Credit: iLOQ

BATTERY-FREE LOCKING

The iLOQ S10 is a self-powered lock cylinder. The cylinder contains a generator. The power needed to gain access is generated by inserting the key into the lock. No batteries are needed. Access rights are easily controlled using iLOQ Manager software.



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Towards a smarter, greener future

The 21st edition of WETEX showcased new trends and solutions in the energy, water and environment sectors.

WETEX attracted the region's blue-chip companies from the energy, water and environment sectors.

LEADING LOCAL, REGIONAL and global organisations participated in the 21st edition of Water, Energy, Technology and Environment Exhibition (WETEX 2019). Held in Dubai from 21-23 October, the event was under the aegis of the city's sixth Green Week and was organised in conjunction with the fourth Dubai Solar Show. WETEX 2019 featured 2,350 exhibitors from 55 countries, spread over an area of 85,000 square metres.

Saeed Mohammed Al Tayer, MD and CEO of DEWA and founder and chairman of Wetex, said, "DEWA has investments of over US\$22 billion (AED81 billion) for the next five years, to meet growing demand for electricity and water in Dubai. Today, DEWA has a strong infrastructure, to meet the ever-increasing demand and support the growth of a green economy and create a competitive advantage for the UAE in clean energy and energy-efficiency technologies."

While WETEX attracts the region's blue-chip companies from the energy, water and environment sectors, it also supports the UAE's sustainability efforts and its initiatives to move to a green economy. Companies such as Empower, the world's largest district cooling system provider in the world, displayed a model of its Jumeirah

Village Circle plant – the world's first autonomous and fully automated district cooling plant, showing the latest technologies used in the plant.

Sustainability was high on the agenda at WETEX 2019, with digital companies also highlighting their solutions. Dell Technologies underscored the role of technology as a driving force for sustainability, with its focus on integrating sensors and energy meters such as The Dell Edge Gateway Model.

Gulf Eternit's participation at WETEX 2019 was in line with its vision to 'deliver water

Dell Technologies underscored the role of technology as a driving force for sustainability, with its focus on integrating sensors and energy meters.

and energy to the world in the most efficient and sustainable way'. "WETEX proved its prestigious position as one of the specialised exhibitions in the world. Through our participation every year, we look forward to highlighting our achievements. We are proud that our products support the infrastructure of a great city such as Dubai," said Mounib Hatab, senior VP – sales and marketing, GCC region.

Public sector participation

Sharjah-headquartered recycling and waste management company Bee'ah displayed its latest achievements, such as the first of its kind Waste-to-Energy (WtE) plant in the UAE, and its headquarters designed by Zaha Hadid, the first smart building in the Middle East.

"Our participation comes in line with our trust that WETEX can create new collaboration opportunities and exchange points of view about challenges that face this vital sector. This enhances the UAE's ability to achieve its ambitions of an integrated economy and sustainable development," said Khaled Al Huraimel, group CEO at Bee'ah.

EtiHAD Energy Service Company (EtiHAD Esco) inked an agreement with Ducab, one

of the UAE's largest manufacturing businesses, on the sidelines of the show, aimed to support the growth of UAE's solar energy sector.

The new contract will see Ducab supply its SolarBICC cables – specially designed for a growing solar energy market – to Etihad Esco for its in-house solar power plant, contributing to the company's sustainability vision by diversifying its own energy sources. Upon completion, the project is set to generate an annual savings of 3,251,900KWh in energy, equivalent to US\$394,035. The duration of the project is eight months.

ABB Digital Powertrain

ABB showcased its Digital Powertrain Monitoring services, introducing this new technology into the UAE market at Wetex. The Digital Powertrain includes smart sensors, software and services that enable users to digitally “see” operational variables through an integrated, one-stop portal. Data insights gained enable plant managers to be better connected with their assets, make more informed decisions, and prevent unplanned stoppages.

One of the vital challenges in the water industry today is leakage, and ABB Motion helps water customers reduce leakage, through pressure control approaches and eliminating water hammer.

ABB's Digital Ability Platform enables a significant amount of energy savings, remote assistance and condition monitoring, enabling customers to be early alerted to proactively take necessary measures to avoid unplanned stoppages.

Schneider Smart Grids

As digital transformations in utilities continue to grow in the region, one of the key growth areas lies in Geographical Information Systems (GIS). DEWA recently upgraded its GIS system, providing the ability to visualise, navigate, and manage smart grid.

Schneider Electric's Innovation Hub at WETEX showcased advances in technologies for utilities, particularly in grid, water, and solar energy. Guests could experience EcoStruxure, Schneider's open



architecture platform that bridges the need for efficiency from the supply side of energy distribution, while managing demand from organisations and users.

The immersive overview explored specific optimisations in areas such as buildings, water, and data centres, as well as sustainable grids and energy-as-a-service. Underpinning all of these is the transformative power of IoT, cybersecurity, and data analytics.

Smart meters in Dubai

Smart meters are the main features of DEWA's 'Smart Applications via Smart Grid and Meters' initiative, which aims to develop an advanced infrastructure capable of supporting Dubai's efforts to become the smartest and happiest city in the world. The strategy includes several programmes aimed at improving energy management through investments in projects worth up to US\$2 million, which are scheduled to be completed in the short, medium and long terms until 2035.

DEWA renewed its collaboration with Honeywell to install 250,000 additional smart meters across Dubai, bringing the total number of Honeywell smart meters installed now to approximately one million.

The project aims to provide smart

infrastructure for electricity transmission and distribution networks, to ensure speed of response in immediately reconnecting after a disruption, rationalise consumption and monitor consumption accurately, instantly and at any time. Smart grids come with advanced features such as automatic decision-making capabilities and interoperability across the electricity network.

“We are delighted to partner with DEWA again to expand the smart metering project. Honeywell smart meters form the basis of smart energy initiatives in Dubai. We have been working with DEWA for many years to set new standards and develop a new approach to energy use in Dubai,” said Norm Gilsdorf, president of Honeywell, High Growth Regions, Middle East, and Russia.

Transforming Abu Dhabi

The Abu Dhabi Department of Energy (DoE) showcased its initiatives for driving the transformation of the emirate's energy sector.

Highlights included the Noor Abu Dhabi Solar Power Plant, which supplies 2.6 per cent of the UAE's power demand, as well as the Al Taweelah Reverse Osmosis Desalination Plant and the Barakah Nuclear Power Plant.

Equipped with advanced technologies, the stand highlighted DoE's various programmes and initiatives, including the Abu Dhabi Integrated Energy Model – a sophisticated modelling tool that can process data from across the energy sector and yields an accurate, holistic vision of supply and demand in the sector, in addition to formulating scenarios for the future and experimenting with the various policies that regulate the sector. ■

ABB Digital Powertrain includes smart sensors, software and services that enable users to digitally “see” operational variables through an integrated, one-stop portal.

Tryst with Hydrogen Fuel Cell Electric Vehicles

As HFCEVs open up immense opportunities to transform the mobility sector, the race is on in the Middle East to gain advantage of this clean energy. Abhishek Paul reports.

DEWA in collaboration with Siemens will feature hydrogen mobility at Expo 2020.



Photo Credit: Adobe Stock/dreampicture

ELECTRIC VEHICLES (EVs) are taking the world by storm as an alternative to fossil fuel vehicles. Now, it's Hydrogen Fuel Cell Electric Vehicles' (HFCEVs) turn to shake up the mobility sector, with many of the world's leading automotive companies showing an interest in selling, leasing, and developing fuel cell vehicles. Not missing an opportunity to lead the HFCEV movement in the Middle East, the UAE is keen on encouraging these as well as EVs.

Seen as a viable replacement to conventional hydrocarbon-powered vehicles, DEWA in collaboration with Siemens will feature hydrogen mobility at Expo 2020. The MENA region's first solar-driven hydrogen electrolysis facility at the Mohammed bin Rashid Al Maktoum Solar Park is gearing up to produce hydrogen

Hydrogen FCEVs are considered a viable alternative to Battery Electric Vehicles, especially in large fleets and heavy duty vehicles.

energy to power fuel-cell vehicles for the 50km distance between MBR Solar Park and Expo 2020 Dubai's site.

Demonstrating that hydrogen mobility in

the UAE has substantial potential to develop into a major economy for the country, the joint study by Air Liquide, Khalifa University of Science and Technology and Al-Futtaim Toyota noted it can contribute to the achievement of its clean energy goals, in line with the UAE's Vision 2021.

Hydrogen FCEVs are considered a viable alternative to Battery Electric Vehicles (BEV), especially in large fleets, heavy duty vehicles and in providing greater autonomy in extreme climates, where BEVs are less efficient. A FCEV can be refuelled as quickly as a petrol engine vehicle, hence allowing for optimum flexibility of use, the study pointed out.

It called for the collaboration of public and private players for the deployment of hydrogen mobility in the UAE, which is seeking to diversify its energy mix.

Commenting on the potential of

hydrogen, Gabriele Schmiedel, CEO of Siemens Hydrogen Solutions, explained, "Hydrogen is impressively versatile. It serves as an energy carrier that can store electrical power from just a few kilowatt hours to gigawatt hours, and over a period of several weeks. It can then be used in industry as a process gas, and in mobility as a fuel for emissions-free fuel cell vehicles."

Gathering momentum

Showing hydrogen's contribution as a vital pillar of the energy transition, The Hydrogen Council, a global CEO-led initiative for hydrogen technologies, study revealed that hydrogen could contribute to 20 per cent of CO2 emissions reduction targets by 2050.

In addition to being a vital pillar of the energy transition, the study shows that hydrogen has the potential to develop US\$2.5tn of business, creating more than 30mn jobs by 2050.

Acknowledging the role of hydrogen in decarbonising the global economy, major companies operating in various sectors have joined The Hydrogen Council. These include AFC Energy, Airbus, Air Products, Cummins, EDF, Johnson Matthey, KOGAS, Mitsubishi Heavy Industries, Re-Fire Technology, SINOPEC, Southern California Gas, Sumitomo Corporation, Sumitomo Mitsui Banking Corporation, Thyssenkrupp, BP, AVL, ITOCHU Corporation, The Liebherr Group, Power Assets Holdings Limited, and SinoHytec.

According to the Council, the 60-member group collectively represent more than €2.6tn (US\$2.8tn) in revenue and 4.2mn jobs spreading across the world.

"The global hydrogen industry is stronger than ever. Businesses are betting on hydrogen, investing in multi-billion-dollar projects and developing new products. Hydrogen Council members are leading this effort and working to increase cooperation between industry, government, and investors," said Euisun Chung, executive vice-chairman of Hyundai Motor Group and co-chair of the Hydrogen Council.

Hyundai Motor Company and Cummins, the major players in the Middle East, have entered into a memorandum of understanding (MoU) to jointly evaluate opportunities to develop and commercialise electric and fuel cell powertrains, focusing on the North American commercial vehicle market. Believing that hydrogen will become increasingly important in meeting fast-growing global energy demand, Cummins is investing in two primary types of fuel cells, Proton Exchange Membrane (PEM) and Solid Oxide Fuel Cells (SOFC).

Another big player, Mitsubishi Hitachi

Power Systems too is open to the possibilities of the hydrogen economy. Talking to senior industry stakeholders at the Future Investment Initiative (FII) panel on 'Fueling the Future', Akimasa Muyama, director and senior executive vice-president and chief technology officer at Mitsubishi Hitachi Power Systems (MHPS), said, "We clearly believe in the 'Hydrogen Society,' a future in which hydrogen, a carbon free fuel, will be a significant part of the world's energy mix." Saudi Arabia can evolve into supply hubs of commercially competitive hydrogen fuel or hydrogen power, hence continuing to play a central role in the world energy supply, he added.

The advantage of HFCEVs is that they generate zero CO₂ emissions and have a quick recharging time.

Making FCEVs cost-effective

The International Energy Agency (IEA) analysis finds that the cost of producing hydrogen from renewable electricity could fall 30 per cent by 2030 as a result of declining costs of renewables and the scaling up of hydrogen production. Fuel cells, refuelling equipment and electrolyzers (which produce hydrogen from electricity and water) can all benefit from mass manufacturing.

According to new estimates, road freight is expected to grow significantly (40 per cent) if no alternative infrastructure is introduced, states the *Transport Outlook: Scenarios to 2050* report. Global CO2 emissions from inland passenger and freight

transport will grow around 100 per cent by 2050, according to International Transport Forum (ITF) calculations.

Considering this situation as an opportunity to boost hydrogen on the path towards its clean, widespread use, the IEA states that powering high-mileage cars, trucks and buses to carry passengers and goods along popular routes can make fuel-cell vehicles more competitive. The advantage of hydrogen-powered FCEVs is that they generate zero carbon dioxide emissions while having a range of more than 500km and a quick recharging time.

Additionally, hydrogen can be deployed for a diverse range of industrial and residential energy-generation applications.

The Fuel Cell & Hydrogen Energy Association mentions that fuel cell-powered forklifts are currently in operation at manufacturing plants, distribution centres, freezer facilities, and grocery warehouses around the country, replacing incumbent battery-powered and combustion vehicles due to their advantages of longer runtime, faster refuelling, and higher efficiency.

Making the UAE the first country in the Middle East and North Africa to establish future legislation, in line with the country's post-oil plans, the Emirates Authority for Standardisation and Metrology (ESMA) has completed the "Technical regulation" of the Hydrogen Cell Vehicle.

"The development of environmentally-friendly regulations is an important economic opportunity for national companies to take advantage of, and complete the research and study, to achieve good rates of growth, at a time when companies with vehicles compete in the market in the coming period, in preparation of a draft technical regulation for vehicles that operate on hydrogen-cell technology," said Abdullah Al Maeni, ESMA director-general. ■

What is a fuel cell?

A FUEL CELL is a device that generates electricity through an electrochemical reaction, not combustion. In a fuel cell, hydrogen and oxygen are combined to generate electricity, heat, and water.

Fuel cells are used today in a range of applications, from providing power to homes and businesses, to recharging consumer electronics, to moving a variety of vehicles including warehouse forklift fleets, buses, trucks, cars, and more. Scientists and engineers across the US are celebrating Hydrogen and Fuel Cell Day on 8 October.

Benefits of fuel cells

Fuel cells generate clean power and can use a range of fuels. When hydrogen is used, the only by-product is water. Beyond the environmental benefits, fuel cells are an extremely efficient, reliable, and quiet source of power. Instead of CO2 and NOx, a fuel cell vehicle's only tailpipe emission is water.



Compressors for high temperature environments



Photo Credit : Gardner Denver

The new compressors deliver efficiency improvements of up to six per cent.

As the Middle East is one of the world's most water-scarce and dry regions, the hot and harsh environments in which air compressors need to operate must be taken into account when specifying a system, says David Fenwick, Middle East sales director at Gardner Denver.

OVERHEATING, WHICH IS often the result of internal factors, external conditions, or sometimes a combination of both, is one of the most common causes of air compressor failure. The process of compressing air generates a lot of heat, with as much as 95 per cent of the electrical energy used by an industrial air compressor converted into thermal energy and lost through radiation, usually into the room housing the system.

The Middle East is particularly vulnerable to climate change, meaning that temperatures of up to 55°C are not uncommon. In fact, conditions that were ideal for industrial air compressors in the region just two decades ago could now require significant adjustments. Some existing machines using traditional air compressor technology are prone to overheating due to high ambient temperatures and have become inadequate, or obsolete.

Gardner Denver designs and delivers compressor packages that are built to withstand such extreme temperatures and work in the most challenging environments. Engineers create and manufacture solutions, both in oil-free and lubricated configurations that fit a range of customer specifications. Air-cooled oil-free rotary screw compressors incorporate innovative refrigeration technology and are capable of operating in temperatures up to 55°C.

Alberto Castaño, project group director EMEAI, says, "Climate change offers unprecedented challenges for our customers in the Middle East, which has motivated Gardner Denver to invest in innovation across different technologies of compressed air and vacuum. We now lead the way in the

design, development and manufacture of air-cooled oil-free screw compressors that can operate in extreme temperatures.

"Our air-cooled oil-free rotary screw compressors incorporate innovative refrigeration technology and are capable of working under strenuous conditions either outdoors or indoors, in refineries, deserts and other sandy environments."

How are Gardner Denver air compressors able to deliver technology that can operate in temperatures of up to 55°C?

Firstly, there is no oil in the compressor or, indeed, the compressed air itself. Gardner Denver's oil-free compressors incorporate innovative air cooled cooling technology such as stainless steel pre-aftercooler and 50 per cent x2 sets of cooling fan configuration, ensuring exceptional reliability and low maintenance costs in high-temperature environments. Capable of working under strenuous conditions either

outdoors or indoors, they are suitable for refineries, deserts (high inlet temperatures) and sandy environments.

Secondly, we should pay attention to the stainless steel air-end for the second stage of the compressed air process, and the open clearance between male and female rotors. The cooling fan's configuration is also important, optimised to deliver the best possible results. Our compressors are also optimised to withstand aftercooler inlet temperatures of up to 265°C.

There is a very low CTD for the aftercooler. In addition, no external cooling is required. All the components of the controller are designed for temperatures of 80°C without any cooling devices. ■

To find out more about air-cooled compressor technology for high-temperature environments, please download the new free guide: <http://bit.ly/2EDwzix>

Gardner Denver unveils new oil-lubricated 90 to 132 kW CompAir compressors

GARDNER DENVER HAS unveiled its newest oil-lubricated compressors for its leading CompAir L-Series range, offering best-in-class efficiency.

Available in 90 kW, 110 kW and 132 kW units, the new compressors deliver efficiency improvements of up to six per cent when compared with previous models, plus a seven per cent higher flow rate. The new compressors are available in both fixed and regulated speeds – which can help reduce a system's total cost of ownership significantly – as well as air-cooled and water-cooled options.

All models are offered with a completely new airend, featuring a larger-sized inlet and outlet to help improve air flow and reduce pressure drop. Delivering the highest quality compressed air at a low rotational speed, to help minimise the unit's energy consumption, the new airend has been designed and manufactured at the company's Centre of Excellence in Simmern, Germany. It is supported by the CompAir Assure warranty, which covers the airend for up to ten years or 44,000 hours.

The stated policies scenario, formerly known as the new policies scenario, incorporates today's policy intentions and targets in addition to existing measures.



World Energy Outlook 2019: Bridging investment gaps

Rapid and widespread changes across all parts of the energy system are needed to put the world on a path to a secure and sustainable energy future, says the WEO report.

Global primary energy demand grew by 2.3 per cent in 2018, its largest annual increase since 2010.

GLOBAL SPENDING ON energy stabilised in 2018 after three years of decline, but a range of market, policy and geopolitical uncertainties could lead investment to fall short of what is needed to meet demand, to decarbonise and to provide energy access for all, according to the World Energy Outlook (WEO) 2019 by the International Energy Agency (IEA).

The WEO report said global primary energy demand grew by 2.3 per cent in 2018, its largest annual increase since 2010.

Current policies scenario

If governments make no changes to their existing policies (current policies scenario),

energy demand rises by 1.3 per cent a year to 2040, resulting in strains across all aspects of energy markets and a continued strong upward march in energy-related emissions, the report mentioned.

The stated policies scenario, formerly known as the new policies scenario, incorporates today's policy intentions and targets in addition to existing measures.

In this scenario, primary energy demand grows by one-quarter to 2040; the one per cent annual average growth represents a slowdown compared with the two per cent average seen since 2000, the report said.

The renewable energy sources, led by solar PV, supply more than half of this

growth, and natural gas accounts for another third. Oil demand flattens out in the 2030s, and coal use edges lower. Some parts of the energy sector, led by electricity, undergo rapid transformations. Some countries, notably those with “net zero” aspirations, go far in reshaping all aspects of their supply and consumption.

Low-carbon sources meet well over half of the increase in demand to 2040 in the stated policies scenario, compared with 30 per cent in 2017-2018. This is led by the power sector, where renewables dominate investment and capacity additions (Figure 1). However, demand for all sources of energy, except coal, continues to increase.

“However, the momentum behind clean energy is insufficient to offset the effects of an expanding global economy and growing population. The rise in emissions slows but does not peak before 2040,” the WEO report pointed out.

“What comes through with crystal clarity in this year’s World Energy Outlook is there is no single or simple solution to transforming global energy systems,” said Dr Fatih Birol, the IEA’s executive director.

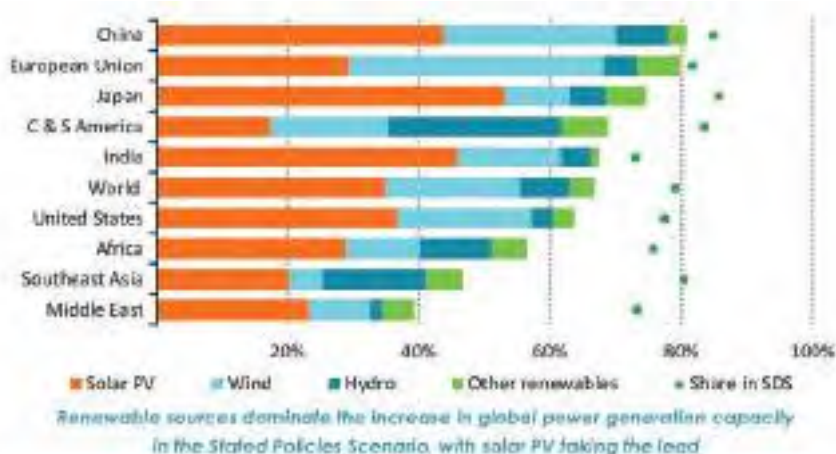
“Many technologies and fuels have a part to play across all sectors of the economy. For this to happen, we need strong leadership from policy makers, as governments hold the clearest responsibility to act and have the greatest scope to shape the future.”

Role of the Middle East

Shale output from the United States is set to stay higher for longer than previously projected, reshaping global markets, trade flows and security. In the stated policies scenario, annual US production growth slows from the breakneck pace seen in recent years, but the United States still accounts for 85 per cent of the increase in global oil production to 2030, and for 30 per cent of the increase in gas. By 2025, total US shale output (oil and gas) overtakes total oil and gas production from Russia.

Whichever pathway the energy system follows, the world is set to rely heavily on oil supply from the Middle East for years to come.

Fig 1 - Share of renewables in total capacity additions by region and scenario, 2019-2040



Notes: C&S America = Central and South America; SDS = Sustainable Development Scenario. Other renewables includes geothermal, concentrating solar power, bioenergy and marine.

Source: IEA

Fig 2 - Total primary energy demand by region and scenario (Mtoe)

	2018		Stated Policies		Sustainable Development		Change 2018-2040	
	2018	2030	2030	2040	2030	2040	STEPS	SDS
North America	2 578	2 714	2 717	2 686	2 377	2 087	-28	-627
United States	2 273	2 280	2 214	2 341	1 942	1 697	-88	-604
Central & South America	449	660	780	913	669	702	253	42
Brazil	384	388	343	367	385	413	112	27
Europe	2 027	2 000	1 848	1 723	1 689	1 470	-277	-530
European Union	1 851	1 613	1 414	1 254	1 311	1 104	-89	-517
Africa	489	838	1 300	1 318	698	828	480	-10
North Africa	379	534	773	788	417	497	8	-27
Middle East	365	763	956	1 206	802	880	443	117
Eurasia	742	994	980	1 031	858	807	97	-127
Russia	621	751	787	786	660	638	45	-118
Asia Pacific	3 912	5 989	7 402	8 208	6 232	6 085	2 218	96
China	1 193	3 187	3 805	4 972	3 228	2 825	-789	-271
India	841	918	1 427	1 841	1 348	1 294	-85	-178
Japan	513	434	397	391	349	309	-61	-214
Southeast Asia	365	701	673	1 114	787	858	412	157
International bunkers	274	416	528	639	425	420	228	4
Total	10 037	14 314	16 311	17 723	13 790	13 279	3 409	-1 035

Notes: Mtoe = million tonnes of oil equivalent; STEPS = Stated Policies Scenario; SDS = Sustainable Development Scenario. International bunkers include both marine and aviation fuels.

Source: IEA

The higher US output pushes down the share of OPEC members and Russia in total oil production, which drops to 47 per cent in 2030, from 55 per cent in the mid-2000s.

But whichever pathway the energy system follows, the world is set to rely heavily on oil supply from the Middle East for years to come.

Energy demand rises rapidly in the Middle

East, where per capita consumption is already high today, spurred in part by increased demand for cooling and desalination, the report said.

Sustainable development

“The world urgently needs to put a laser-like focus on bringing down global emissions.

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Cummins Generator Technologies

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This calls for a grand coalition encompassing governments, investors, companies and everyone else who is committed to tackling climate change," said Birol. "Our sustainable development scenario is tailor-made to help guide the members of such a coalition in their efforts to address the massive climate challenge that faces us all."

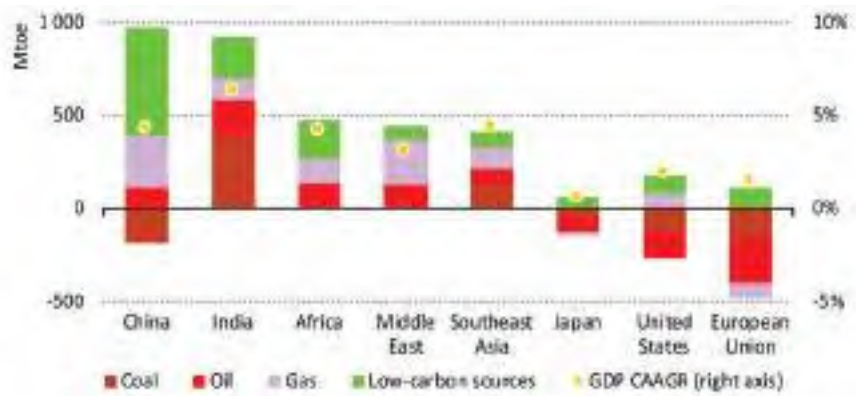
Electricity is one of the few energy sources that sees rising consumption over the next two decades in the sustainable development scenario.

A sharp pick-up in energy efficiency improvements will do the most to move the world towards the sustainable development scenario. Efficiency improvements are slowing: the 1.2 per cent rate in 2018 is around half the average seen since 2010 and remains far below the three per cent rate that would be needed, the report revealed.

Electricity is one of the few energy sources that sees rising consumption over the next two decades in the sustainable development scenario. Electricity's share of final consumption overtakes that of oil, today's leader, by 2040. Wind and solar PV provide almost all the increase in electricity generation.

Pointing out that putting electricity

Fig 3 - Change in energy demand and average annual GDP growth rate by region in the Stated Policies Scenario, 2018-2040



Faster economic growth in developing economies is accompanied almost everywhere by rising demand for all fuels and technologies

Notes: GDP CAAGR = gross domestic product, compound average annual growth rate. Low-carbon sources includes nuclear and renewables.

Source: IEA

systems on a sustainable path will require more than just adding more renewables, the report said that the world needs to focus on the emissions that are "locked in" to existing systems. Over the past 20 years, Asia has accounted for 90 per cent of all coal-fired capacity built worldwide, and these plants potentially have long operational

lifetimes ahead of them. This year's WEO considered three options to bring down emissions from the existing global coal fleet: to retrofit plants with carbon capture, utilisation and storage or biomass co-firing equipment; to repurpose them to focus on providing system adequacy and flexibility; or to retire them earlier. ■

Cybersecurity, a new concern

Alongside the immense task of putting emissions on a sustainable trajectory, the report noted that energy security remains paramount for governments around the globe. Traditional risks have not gone away, and new hazards such as cybersecurity and extreme weather require constant vigilance, the report mentioned. Meanwhile, the continued transformation of the electricity sector requires policy makers to move fast to keep pace with technological change and the rising need for the flexible operation of power systems, it added.



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Governments and private players are looking at various methods to step up road safety measures.

Routes to road safety and security

Increasingly OEMs and transport authorities are partnering with tech firms to enable sensors and advanced telematics in commercial and passenger vehicles. Abhishek Paul reports.

ONE OF THE strong motivations to build autonomous vehicles is to improve road safety with the aid of disruptive technologies. It's a work in progress and there is a long way to go. Until the complete shift towards self-driving vehicles, smart systems, devices and telematics are playing a vital role in enhancing road safety and tracking assets.

Governments and private players are looking at various methods to step up road safety measures. One such case is the launch of the 'DOR' system by Dubai's Roads and Transport Authority (RTA) recently to automate the process of testing and assessing the condition of tyres on public transport.

"Vehicles are fitted with smart devices enabling sensors to measure tyre pressure and the thickness of the tyre's tread. This data is analysed and a detailed report about the tyres' soundness is generated and forwarded by e-mail. The device can inspect

and report the tyre's conditions in just 20 seconds. A green smiley face pops up on the driver's screen meaning that the bus is good to go. Otherwise, a red and sad face appears, indicating an issue with tyres," explained Abdullah Al Mazmi, director of maintenance and services at RTA's Public Transport Agency.

RTA and Etisalat have signed a memorandum of understanding to explore the use of 5G in transport and communication.

This system has been installed in Jebel Ali Station and it was reported that bus faults on the road have dropped by 58 per cent between May and July this year, compared with the same period last year.

To improve mobility and transit safety in Dubai, RTA and Etisalat have signed a memorandum of understanding to explore the use of 5G in transport and communication.

Rise of telematics

Factors that are driving fleet demand for vehicle telematics systems in the Middle East are efficiency, safety, compliance and security.

According to a report by ResearchAndMarkets.com, the active installed base of off-highway vehicle telematics systems across all sectors is forecasted to reach 7.5mn units worldwide in 2023, growing at a compound annual growth rate (CAGR) of 17.8 per cent.

At this year's Telematics Conference Middle East & Africa, held in March, industry players expressed the view that the MENA market is quite open to innovation, and the governments in the GCC are stimulating demand by bringing in laws to increase the adoption of IoT in streets, roads and fleets,

While the construction sector accounts for the largest share, driven by OEM telematics systems offered by heavy equipment manufacturers, the agricultural and mining sectors share similar number of connected units deployed on machines and vehicles, revealed the *Global Off-Highway Vehicle Telematics Market* report. Caterpillar is well on its way to achieving its target of 1mn connected assets this year, it added.

Other major manufacturers with installed bases of more than 100,000 units include Hitachi Construction Machinery, JCB, Deere & Company, and Volvo Construction Equipment. Additional players having installed bases of off-highway vehicle telematics units in the tens of thousands include Doosan



Many solutions in the market now offer behaviour analysis with real-time contextual data, based on advanced image analysis.

Photo Credit: Adobe Stock/AA+W

Infracore, Liebherr, CNH Industrial, CLAAS Group and Hyundai Construction Equipment, the report mentioned.

Additionally, many solutions in the market now offer behaviour analysis with real-time contextual data, based on advanced image analysis. Sparkbit's AI-

powered telematics system can automatically detect and analyse crossing on a red light, aggressive, dangerous or illegal overtaking, keeping a safe distance between vehicles and excessive hopping between lanes.

The report underscored the promising opportunities for telematics players that partner with the OEMs, either as end-to-end full-service providers or working alongside OEM personnel to optimise the telematics functionality.

The top 10 equipment manufacturers offering telematics together account for more than 70 per cent of the total number of off-highway vehicle telematics systems in use across the construction, mining, agriculture and forestry sectors globally. ■

The active installed base of off-highway vehicle telematics systems across all sectors is forecasted to reach 7.5mn units worldwide in 2023, growing at a CAGR of 17.8 per cent.

ResearchAndMarkets.com

Volvo Trucks launches sales of electric trucks for urban transport

VOLVO TRUCKS HAS announced the start of sales of its Volvo FL and Volvo FE electric trucks in selected markets, meeting the increasing demand for sustainable transport solutions in city environments.

With the absence of exhaust emissions and with reduced noise levels, electric trucks offer huge potential in urban areas.

First, the reduced noise levels make it possible to carry out deliveries and refuse collection in early mornings, late evenings or even at night, helping to improve transport logistics and reduce congestion during peak hours.

Second, with better air quality and less noise, electric trucks create new opportunities for city planning and road infrastructure. An electric truck can, for example, be used in indoor loading areas and environmental zones.

"Global urbanisation requires urban logistics and truck transport with zero emissions and less noise with increasing urgency. With the Volvo FL Electric and Volvo FE Electric we are able to meet both the strong environmental demands as well as the high commercial requirements of our customers," said Jonas Odermalm, VP Product Line Electromobility.

"Volvo Trucks' solutions will be based on individual business needs that consider a number of parameters, such as driving cycles, load capacity and route analysis, to use the battery capacity in the most efficient way possible," continued Odermalm.



Photo Credit: Volvo Trucks

Addressing climate change will require the availability of several driveline technologies.

Volvo FL Electric and Volvo FE Electric were developed in close collaboration with selected customers operating in Gothenburg, Sweden.

"Electric vehicles, charged with electricity from renewable sources, are indeed a powerful step towards more sustainable city distribution. However, there will not be one singular energy source that addresses climate change and all other environmental issues. Different types of transport require different types of driveline solutions," concluded Odermalm.

Changing role of FM service providers

Stuart Harrison, CEO at Emrill Services, identifies trends in the FM industry today and the impact of cost on the adoption of technologies.

THE FM INDUSTRY in the UAE may not be as mature as some other markets, however, it is quickly gaining ground, with an increased demand for services bolstered by the delivery of mega projects. As the industry grows, we are seeing the emergence of new trends, including the increased adoption of technology, which will present new opportunities for FM service providers in the region.

According to TechSci Research, the UAE's FM industry is expected to grow at CAGR of 8.51 per cent by 2021, supported by rebounds in the UAE's construction industry and expansion into non-oil sectors, as well as government initiatives, such as Abu Dhabi's Vision 2030. Robust growth in facilities management is also being driven by an increased demand for infrastructure, with an estimated US\$8.174bn being spent. The UAE has also undertaken a number of ambitious mega projects, including Emirates Road master plan, Dubai Metro, Abu Dhabi Metro, Etihad railway network and Abu Dhabi airport expansion, which will all be completed by 2030 and will increase demand for facilities management services. TechSci Research reports US\$629bn of construction projects will be completed in the UAE by 2021, paving the way for the continued growth of the country's FM sector.

As the sector is growing, so too are the expectations of end-users. Our clients are now demanding a greater emphasis be placed on managing the customer experience as well as the space. In addition to offering traditional hard and soft FM services measured by KPIs, we are now more actively involved in offering services that enhance collaboration, productivity and a sense of community. In order to succeed, FM services providers must innovate and evolve, and many are using technology in order to remain competitive.

Technology has always, to some extent, impacted the facilities management sector. Emerging technologies, such as artificial



Stuart Harrison,
CEO at Emrill Services

Photo Credit: Emrill

intelligence (AI), the Internet of Things (IoT) and automation will impact how FM professionals work.

We have already invested in data analytics, which were instrumental in us launching the UAE's first energy performance contract. The data we gathered enabled us to measure key drivers of performance and identify energy savings, total lifecycle cost savings, and efficiencies. The pilot project achieved average building energy savings of over 26 per cent.

We have also adopted cloud-based facilities management solutions, developing an efficiency-enhancing app. The app, which is the first of its kind in the UAE, assigns housekeeping staff a route and assigned tasks at the beginning of a shift. As team members move along the mapped-out path, tasks pop up on their mobile devices, determined by their proximity to the required work pre-defined geofences. Sub-tasks are automatically triggered when staff are in the area, ensuring no task is overlooked. As staff complete jobs, they upload photographs, which are

automatically synced to the supervisor's interface, providing increased transparency and allowing us to develop fully customised routes, unique to each site. The app also offers independent routing for each member of the soft FM and housekeeping staff, ensuring there are no overlaps in a single community. This app has allowed us to optimise manpower, resulting in a 20 per cent reduction in the number of manhours required to complete the same tasks.

Automation is also emerging, with providers exploring the use of robots and machines to do everything from cleaning to performing complex operations. Earlier this year, we unveiled the latest addition to our cleaning services line-up – the CMAR NC 286R hot water pavement cleaner with suction, another first in the UAE. In addition to being more environmentally friendly than other cleaners, the CMAR NC 286R offers cost-savings to the operator and the client. A trained two-man crew operates the cleaner and can achieve the same results as a 13-man crew manually cleaning the same area.

While there are certainly opportunities for those companies willing to seize them, we are seeing challenges in the sector also, some of which are brought about by the adoption of new technologies. For example, new technology requires an investment of both time and capital, which may prove difficult for smaller providers, who face financial restrictions and a lack of skilled manpower.

New technology offers FM services providers the opportunity to differentiate from the competition, offering innovative solutions that add value. How significant an impact technological change has on the region's FM sector depends in part on how FM professionals respond to the opportunities and challenges emerging technologies present. However, failure to recognise the significance of disruptive, emerging technologies until it's too late will be at the peril of providers hoping to remain competitive in the region's FM sector. ■

Facilio, Smart IoT sign smart living services deal with Digital X

NEW YORK-BASED FACILITIES management tech start-up Facilio and Smart IoT have signed a memorandum of understanding (MoU) with Digital X, a subsidiary of Digital DEWA, to support the implementation of 'Smart Living as a Service' (SLaaS).

The strategic MoU signing and launch of SLaaS was announced during Gitex 2019. The initiative will include solutions for smart home and office, smart buildings, surveillance and security, as well as health and safety, with the support of Facilio and Smart IoT.

Dubai10X focuses on digital transformation and future-readiness, to position the city 10 years ahead of other leading global hubs while promoting sustainable development.

As part of this effort, Digital DEWA has undertaken research and implementation of autonomous systems for AI-empowered solar energy generation and storage, as well as conceptualising Digital X, an initiative to deliver SLaaS.

The SLaaS is aimed at enhancing the quality of life of the city's businesses and residents with the aid of the tech-driven innovations.

Marwan Bin Haidar, executive vice-president of innovation and the future at DEWA, said, "We have signed an MoU with Facilio, a well-known tech platform, and Smart IoT, a leading local entrepreneur. The objective here is to deliver SLaaS of the highest global standards for all of Dubai's residents. The initiative will redefine urban living not only in Dubai, but also across other global cities in the future."

Smart IoT brings to the table local expertise and perspective, and will



Photo Credit: Facilio

Khalifa A Al Jaziri, managing director of Smart IoT, Ahmad Al Jaziri, group director Smart IoT, Marwan Bin Haidar, executive vice-president of innovation and the future at DEWA, Prabhu Ramachandran, founder and CEO of Facilio Inc, at the MOU signing ceremony at Gitex 2019.

assist in day-to-day operations and successful establishment of Digital X systems. While international partner Facilio will help Digital X evolve into an effective futuristic system, in line with global sensibilities.

Positive outlook for GCC's FM industry: MEFMA

THE MIDDLE EAST Facility Management Association (MEFMA) hosted a MEFMA Networking Event themed 'Future Outlook of the Facilities Management (FM) Industry in the GCC'.

The event brought together several experts of the Middle East's FM industry in Bahrain to continue the regional dialogues on the crucial elements that are driving the market.

Held on 28 October 2019 at the Wyndham Grand Manama Hotel, the event featured renowned speakers led by Tarek Nizameddin, senior executive director (Commercial) of Ejadah. In his talk, Nizameddin focused on the growth prospects in the GCC region's FM market amid increased economic activities.

Jamal Lootah, president of MEFMA, said, "The GCC's FM industry is poised for exponential growth. According to the estimates of Goldstein Research, its market value will hit the US\$71.4bn mark by 2024, with a CAGR of 8.6 per cent. Some of the identified major growth drivers are the expansion of the construction industry and other large-scale development projects, the automation trend, and higher spending of the GCC governments."

"Given this bright outlook, we, regional FM players, should continue to look for ways on how we can further optimise both current and future opportunities, while at the same time formulating effective solutions to challenges. This is why we continue to provide a platform where stakeholders can meet and share ideas. We brought the event to Bahrain because we wanted to showcase a host of growth prospects and the latest positive developments in the local market," added Lootah.

Goldstein Research predicts that the market size of Bahrain's FM market, which is still in its nascent stage, will exceed US\$2.3bn by 2024, at a CAGR of 12.2 per cent.

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Recycled sand and aggregates have a wide range of uses across a variety of construction applications.

Photo Credit : Adobe Stock/Enrique del Barrio

Championing Sustainability

While construction waste used to be disposed in landfills, solutions for recycling waste materials for high value applications were unveiled at The Mining Show, Dubai.

A **READY COUNTING** A large client base in the MENA region, leading global wet processing equipment company CDE took part in The Mining Show this year in Dubai, where the company showcased its latest wet processing technology, as well as delivered expert talks and led discussions focused on the added value that advanced washing technology can bring to mine and quarry operators.

CDE has designed, manufactured and commissioned the largest sand washing plant in the world in the Middle East, as well as the world's largest wet processing facility for the recycling of construction and demolition waste material at Velde Pukk in Norway. The plant operates up to 300 tonnes per hour and produces high quality recycled materials from C&D waste and overburden.

The CDE Dubai team, as well as English and Arabic speaking technical experts, were at hand to present the company's innovations and discuss visitors' requirements to find efficient wet processing solutions to suit their individual needs.

Adam Holland, head of mining at CDE, kicked off the series of talks on 5 November by discussing transformational solutions to enhance mine sustainability and improve profitability.

Paul Holroyd, head of sand and aggregates at CDE, discussed how the specificities of the sand and aggregates market in the Gulf and

how to get the best value from both raw resources - be they natural sand, crushed rock from quarry sites, or even construction and demolition (C&D) waste – demonstrating that a zero-waste objective is achievable with the right technology.

Garg discussed new technologies to transform C&D waste into high-value construction products.

The Dubai Mining Show saw the launch of the new patented CDE Combo in the Gulf region – a unique all-in-one materials wet processing system and water recycling unit. “The Combo is no ordinary machine but rather a technological response to the challenges faced by materials producers in the world,” said Holland. “Designed with a focus on transferring greater reliability and efficiency benefits to customers, it can be used in the construction, C&D waste recycling, industrial sands, mining, and environmental sectors. This industry-leading technology is designed to unlock a ‘New World of Resource’, essential to protect our environment and build the world of the future.”

“The Combo is a unique proposition on the global market, initiating a ‘washing revolution’. It is especially pertinent to the Gulf countries where water can be scarce and the environment can be harsh. With increased awareness of the environmental and human damage the overuse of oil-based energy, finite resources, and water

can do in the region, the CDE Combo technology provides an effective upgrade to traditional systems that will future-proof quarry and mine operations in the Gulf,” Garg remarked.

Ruchin Garg, regional manager MENA, delivered a presentation at the show; titled “The next step in recycling C&D waste in the Middle East,” it highlighted CDE’s operations in the MENA region over the last few years.

“The Gulf is one of the key strategic growth regions for CDE, which is committed to the market, supporting clients with the best technology and services. We are working with key players in the market in the recycling, processing, and mineral processing industries across the region. Our local team is growing and so is our local services and spares availability,” Garg commented.

CDE’s advanced processing systems for construction,

The show will see the launch of the new patented CDE Combo in the Gulf region - a unique all-in-one materials wet processing system and water recycling unit.

demolition and excavation waste can recover high quality sand and aggregates for use in a range of high value construction applications including concrete and asphalt production.

Currently, CDE equipment diverts more than 15 million tonnes of construction waste material from landfill sites every year, creating high-quality sand and aggregates in the process. The company’s portfolio of C&D waste recycling wet processing projects is the largest in the world, and it includes the world’s largest C&D waste recycling wet processing facility in Norway.

Working in partnership with customers across the world, CDE is creating a circular economy in the construction sector in the process. Today, 60 per cent of the materials use in the construction industry are non-structural, while 75 per cent of concrete is non-structural. Recycled sand and aggregates have a wide range of uses across a variety of construction applications. By introducing advanced wet processing systems for construction, demolition, and excavation waste companies can realise the value that exists in waste material.

Having carried out field visits from UK teams to the region and vice versa, CDE is confident of its solutions to turn mixed C&D waste generated in the region into saleable products by providing high-value sand and aggregates for the construction and infrastructure industry.

Using the best available technologies, including patented systems, the company builds solutions that meet the requirement of C&D waste recycling operators to guarantee maximum yield and a fast return on investment. ■

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Drones, smart cities and emerging technologies will be discussed and exhibited.

Photo Credit: DMG

Technology to the fore

Two summits, two conferences and seminars focus on technology at The Big 5 Heavy and Middle East Concrete.

A TOTAL 55 free-to-attend sessions run across two summits, two conferences and seminars at The Big 5 Heavy and Middle East Concrete this November. With a major focus on technology, educational sessions are set to provide insight on how to implement the latest digital solutions right at the beginning of the build cycle.

The Big 5 Heavy and Middle East Concrete, the largest events dedicated to the infrastructure and heavy construction community in the Middle East, once again run simultaneously at Dubai World Trade Centre from 25-28 November, 2019.

Event director for The Big 5 Heavy and Middle East Concrete, Richard Pavitt comments, "We are delighted to announce this year's increased line-up of educational features that are free and unique to The Big 5 Heavy and Middle East Concrete.

"The spread of learning opportunities is designed so that visiting professionals can leave equipped with realistic pathways for bringing new technological advances into their build projects."

He added further: "With more than US\$2.5tn worth of planned projects yet to be awarded in the Middle East, there is huge opportunity to elevate the region's construction industry by introducing new processes and solutions right at the beginning of build."

The two summits on offer at this year's

event include the returning 'RTA Innovation in BIM Summit', shedding light on the government-led roadmap of BIM adoption in the UAE, and the 'Geotechnical and Engineering Summit', covering the latest in ground surveying techniques and solutions.

Along with the all-new Geospatial Leaders Conference, The Big 5 Heavy and Middle East Concrete welcome back The American Concrete Institute's Conference series, exploring the latest standards in concrete efficiency.

Unique geospatial intelligence leaders and technology providers from across the region will be speaking on topics such as drones, smart cities, LiDAR technology, and emerging technologies at the new Geospatial Leaders Conference.

Sherief Elabd, director of industry strategy at Oracle Construction and Engineering, and speaker at the event, welcomed the new conference. "Companies need to be taking technology trends seriously now by investing their resources in quality research and development, and most importantly by focusing on process re-engineering and integration within their business culture and markets.

"Events such as the Geospatial Leaders Conference help to raise awareness of these issues by reaching key industry decision makers, helping to shape the direction the industry moves in."

The two events also feature a wealth of

technical seminars hosted by exhibitors that showcase the use of industry leading innovations and techniques.

Leading brands such as Putzmeister, CIFA, Kryton, Trimble, Soilmec, Command Alkon, and NFT Cranes, will showcase products relating to the very first stages of the build cycle. The Big 5 Heavy and Middle East Concrete offer products from plant, lifting, and quarrying machinery, to raw materials extraction equipment, pre-cast production solutions and more.

Solutions relating to today's hot topics: 3D printing, drones and surveillance, site mapping, robotics, thermal imaging, virtual reality trainings and more will be featured within the all new 'Construction Technology' product sector.

Marco Polastri, aftersales and marketing director at CIFA said, "The Big 5 Heavy and Middle East Concrete in Dubai this November is the best mix of exhibiting ingredients for the GCC markets."

On the need for shows like this, he said: "Even in a digitalisation era, face-to-face meetings are important to create and consolidate contacts as well as starting the sales process directly right there."

Part of the The Big 5 Heavy and Middle East Concrete are co-located alongside The Big 5, HVAC R Expo, Middle East Stone, The Big 5 Solar, and Urban Design & Landscape Expo (Dubai World Trade Centre, 25 -28 November, 2019). ■



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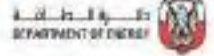
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The Big 5 drums up support for gender diversity

As diversity and inclusion become critical to business success, the Middle East's largest construction event celebrates the achievements of women in construction.

ACCORDING TO A McKinsey study, companies in the top-quartile for gender diversity on executive teams were 21 per cent more likely to outperform on profitability. They were also 27 per cent more likely to have superior value creation. Conversely, companies ranked low for gender and ethnic diversity were 29 per cent less likely to achieve above-average profitability than other companies in the study.

Given these facts, it's clear that gender diversity in the workforce will help the male-dominated construction industry to prosper. To celebrate the achievements of women in construction, The Big 5, the Middle East's largest construction event, has announced the return of the Women in Construction (WIC) Forum & Awards.

Focused on gender balance, diversity and inclusion (D&I), and women in leadership, the WIC Forum & Awards will be held on 27 November. This year, the event also supports the Women's Empowerment Principles (WEPs), an initiative of the UN Women and the UN Global Compact, providing seven principles that organisations in all fields can commit to adopt in order to advocate gender balance in the workplace, community, and marketplace.

Hanane Arif, head of communication, Société Générale Middle East and chairwoman of WEP's Local Network UAE,



Hanane Arif, head of communication, Société Générale Middle East and chairwoman of WEP's Local Network UAE.



Josine Heijmans, portfolio director, DMG events.

said, "Despite the unconscious gender bias barriers, women continue to build their path in the industry. Corporates have a critical role to play and the WEPs is the tool that will help them to act and guide them in their journey for greater gender equality."

According to research published by the WEPs UAE Local Network, eliminating discrimination against female workers can increase productivity by up to 40 per cent. "Diversity and Inclusion (D&I) policies in organisations boost business," said Josine Heijmans, portfolio director at DMG Events. "With this in mind, we are proud to bring back the Women in Construction Forum & Awards to share inspiring stories of women in construction and leadership positions, promote D&I policies that increase productivity in construction businesses, and support the WEP's initiative."

Morgan Tuckness, head of technical



Morgan Tuckness, head of technical services, global director, Drees & Sommer.

services, global director, Drees & Sommer, and a speaker at The Big 5's WIC Forum, said, "There has been a big mental shift in the industry over the past few years and the inclusion of woman professionals has become more important and relevant. However, the policies that would enable them to perform and succeed are lacking.

"Taking part in the Women in Construction Forum & Awards will be an opportunity to open the discussion further about what the industry needs and how to get there."

The lineup of speakers at the WIC Forum also includes leading industry names such as Brian Johnson, managing partner at Godwin Austen Johnson, Hind Al Owais, vice president – international participants at Expo 2020, and Katie Fifer, vice president-finance, Asia & Middle East at Kattera, among many others. ■

How to sign the Women's Empowerment Principles (WEPs)

WEPs, AN INITIATIVE of the UN Women, the global champion for gender equality, and the UN Global Compact, the largest sustainability network in the world, provides seven principles that organisations in all fields can commit to adopt in order to advocate gender balance in the workplace, community and marketplace. On November 27, The Big 5 will host an official Certificate Ceremony for the companies who are willing to come together and sign the WEPs.

Details about the WEPs and its principles can also be found here:

<https://www.empowerwomen.org/en/weps/about>.

Industry leaders to join HVAC R Expo

Innovative products and networking are on the agenda for the show, co-located with The Big Five.

WHILE THE HVAC R sector is coined as one of the most important in the Middle East region due to the climate, which makes it a pivotal element of all building projects, it is also the largest consumer of electricity in the region's cities.

According to Ronak Monga, segment development manager of building services at Grundfos and speaker at this year's HVAC R Pioneers' Summit, this is leading to a big appetite for innovation in the market.

Running for just one day on 26 November, HVAC R Pioneers' Summit is a new show feature and part of the HVAC R Expo (25-28 November, Dubai World Trade Centre) that will bring together industry leaders from across the region to discover the latest technologies, develop innovative strategies, and network with like-minded peers.

Josine Heijmans, portfolio director at dmj events announced the new feature, "After the successful launch edition of HVAC R Expo, we are delighted to announce that the event will this year feature the HVAC R Pioneers' Summit. The summit responds to the HVAC R community's needs to find more energy efficient and cost effective solutions for the region. According to recent research, there are US\$70bn worth of HVAC R systems that are planned to be installed in the Middle East over the next decade. 90 per cent remains to be awarded and this presents a huge drive for the HVAC R sector, reflecting growing opportunities for global industry stakeholders."

Heijmans said, "As a result, it is so important to have a platform such as the HVAC Pioneers' Summit where stakeholders can share best practices on what works well,



Photo Credit: DMG

The one-day HVAC R Summit responds to the need to find more energy efficient and cost-effective solutions for the region.

as well as reflect upon what hasn't worked well, in order to secure the next generation of highly efficient, sustainable, and futuristic HVAC systems right here in the Middle East."

Other speakers include Hassan Younes, president elect for ASHRAE Falcon Chapter, Afif Saif Harhara Al Yafei, senior vice president – regional asset management from Tabreed, Rob Gregory, MEP technical director at Aurecon International and Suhas Inamdar, head of technical support and planning at Wasl Properties, and more.

The agenda for the HVAC Pioneers' Summit not only covers an overall market outlook on the Middle East's HVAC R sector, but also features both individual and panel discussions on the significance of indoor air quality, the growing demand for district cooling, and cooling of super-tall buildings, as well as a masterclass in 'BIM + HVAC = Smarter buildings of the future'.

Inamdar of Wasl Properties revealed what a smart city's HVAC R system might look like: "Just one example of innovation in the sector is that smart thermostats shall increasingly use artificial intelligence and machine learning to study the user behavioral pattern and optimise the power consumed by HVAC systems in the buildings. Moreover, we shall witness a new range of eco-friendly DeVAP HVAC systems in the coming decade, which consumes significantly less energy and does not use any harmful refrigerant to achieve cooling."

HVAC R Expo also brings back the free-to-attend and CPD-certified HVAC R Talks, for visiting professionals to gain career development points and providing them with a chance to stay updated on trends in the sector.

Visitors can expect to see the latest products on display at the event, relating to climate control, air quality and ventilation, air conditioning, refrigeration and heating, HVAC equipment and services, and building automation.

HVAC R Expo is co-located with The Big 5, The Big 5 Heavy, Middle East Concrete, Middle East Stone, The Big 5 Solar, and Urban Design & Landscape Expo. ■

The summit features discussions on the significance of indoor air quality, the growing demand for district cooling, and cooling of super-tall buildings.

CB Tests made fast and easy

Speed up your circuit breaker testing with Omicron's innovative new Cibano 500.

WHEN PERFORMING CIRCUIT breaker (CB) tests, it has always been a tedious, time-consuming and error-prone task to search and enter the circuit breaker-specific parameters by hand.

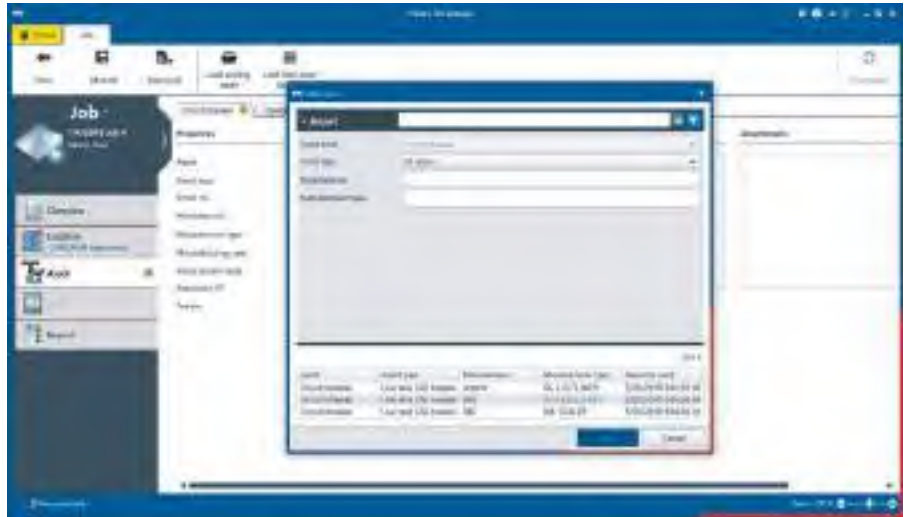
Omicron noticed there was room for improvement here. Also with its circuit breaker testing system Cibano 500 and the operating software Primary Test Manager TM (PTM). Therefore, since version 4.40, the PTM software contains Omicron's new circuit breaker testing library (CBTL) for use with CIBANO 500.

Data at the click of a button

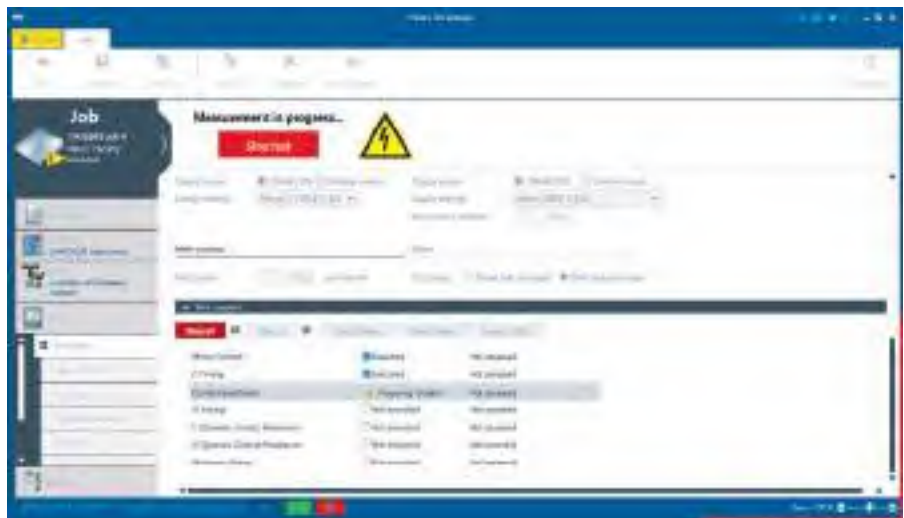
When using the CBTL, users are now able to load all of the asset-specific default data into the PTM with just the click of a button. All that is needed to be done is to look up the circuit breaker's serial number, perform any necessary modifications on the default data, and then users are ready to test.

A CBTL data set also contains further valuable information such as mounting instructions for motion sensors, assessment limits from manufacturers and conversion data for motion measurements. This data is

The CBTL will be available as an individual software license. Omicron's team of developers will maintain the growing data pool and new data sets will be updated regularly.



Selection of CB type.



Execution of all tests.

important for converting the rotary movement of a motion sensor into the linear movement of a CB's main contact.

With Omicron's new circuit breaker testing library, the speed of the testing procedure can be considerably increased by using an optimised workflow:

1. Select your test location
2. Select your CB type and load pre-defined

3. Execute all tests at once
4. Generate your reports automatically

The CBTL will be available as an individual software license. The growing data pool will be maintained by Omicron's team of developers and new data sets will be added on a regular basis. ■

Photo Credit: OMICRON Electronics

Photo Credit: OMICRON Electronics

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Countdown begins for Intersec 2020

Middle East security, safety, and fire protection industries gear up to take part in the world's leading trade show that will be held from 19-21 January 2020 in Dubai.

THE 22ND EDITION of Intersec, the world's leading security, safety, and fire protection trade show, will open doors early next year in Dubai with a long list of dedicated features set to complement a packed exhibition floor featuring more than 1,200 exhibitors from 50 countries.

The annual three-day event, organised by Messe Frankfurt Middle East, covers the seven sections of Commercial Security; Fire and Rescue; Perimeter and Physical Security; Safety and Health; Homeland Security and Policing; Information Security; and Smart Home and Building Automation.

Running from 19-21 January 2020 at the Dubai World Trade Centre, it will once again be home to biggest names in the business, including two-thirds of the world's top 50 security manufacturers.

A host of specialised pavilions, conferences and certified workshops will ensure the expected audience of 34,000-plus trade visitors from across the globe will be privy to the latest technology advancements that will have a profound impact on businesses spanning the entire gamut of industry verticals, from energy and finance, retail and hospitality, to education, government, logistics and construction.

New Intersec Arena spearheads long list of dedicated features as 1,200 exhibitors from 50 nations prepare for Dubai showcase.

A debut feature for 2020 is the Intersec Arena, which according to Intersec's Show director Andreas Rex, will offer insights into



The annual three-day event is organised by Messe Frankfurt Middle East.

new technologies that address cross-sector industry specific challenges, while educating end users on the vital considerations when purchasing specific product categories.

"The Arena will be the bridge that connects solution seekers with developers of game-changing innovations," said Rex, adding that the unique theatre-style set-up will allow for more interaction between the audience and speakers. "The objective is to analyse the security benefits as well as emerging risks and vulnerabilities with the implementation of latest innovations in an evolving digital world."

The three-day Intersec Arena will be split into three distinct tracks, with the first day covering digital technologies. Day two will explore security challenges and solutions in strategic industry verticals, and the final day focuses on crucial requirements and considerations when making purchasing decisions for specific product categories.

Other new features include the Intersec Government Summits, a series of roundtable discussions led by government authorities; the Intersec Energy Industry Focus Day that analyses new approaches to safety, security and fire protection in the oil and gas industry;

and a series of workshops and certification courses in the Intersec Academy.

Popular highlights from previous events are returning again, including the Intersec Future Security Summit.

"The Drones Pavilion and an indoor Drone Zone, a Safety Design in Buildings Pavilion in the Fire & Rescue section, as well as an Outdoor Demonstration Zone of the latest fire rescue applications in action will all be back again in 2020," added Rex.

"With less than a year away until the Dubai Expo 2020, we're expecting some important strategic partnerships to be announced, while as is customary, many of the 1,200-plus exhibitors will use this platform to launch their latest products in the global marketplace."

Intersec is supported by the Dubai Police, Dubai Police Academy, Dubai Civil Defence, the Security Industry Regulatory Agency (SIRA), and the Dubai Municipality. Further, a 35 international government partners, trade associations, and non-profit institutions are set to participate. ■

More details about the exhibition are available at: www.intersecexpo.com.

Construction activity boosts market

The global crushers and screeners market will double in value to US\$4mn by 2026 thanks to the construction boom happening across the world. Samantha Payne reports.

THE NUMBER OF people living in cities could double by 2050 to 6.5 billion worldwide, according to the United Nations. In Africa, the continent's population is expected to reach 2.4 billion by 2050, with 20 per cent of people predicted to live in cities.

To meet soaring population growth, more roads, port infrastructure and housing are needed, which in turn means more demand for sustainably produced rock and sand as basic building components.

Mobile crushers and screeners, are becoming increasingly the customers' preferred choice of machine to process materials onsite



Metso's mobile crusher: the Lokotrack Urban LT106S.

Photo Credit: Metso

Step in crusher and screener companies, such as Metso Corporation and McCloskey, offering innovative rock and mineral processing technologies to provide aggregate for construction purposes.

Some of the main players in the mobile crushers and screeners industries include Metso Corporation, Terex Corporation, Sandvik AB, SBM Mineral Processing Gmby and Thyssenkrupp, all of which have an active presence in Africa and the Middle East.

According to Persistence Market Research (PMR), the mobile crushers and screeners market is estimated to witness a CAGR of 7.4 per cent from 2018 to 2026, with a value estimated to reach around US\$4mn.

Mobile crushers and screeners, are becoming increasingly the customers' preferred choice of machine to process materials onsite in order to reduce large construction capital and transport costs.

Metso Lokotrack Series reduces capital and haulage costs for customers. The



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Figure 1

machine is well suited for asphalt, construction and demolition waste crushing and helps the contractors recycle directly at the removal site. For densely populated areas, Metso has developed the unique Lokotrack Urban Series, with patented noise and dust encapsulation protection.

Juhamatti Heikkilä, manager, product safety from Metso Minerals told *Technical Review Middle East* and other members of the press during a visit in August to the company's headquarters in Helsinki, Finland that its Lokotrack LT106 mobile crusher, was "one of the industry's most famous mobile crushers in the business", and one of their best-selling machines.

With Lokotrack Urban unit, the noise protection distance can be cut by half. For example, in a typical hard rock processing application, the distance is cut from 400-

500 metres to 200 metres. For processing recycled material, the protection distances are significantly shorter.

Interestingly, Metso discovered operators could save 80,000 euros by onsite crushing, based on a construction site with a 20,000 tons crushing contract (200 t/h, 100 hours), see Figure 1.

By using a mobile crusher, such as one from their Lokotrack Urban Series, set to be featured at Expo 2020 Dubai next October, the onsite crushing eliminates the need of transporting aggregates and saves the customer approximately 40 euros per round trip to the quarry, this saving amounted to 80,000 euros altogether.

It's not only mobile crushers; Metso has a wide equipment offering for customers operating in quarries and contracting to match all their needs. This includes, for

example, jaw crushers, rock breakers, impact crushers, cone crushers, screens as well as mobile and stationary plants, life-cycle services and wears and spare parts.

Equally, the global screening bucket market is highly competitive and is expected to grow over the next five years.

MB Crusher is a major manufacturer in this market, with more than a 90 per cent share of the world market of crusher attachments. Among the companies making up the rest of the market are Steelwrist, Sandhurst, Vintec Equipment, BOSS and Frazivel.

The MB Crusher bucket is a unique solution for onsite crushing as it can turn any machine from an excavator, skid loader, loader to backhoe loader into a real jaw crusher. So far, 20,000 crusher buckets have been sold across the world.

Earlier this year at bauma 2019, the



The MB Crusher Bucket
BF120.4 in action

company announced the world's first patented multi-functional jaw crusher.

Since its first patented crusher bucket, MB Crusher has transformed many sites from a work area of "transit" into an independent operating centre with high performance and profitability.

A company spokesman said, "The population continues to grow, and with it the demand for raw materials. It's precisely for this reason that the waste material processing equipment sector has evolved so rapidly and brought cutting-edge solutions to construction sites. Solutions like the MB crusher bucket; a product that creates value, is good for the environment and brings in profit for the companies that use it."

MB Crusher has been operating in the Middle East and Africa since it started more than 15 years ago.

The MB Crusher Bucket BF120.4, is currently being used in the development of the US\$3.5bn Djibouti International Free Trade Zone. It has been mounted on a Volvo EC3800L excavator and can crush more than one million cubic metres of basalt for road

construction purposes.

The BF120.4 crusher bucket, suitable for operating machines exceeding 30 tonnes, has been designed to meet specific crushing requirements in quarries, landfills and for all aggregate recycling operations.


When *Technical Review Middle East* asked why customers should choose MB Crusher solutions, a firm spokesman said, "Our attachments provide onsite independence. One may all of a sudden do crushing and screening operations in the remotest parts of the country without depending on expensive and time-consuming transportation costs. They also eliminate a lot of labour issues when replacing manually executed jobs. This enhances consistency and efficiency. MB Crusher's application

areas are far reaching, from road construction sites to demolitions, to the laying of new pipelines, to mines and quarries to the disposal of railway sleepers and lamp posts.

"But also to large recycling centres where iron materials, foundry waste, glass and many other materials are recovered."

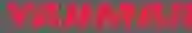
Thyssenkrupp premiered its new eccentric roll crusher ERC at bauma Munich. It is an innovative solution for the primary reduction of hard rock and ore. Its patented design with an integrated screen permits throughputs of up to 8,000 metric tons per hour. It is suitable for use in underground and in surface operations, offering higher efficiency and flexibility than conventional primary crushers. ■


The global screening bucket market is highly competitive and is expected to grow over the next five years.




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Digital twins: ideas in action

At YII 2019, Deblina Roy caught up with Bentley Systems executives to find out how digital twins enable 4D visualisation and analytics visibility to boost asset and network performance.



Photo Credit : Bentley Systems

The 2019 YII Awards winners.

IN SINGAPORE FROM 21-24 October, Bentley Systems' Year in Infrastructure (YII) 2019 gathered leading executives in the world of infrastructure design, construction and operations.

Providing a dynamic setting with a content-rich agenda, YII featured exclusive conferences and sessions. These included Academies Day, highlighting six Digital Advancement Academies, on the topics of BIM advancement, construction, constructioneering, research, reality modelling and process industries; industry forums to interact with thought leaders and learn about best practices; keynotes on how advancements in infrastructure,

supported by Bentley technologies, are changing the world and accelerating possibilities; and many others.

Greg Bentley, CEO of Bentley Systems, highlighted projects from the 2019 YII Awards nominees that exemplify advancements which go beyond BIM to digital twins. He concluded with a roadmap of non-disruptive steps to help make infrastructure engineering digital twins a major business benefit of every organisation's ongoing digital strategy.

Digital twins enter the mainstream

Bentley Systems announced new iTwin Cloud Services for infrastructure

engineering digital twins. iTwin Services enable engineering firms to create, visualise and analyse digital twins of infrastructure projects and assets. iTwin Services federate digital engineering content from BIM design tools and multiple data sources, enable "4D visualisation" of digital twins, and log engineering changes along a project/asset timeline, to provide an accountable record of who-changed-what-and-when.

At YII 2019, the company announced new capabilities for its ProjectWise collaboration platform and comprehensive expansion of its Synchro 4D construction environment. Together, the solutions extend the value of project digital twins across the entire project delivery ecosystem, improving design and constructability coordination workflows.

New ProjectWise 365 cloud services, leveraging Microsoft 365 technology and office productivity tools, extend the reach, affordability and accessibility of BIM and infrastructure design data for organisations of all sizes. In addition, with Bentley's new Synchro cloud services, contractors can 4D-visualise design data and construction models for project and field management, advanced work packaging and Microsoft

To gain and act on insights that impact the performance and reliability of infrastructure assets, and also of the networks which connect them, digital twins must provide live and accurate physical and engineering data across time, effectively in 4D.

HoloLens 2 augmented reality solutions.

Noah Eckhouse, senior vice-president, project delivery for Bentley Systems, said, "We are expanding our instant-on, web-based ProjectWise 365 cloud services; making iTwin cloud services broadly available for both practitioners and project-level design reviews; and comprehensively expanding the scope of Synchro through cloud services. Infrastructure project delivery is fundamentally about time, as well as space."

To close the 'construction' advancement gap, Bentley Systems and Topcon Positioning Systems announced that its jointly owned company – Digital Construction Works – is open for business, with a full global staff of digital construction experts. Digital Construction Works provides digital automation, integration, and "twinning" services around a portfolio of fit-for-purpose software and cloud services, from Topcon, Bentley, and other software vendors, to realise the breakthrough potential of construction, for industrialising construction.

From vision-to-reality

Speaking exclusively with *Technical Review Middle East* about how digital twins boost productivity for transportation projects, Dustin Parkman, vice-president of civil infrastructure at Bentley Systems, said that digital transformation is driving efficiencies across the design, construction and operation cycles of today's infrastructure, and digital advancement is the key to overcoming many infrastructure challenges.

"Digital twins are useful in providing a lot more digital context for the decision making – everything from land acquisition to understanding the subsurface impact. There are a lot of instruments and tooling apps right now which are revolutionising digital data acquisition. There are lots of different survey tools such as photogrammetry, reality modelling software, terrestrial survey data acquisition and analysis solutions and many more that are highly capable of being able to deal with the data at a massive scale, rather than an isolated scale.

"On the planning side, there is a broader context whenever you build a transport network. There are different factors to address, such as how the project is going to perform with the general public, with other road and rail networks systems, pedestrian areas, green spaces and all such kind of things. So, from the planning standpoint, you will get a lot more information with digital twins. Just five years ago, the same



At the keynote presentation, Greg Bentley, CEO of Bentley Systems, highlighted advancements which go beyond BIM to digital twins.

project was time and cost-prohibitive. Digital twins and other new technologies help infrastructure practitioners and their network of collaborators to make better decisions, save time, reduce costs and accelerate quality improvement."

According to Anne-Marie Walters, global marketing director at Bentley Systems, digital twins leverage technologies including reality modelling, along with the information received from sensors and other systems. The goal is to provide the high potential to optimise asset performance for the process industry.

"The new PlantSight cloud-based solution has been specifically designed to deliver digital twins to the process industry. PlantSight provides visual and contextual plant awareness and situational intelligence in a consolidated and validated information model for a digital twin. Engineers can

analyse that data (with advanced analytics and machine learning) to manage asset performance and reliability within a connected data environment. PlantSight enables asset owners to achieve maximum effectiveness in the execution of business objectives by deploying scarce resources in the smartest and most efficient manner."

Alan Kiraly, senior vice president, asset and network performance for Bentley Systems, said, "In order to truly gain and act on insights that impact the performance and reliability of infrastructure assets, and also of the networks which connect them, digital twins must provide live and accurate physical and engineering data across time, effectively in 4D. Through the accessibility of cloud and web services, and our open-source platform for immersive visualisation and analytics visibility, AssetWise Digital Twin Services will enable all AssetWise users, and new users, to broaden the benefits of going digital more comprehensively."

"The broad acceptance of BIM has substantially benefited the industry professionals and projects over the last 15 years, but now – with cloud services, reality modelling, and advanced analytics – we can advance BIM through digital twins," said Santanu Das, senior vice-president, design integration at Bentley Systems.

"With the use of digital twins, the operators can open up the engineering data in a BIM model with its constituent digital components as a starting point, continually refresh the digital context with drone surveys and reality modelling, and – this is where it gets really exciting – continue to model and simulate the fitness for purpose of an asset over the digital chronology of its lifecycle. Finally, the value of the engineering data in a BIM model can extend beyond handoff to construction, and even beyond handover to operations, assuring and improving both project and asset performance," Das further added. ■

With the use of digital twins, the operators can open up the engineering data in a BIM model with its digital components as a starting point, continually refreshing the digital context with drone surveys and reality modelling.

Al Masood Power unveils mobile electric power generator

AL MASAOOD POWER Division has unveiled the first-of-its-kind locally produced mobile Electric Power Generator solution with MTU Diesel genset for emergencies in the UAE at WETEX 2019.

Presented as one of the most reliable mobile electricity generators, specifically tailor-made for the Dubai Electricity and Water Authority (DEWA), the new solution is set to provide immediate power supply to fit the demands of any emergency, on- or off-road.

Al Masood electric power generation truck incorporates a world-class MTU Diesel Generator 20V4000 DS2750, and will provide a baseload bridge to permanent power installations or to backup power in the wake of any emergency, plant shutdowns, or grid instability in the city and in isolated locations as well.

Capable of producing up to 2,500 kVA of prime power, sufficient to light up over 120 households on average at once, and mounted on a 5-axes of 10X8 truck, Al Masood's latest emergency generator is currently the biggest transportable generator ever produced in the UAE and is projected to become an essential aspect in future industries, urban areas and residential complexes.

Mecc Alte presents new X-Type series for turning up power

MECC ALTE POWER Products has launched the X-Type Series to offer a complete range of medium to high voltage alternators with protection systems.

The X-Type Series features two new products, including the ECO43 and ECO47 medium and high voltage series.

The ECO43 offers up to 1,300kVA while the ECO47 medium and high voltage products provide up to 3,900kVA to deliver high voltage products which offer maximum performance per cost ratio.

Designed using the latest winding and insulation technology, alongside already proven components, the ECO43 and ECO47 deliver durable performance and simplified maintenance for faster installation and improved OPEX through common parts and reduced inventory requirements.

CAT introduces updates to PM310, PM312 and PM313 cold planers

CATERPILLAR HAS ANNOUNCED new updates to the PM310, PM312 and PM313 Cold Planers. The PM300 Series is suitable for small-to-medium job sites where compact dimensions, optimum maneuverability and high production capabilities are required. Wheel or track undercarriage designs are available for each model.

The CAT C9.3 engine is now available with 249 kW of power, a three per cent increase. Along with additional power, these machines also meet US EPA Tier 4 Final and EU Stage V emission standards.

Improved visibility and ergonomics

The CAT PM300 Series machines have improved visibility features with a sliding operator's station, optional camera, and an auxiliary power connector for additional lighting. The new sliding station extends beyond the machine frame, approximately 215 mm (8.5 in.), providing operators with optimal visibility and line of site when following an edge.

These machines can be equipped with an optional camera that mounts above the cutter box to improve visibility. The camera can be viewed through an LCD display at the operator's station enabling the operator to make closer cuts

Photo Credit: CAT



The PM300 Series is suitable for small-to-medium job sites.

next to obstacles. With the addition of the sliding station, an armrest has been added to the right side to improve comfort.

An optional auxiliary power connector located near the back of the machine accepts nighttime balloon lighting additions.

Servicing the rotor is now easier with an integrated rotor turning system. The hydraulically operated turning device controls the position of the rotor with a two-button pendant that simplifies bit removal and replacement.

System K rotors optimised

CAT cold planers are available with the CAT System K milling rotors and feature efficient material flow with an excellent cutting pattern. Rotors are available with spacings of 8 mm, 15 mm and 18 mm for a wide range of milling applications. The dual taper retention design provides a reliable method for holding the tool holders in the blocks without the need for a retaining pin or bolt.

Reversible paddles and high strength alloys offer more resistance to

abrasion and reduce wear for extended rotor life.

Optional CAT diamond bits feature a new design for System K rotors and last up to 80 times longer than conventional carbide bits to extend intervals between bit maintenance, increase production and reduce costs. CAT diamond bits are sharper than conventional carbide bits, for faster cutting, reduced dragging and better fuel economy.

Inmesol presents C-Genset with cylindrical canopy

EMBRACING NEW AND improved designs for its generators, Inmesol has launched its latest C-Genset 40kVA PRP generator set with a cylindrical canopy.

Designed to blend into contemporary architecture, Inmesol's C-Genset features include reduced height and width, and a lighter, more compact design.

On the manufacturing front, material consumption has been optimised to the maximum for the new canopy with a 20 per cent reduction in weight and a 40 per cent reduction in volume, thereby reducing the environmental impact. All the features of a conventional genset of similar power have been retained.



Photo Credit: Inmesol

40kVA PRP generator set with cylindrical canopy.

The new design follows 20 years after Inmesol had upgraded the design of its genset canopy – adding rounded corners and edges to protect against possible damage from bumps, making it more robust and improving the aesthetics of the equipment.

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Epiroc unveils Pit Viper 270 XC series blasthole drilling rig

EPIROC HAS INTRODUCED the Pit Viper 270 XC series that delivers application flexibility, fuel-efficient performance and enhanced safety with operator comfort and ease of maintenance.

The Pit Viper 270 series, a mining industry staple, can now be configured with the XC package (where XC stands for extra capacity) to provide 42.5 tonnes bit load capacity.

Epiroc's PV-270 XC series delivers a hole diameter range up to 311mm. This is available in both the multi pass and single pass offering which provides a clean hole of 16.8m and 18m. The PV-270 XC builds on the high industry standard of performance and innovation of the Pit Viper 270 series.

With the Epiroc Rig Control System, the PV-270 XC can be run with an operator on-board using options such as AutoDrill and AutoLevel – or it can be run with the operator off the drill with the optional BenchRemote package, enabling one operator to run one or multiple units. It provides a foundation to add new functionality and options later without a major rebuild of the machine. Autonomous drilling can be implemented with almost no human interaction with the drill.

Demilec launches spray foam insulation products for Middle East market

DEMILEC, A SUBSIDIARY of Huntsman Corporation, has launched several spray foam insulation products for the Middle East market and the opening of its spray foam technical application and training centre in Dubai.

The spray foam insulation products include Heatlok, HFO Pro, Heatlok XT, Sealection 500 and Agribalance.

"Having launched in Europe earlier this year, we are excited to take this next step in expanding our global footprint to better serve customers in the Middle East," said Simon Baker, Demilec president.

The Demilec technical application and training centre is located on the site of Huntsman's polyurethanes systems house in Dubai, which will serve as the regional base for the Demilec business.

The technical and training centre features state-of-the-art equipment, including the Graco reactor system.

Kalmar introduces new-generation heavy-duty forklift for metal industries

KALMAR, PART OF Cargotec, has announced a new-generation version of its forklift solution for demanding loads of up to 54 tonnes. The Kalmar DCG380-540 is designed to offer the heavy-lifting power needed to handle the heavy loads typically seen in the stevedoring and metal industries combined with the smooth, precise control of a smaller-capacity machine.

The new Kalmar heavy forklift offers a completely new lifting experience for heavy-duty, high-capacity forklifts, with improved lifting and lowering speeds combined with load-sensing hydraulics to ensure smooth, safe handling of challenging loads. It features built-in connectivity as standard to enable customers to take advantage of the Kalmar Insight performance management tool, which provides a clear overview of fleet operations and helps to turn data into actionable, impactful insights.

The new forklift features the Kalmar EGO cabin, with industry-leading ergonomics and unobstructed visibility right around the machine. The cabin setup can be fine-tuned according to driver preference to ensure safe, comfortable operation and optimal productivity. The Kalmar DCG380-540 offers modular flexibility in terms of lifting capacities for different wheelbase options, providing customers with the opportunity to specify machines with greater lifting capacities on smaller wheelbases.



The Kalmar DCG380-540.

Photo Credit: Kalmar

The Kalmar DCG380-540 is available globally and replaces the previous-generation model, the DCF370-520.

Stefan Hultqvist, vice-president, Forklifts, Kalmar, said, "The Kalmar DCG380-540 makes the big challenges easy. We wanted to develop a solution that would offer customers who are handling heavy, demanding loads on a daily basis the same smooth operation, comfort and precise control of a smaller-capacity machine. Driver experience has a very important role to play in enabling improvements in productivity and safety, and we believe this new solution delivers exactly what our customers need."

Easily automate PCB traceability with Brady's solution

BRADY HAS DEVELOPED a solution to automate printed circuit board (PCB) identification processes on surface-mount technology (SMT) lines in order to save time and increase efficiency.

Photo Credit: Brady



The complete traceability solution.

The solution can connect every circuit board in production for a smart factory set up. With Brady's solution, circuit boards can generate data and send these to a manufacturing execution system, to other machines and production cycles, or to the supply chain both upstream and downstream.

Brady's printed circuit board labels are designed for auto-apply and can keep 2D codes and barcodes legible in PCB manufacturing conditions so they can be read by scanners throughout a production process.

A fully automated printed circuit board labelling solution can enable traceability and manufacturing data analysis without human interference. Brady can offer several automation solutions depending on the needs of an organisation.

Cummins presents Euro VI grade X12 engine for touring and intercity coaches

CUMMINS HAS INTRODUCED the X12 engine with up to 360kW output for powering touring and intercity coaches. Certified to the Phase-D stage of Euro VI regulations, the X12 incorporates a highly efficient in-cylinder combustion formula eliminating the need for exhaust gas recirculation (EGR).

Other advanced design features include techniques to minimise friction losses and a weight-saving sculptured engine block. The result is a fuel-saving 11.8-litre engine under 920 kg, but with heavy-duty strength and on-road performance required for 12-15m high deck coaches.

The high flow air-handling system of the X12 gives a faster pedal response to enhance driveability at full vehicle loading, together with a rapid gradient climbing ability. A high peak torque of up to 2300Nm is delivered across a wide engine speed range, so less shifting is needed, and less fuel is used.

The sculptured block design allows unnecessary mass to be removed, but retains rigidity. Substantial weight savings are achieved by using high-strength composite materials for the oil pan and valve cover. A vital design approach with the X12 was to minimise friction losses throughout the engine, including the water pump, gear train, lube system and power cylinder.

The XPI fuel system on the X12 is derived from the more powerful X15 engine, with Cummins injection technology enabling smooth and rapid engine response to increasing vehicle demands, while minimising fuel consumption. XPI also contributes to reducing engine noise, vibration and harshness (NVH) to provide a more relaxed journey.

The EGR-free X12 lowers heat rejection by around 40 per cent compared with that of similar engines using cooled EGR, allowing the full power potential of the X12 to be realised while meeting Euro VI Phase-D.



Photo Credit: Cummins

X12 gives a faster pedal response to enhance driveability at full vehicle loading.

Scania reveals the Scania AXL, an autonomous concept truck without a cab

A GROUP OF Scania experts in different fields have teamed up and developed a concept truck, which, even without the cab, has the company's modular system at the heart of the design.

"With the Scania AXL concept truck, we are taking a significant step towards the smart transport systems of the future, where self-driving vehicles will play a natural part," said Scania's president and CEO Henrik Henriksson. "We continue to build and pilot concepts to demonstrate what we can do with the technology that is available today."

For autonomous vehicles, software is in many ways more important than hardware. Scania AXL is steered and monitored by an intelligent control environment. In mines, for example, the autonomous operations are facilitated by a logistics system that tells the vehicle how it should perform.

"We already have self-driving trucks in customer operations. However so far, they have been with room for a safety driver who can intervene if necessary. Scania AXL does not have a cab and that changes the game significantly," said Claes Erixon, head of Research and Development at Scania. "The development in self-driving vehicles has made



Photo Credit: Scania

Cabless concept vehicle by Scania.

great strides in the past years. We still don't have all the answers, but through concept vehicles like Scania AXL we break new ground and continue to learn at great speed."

The combustion engine that powers the concept vehicle is an example of how traditional and new technology is mixed. It is advantageously powered by renewable biofuel.

The robust and powerful features and design behind Scania AXL match the tougher environments in mines and large construction sites. A new intelligent front module replaces the traditional cab, but even without a cab the concept is easily recognisable as a Scania.

Thuraya launches advanced maritime voice solution

UAE-BASED THURAYA HAS launched the maritime voice solution MarineStar with advanced two-way tracking and monitoring capabilities.

It is based on the same successful platform as other Thuraya voice hardware that have sold in excess of one million units to date. Quick and easy to install, Thuraya MarineStar is a one-stop solution for a wide range of operations including vessel tracking and monitoring, crew welfare and voice communications.

Thuraya MarineStar is suitable for small vessels, and highly scalable to satisfy the operational requirements of larger vessels. The service will be available through Thuraya's global distribution network, and will cover the world's busiest sea routes and fishing hotspots within the Thuraya satellite footprint.

Shawkat Ahmed, chief commercial officer of Thuraya, said, "Thuraya MarineStar represents a new and important chapter in Thuraya's maritime portfolio."

Thuraya MarineStar offers functionality in multiple languages to users and system integrators. A range of physical interfaces will support multiple sensors and third-party devices.

Sensus launches smart utility solution Cordonel for water management

SENSUS HAS UNVEILED its new ultrasound static water meter, Cordonel, that has been designed to help achieve a smarter utility network.

A versatile metering system, Cordonel helps users manage distribution networks more efficiently, thereby contributing to better water resource management, through accurate and reliable data.

Sensus showcased Cordonel, along with its suite of innovative solutions, at Wetex 2019 in Dubai. The product is suitable for any commercial and industrial application – right from water distribution supply to irrigation management.

Some of Cordonel's features include three measuring paths that make installation easy and embedded communications for real-time data transmission for all aspects of the network, such as leakage and wear and tear.

Man Energy releases Mk3 injection pump for Man 32/40CD engines

MAN PRIMESERV, THE after-sales division of MAN Energy Solutions, has released a patented Mk3 injection pump for the four-stroke MAN 32/40CD engine.

With implemented IMO Tier III regulations and the associated shift to a wider range of fuel oils including – from 2020 – ultra-low-sulphur fuel oils, maintenance professionals increasingly face greater challenges concerning fuel injection during engine operation. This includes the risk of lacquering of the fuel-pump plunger and resultant sticking and malfunction, which the Mk3 pump efficiently and reliably reduces. The new pump is significantly more environmentally friendly and cost-effective than previously.



The new Mk3 injection pump.

“MAN 32/40CD fuel pumps can be upgraded through a simple change of existing pump element units, regulators and drives, and parts that you change during a standard maintenance,” said Stefan Eefting, senior vice-president at Man PrimeServ. “We think this a very economical solution and believe that the exchange of the Mk3 injection pumps is an easy and efficient one that allows the re-use of the original Mk1 pump housings – it is the next-level evolution.”

Torsten Dehn, product manager at Man Energy Solutions, said, “Having identified potential problems associated with the imminent, increased diversity of fuel types, Man has redesigned the Man 32/40CD injection pump.”

Man will manufacture the pump completely in Germany with Man PrimeServ responsible for its distribution.

Powerscreen set to launch Premiertrak 330

POWERSCREEN IS PREPARING to launch its new jaw crushing range, the Powerscreen Premiertrak 330. The new Premiertrak 330 is fitted with a simple large fixed hopper, manufactured from an 8mm wear plate, improving set up time, reducing pegging and increasing the life of wear parts. The hydrostatic drive allows reversibility of the chamber, meaning the machine can unblock and run in reverse, allowing easier crushing of certain materials. In addition to this, a low engine speed improves fuel consumption and provides lower noise emissions for working in urban or restricted areas.

These benefits can provide customers with exceptional levels of reliability, efficiency and performance.

Neil Robinson, Powerscreen product manager, said, “The Premiertrak 330 is a solid addition to the Powerscreen jaw crushing range. The



Premiertrak 330 by Powerscreen.

lightweight machine, weighing less than 35,000kg with options, boasts a number of new features. The Premiertrak 330 has been designed to promote an easy and effective flow of material to minimise any potential build-up, therefore maximising uptime. Contributing to this is a two piece grizzly feeder with the second section angled which allows a better material flow towards the chamber and prevents bridging.

The Premiertrak 330 crusher uses a 1000mm x 600mm (40” x 24”) jaw chamber and is capable of producing up to 280tph (308 US tph) of crushed material. It can be used in a range of applications including aggregate, recycling and mining.

All Powerscreen crushers come with the ground-breaking Pulse Intelligence system as standard. Powerscreen Pulse is a remote monitoring, fleet management system allowing crushing and screening equipment operators and owners to have unrivalled access to key data. This data has

the power to revolutionise operations, and analysing it can mean improved machine operation, increased uptime, in-depth reporting and fleet management.

A-Safe unveils new barrier range for cold storage environments

WORKPLACE SAFETY INNOVATOR A-Safe has launched a new range of safety barriers specifically designed for sub-zero temperatures.

The new cold storage range has been engineered to provide the highest levels of protection to pedestrians, assets and infrastructure in temperatures as low as -30°C.

The products have been engineered using Memaplex Sub-Zero, a new material specifically developed for use in cold storage environments. Created from a unique blend of polymers, Memaplex Sub-Zero is designed to flex and withstand impacts without cracking or fragmenting. It is food-safe, wipe clean and self-coloured for maximum hygiene and ease of care.

Cold storage barriers incorporate the patented A-Safe three-phased coupling system, which works in three sequential stages to cushion impact forces and dissipate energy through the barrier and away from fixings. This prevents damage and preserves floors, reducing costs and downtime associated with repairs and maintenance.

Luke Smith, A-Safe co-owner and managing director, said, “As a company, we are always striving to solve customer problems. We identified that there were no purpose-designed



Cold storage barriers incorporate the patented A-Safe three-phased coupling system.

polymer safety barriers specifically for frozen food storage facilities. Typically, when plastic is cold it becomes brittle and therefore, less effective. However, Memaplex Sub-Zero has been scientifically engineered to deliver optimum protection and flexibility in very cold environments.”

From the robust rack protection of Rack Guard to resilient compliant fork protection, bollards, barriers and height restrictors, the cold storage range offers a full suite of premium safety products for applications within cold storage facilities.

PowerCell presents new version of MS-100 fuel cell system

POWERCELL SWEDEN HAS developed a new and improved version of its MS-100 fuel cell system, which was presented at the Fuel Cell Seminar & Energy Exposition in the USA.

The new MS-100 is 30 per cent more compact and has improved operating life time as well as robustness for demanding applications on land and at sea.

It has been developed for marine applications and off-road applications such as construction and material handling equipment which demand reliable operation, high power output and flexibility.

The MS-100 is designed to withstand vibrations to ensure a long service life while providing quick and smooth start-up regardless of weather conditions. It offers a maximum power output of 100 kW and by connecting systems in series.

The MS-100 system is based on the PowerCell S3 fuel cell stack, which features compact metallic bipolar plates with large active area and membrane electrode assembly (MEA) to deliver a minimum operating lifetime of 20,000 hours.

Al Tayer Motors launches Ford Trucks' F-Max in the UAE

AL TAYER MOTORS, the official Ford Trucks importer-dealer in the UAE, has launched the '2019 International Truck of the Year' title-winning F-Max in the UAE.

The F-Max combines features such as a powerful engine, fuel efficiency, cabin comfort and competitive cost of ownership, said Ashok Khanna, CEO, Al Tayer Motors.

"F-Max, with its 2.5-metre full-width cab and 500 PS engine power, becomes a major player in the international transport industry. The new Ford Trucks F-Max, is a global player with its 12.7 litre, 500 PS, 2500 Nm Ecotorq engine and 400 kW braking power," commented Abdullah Bahattin Topçu, managing director for the Middle East and Africa, Ford Trucks.

According to him, the new tractor aims to decrease maintenance costs and offer longer

maintenance intervals up to 60,000km, delivering lower total cost of ownership. This new tractor is the product of five years of research and development. The F-Max has a flat floor providing 2,160mm of floor-to-ceiling height and provides a range of storage that is roomy and easily accessible. The vehicle's three-level door opening angle provides easy accessibility.

Technical features include E- Auxiliary Power Unit (E-APU) technology, eco-roll function and predictive cruise control (Max Cruise).

The new F-Max is empowered by a variable-geometry turbocharger, a water pump and compressor with multiple working speeds, 400 kW engine brake power which achieves 1,000 kW total braking power with the optional interarder.



Photo Credit: Al Tayer Motors

F-Max 2 by Ford Trucks.

Benefit of MB Crusher attachments in green demolition

WITH MB CRUSHER attachments, contractors have the advantage of crushing and screening the existing materials onsite, eliminating the need to load demolished material onto trucks or dumpers and take it to a waste dump, and saving money over buying in new materials. For road construction works, it's possible to crush the material and reuse it directly on site as subbase, drainage filling and trench filling.

Using MB Crusher products such as BF80.3 and BF90.3 in a demolition process can save 80 per cent of the waste from the landfill. Selective demolition – green demolition or deconstruction with right machinery – allows operators to save time, money and landfill transfer costs.

Selective demolition, therefore, is the first step towards a circular economy in which construction values specified obtained waste, according to MB Crusher. The quality of the result depends on the demolition process and the machinery used to separate and process the resulting materials.



Photo Credit: MB Crusher

BF80.3 by MB Crusher.



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صناعة النفط والغاز تواجه اليوم تحديات رئيسية

لتحصول على قياسات جيولوجية للبت، ويتم ذلك عن طريق إزال أدوات التسجيل التي يمكن أن تكلف ما يصل إلى 500 ألف دولار أمريكي في حقول النفط البحرية. ومن أجل خفض التكاليف في خليج المكسيك، قامت شركة شل (Shell) بتجربة خدمات كوانتيكو لسجلات الآبار الاصطناعية. إلا تقوم كوانتيكو بتطوير سجلات الآبار من بيانات الحفر الديناميكية. وينتج البرنامج سجلات، مثل القس أو الضغط، باستخدام بيانات الحفر مثل WOB أو ROP. وبمساعدة شل (Shell) أنشأت كوانتيكو سجلات للآبار الموجودة في أوبواتوكس كجزء من التجربة. ولوضحت التجربة أن سجلات كوانتيكو الصوتية وسجلات الكثافة كانت دقيقة بنسبة 95 في المائة. ومن خلال عمليات النشر المستقبلية، يمكن لشركة شل توفير أكثر من 80 في المائة من تكاليف التسجيل عن طريق تقليل العمالة وأتمتة التسجيل. وتعد شركات لنتفط المستقبلية - في الواقع - شركات تكنولوجية. في حين أن معظم القادة الرقميين في شركات لنتفط والغاز اليوم مشغولون في توسيع نطاق التكنولوجيا الرقمية في جميع شركاتهم. سيؤدي هذه المرحلة - في النهاية - إلى حصة جديدة من شركات النفط والغاز التي توصف بأنها شركات "تقنية" أكثر من كونها شركات لنتفط تقليدية. وستكون هذه المؤسسات في طليعة الابتكارات التي تمكن من الأداء في البيئات البعيدة - مثل السحابة الهجينة والحيل الخاص، والتوائم الرقمية. علاوة على ذلك، سوف يتكبرون بطريقة مماثلة بما تقوم به شركات التكنولوجيا - أي تنفيذ ونشر منتجاتها بشكل أسرع وأكثر مرونة وكفاءة وتنفيذ عمليات التشغيل. كما ستركز شركات تكنولوجيا النفط أيضا على التحديات التي تواجه الشركة التقنية المتمركزة في وادي السليكون مثل الأمن السيبراني ومشاركة البيانات على مستوى المؤسسة.

مؤتمرات الفعاليات 2019

نوفمبر/تشرين الثاني

8 - 5	الطاقة الموزعة - أوروبا	ريمي/إيطاليا
24 - 25	منتدى دبي للصحة والسلامة والبيئة	دبي
25 - 28	معرض بيغ فايف	دبي

ديسمبر/كانون الأول

9 - 11	معرض الخليج للمرور	دبي
10 - 12	مؤتمر السعودية للشبكة الذكية	جدة

3 - القوى العاملة - السلامة والتقاعد: تظل سلامة العمال مسؤولية الصناعة التي تؤدي إلى تكاليف كبيرة. علاوة على ذلك، تقاعد معظم العمالة الماهرة، مما يؤدي إلى فقدان المعرفة.

4 - سلسلة الإمداد، السياسة، مع وجود جزء كبير من الطلب على النفط والغاز الآن من دول آسيوية كالهند والصين، تتجه سلاسل الإمداد والجغرافيا السياسية حول النفط تدريجياً نحو الشرق. ومع ذلك، فإن القضية الأساسية التي يواجهها مشغلو قطاع النفط والغاز هي من طبيعة الصناعة ذاتها. وأكبر معوق للنمو تواجهه شركات النفط هو الطبيعة المتقلبة لأسعار النفط. بعد مرور خمس سنوات من انهيار أسعار النفط في عام 2014، عندما وصل سعر خام غرب تكساس الوسيط إلى 28 دولاراً أمريكياً للبرميل، لا تزال الصناعة تعيد تحديد موقعها. فلم يعد يوسع شركات النفط تعريز ربحيتها من خلال كسب إيرادات أعلى بسبب أسعار النفط العالية. وبدلاً من ذلك، ينعين على الصناعة أن تنمو حواملها بسعر 50 دولاراً للبرميل إلى 60 دولاراً للبرميل عن طريق خفض تكاليف التشغيل والتكاليف الرأسمالية.

ويحسب للصناعة قيامها بعمل جدير بالثناء، فقد أعادت نمو التدفق النقدي الحر في عام 2018 إلى مستويات أعلى من عام 2011. ومع ذلك، فقد زاد من تعقيد هذا التحدي التباطؤ المتوقع والانخفاض النهائي في الطلب على الهيدروكربونات في مستقبل منخفض الكربون. وباختصار، ينعين على مشغلي النفط والغاز الاستمرار في تنمية الهوامش في صناعة سيؤكف فيها الطلب، بينما تنمو فيها المنافسة.

نتائج التحول الرقمي

يتغير التحول الرقمي قيمة لكل وظيفة من وظائف الشركات من خلال تفعيل ست نتائج أساسية. تمثل هذه النتائج الست لبنات بناء عالم الأهداف لمشروعات التحول الرقمي. إذ يهدف تنفيذ أي تقنية تحول رقمية إلى تحقيق نتيجة أو أكثر من هذه النتائج، والتي تعزز التأثيرات التجارية محددة.

- 1 - الكشف عن الرؤى غير المرئية: إيجاد رؤية من خلال تحليل إشارة أو مجموعة من الإشارات التي لا يستطيع البشر تفسيرها بسهولة.
- 2 - التنبؤ بالمستقبل: تحديد النتيجة الأكثر ترجيحاً للموضع المستقبلي - نوع معين من البصيرة غير المرئية.
- 3 - الأتمتة: القضاء على تدخل الإنسان في العمليات أو المهام أو القرارات أو تظليلها.
- 4 - التحسين: إيجاد نقاط الضغط المثلى في ضوء مجموعة من القيود - نوع معين من البصيرة غير المرئية.
- 5 - تسهيل الوصول إلى المعلومات: جعل المعلومات مرئية وواضحة.
- 6 - الالتقاء بمهارات البشر: منح البشر مهارة لم يتمتعوا بها من قبل.

دراسات الحالة

أتمتة العمليات هي أتمتة مجموعة من المهام البدنية أو الحسائية التي تكون بسيطة ومتكررة في كثير من الأحيان، والتي يمكن أن يؤديها الإنسان. على سبيل المثال، تقوم شركة أيروسبيك (Aerospec) بتطوير تحليلات البيانات المرئية معتمدة على الطائرات بدون طيار ومتصلة الذكاء الاصطناعي لأتمتة عمليات التفتيش وتبسيط كفاءة التشغيل والصيانة للأصول الشمسية. وتعاون شركة إكسون موبيل (ExxonMobil) مع ست شركات لتنفيذ أنظمة أتمتة العمليات المفتوحة (OPA) واختارت شركة بوكوجاوا إنكوريك (Yokogawa) لتكون قاعدة الاختيار الآلية لعملية تنفيذها بحلول الربع الأخير من عام 2019. كما تقوم شركة فيجن روبيوتيكس (Viaion Robotics) بتطوير حلول رؤية الكمبيوتر ودمجها مع الأجهزة اللازمة لإنشاء معدات زراعية آلية (مثل، المرفق، المشدب، العمادة).

كما يعد تسجيل الأداء أثناء الحفر (LWD) عملية تتم عند عمليات التنقيب والإنتاج

التحول الرقمي في قطاع النفط والغاز

تعتبر الرقمنة في قطاع النفط والغاز أمراً ذا أهمية كبيرة في مجال الصناعة. فقد بدأ الخبراء في إدراك الفوائد الهائلة التي يمكن أن تحققها الرقمنة في هذا الصدد. وتوجه شركات الطاقة سريعاً إلى اعتماد الرقمنة للحفاظ على استدامتها وتنافسيتها من خلال اتباع نهج خفض تكاليف الإنتاج والتنقيب. هذا بالإضافة إلى أن شركات النفط والغاز في الشرق الأوسط تعمل على زيادة استثماراتها في التحول الرقمي بغرض زيادة إنتاجها.

ذكر تقرير توقعات الطاقة الخاصة بشركة بي بي لعام 2019، أن الشرق الأوسط لا يزال أكبر منطقة منتجة للنفط وثاني أكبر منتج للغاز، إذ يسهم بحصة تبلغ نسبتها 36 في المائة من الإنتاج العالمي للنفط و20 في المائة من إنتاج الغاز. وقد علق نيل بن سوسيا، نائب رئيس مجموعة آي إي سي للاتصالات لشقاع النقل البحري (IEC Telecom Group) قائلاً: "تشير الدراسات إلى أن التحول الرقمي في صناعة النفط والغاز، من الآن وحتى عام 2025، يمكن أن يعمل على توفير ما يقرب من 1,6 تريليون دولار أمريكي للصناعة وعملاتها والمجتمع برمتها، وبإمكان الرقمنة توليد حوالي 1 تريليون دولار أمريكي لأعمال النفط والغاز، بالإضافة إلى خلق فوائد تقدر بحوالي 640 مليار دولار أمريكي للمجتمع ككل. ذلك أن القدرة على تسهيل تحسين الاتصالات الطاقم والاتصال بالإنترنت والأداء التشغيلي السلس، هي التي تشجع على إيجاد حلول جديدة، مما يجعل بحالة جديدة من الاتصال". وفي الوقت الحالي تواجه صناعة النفط والغاز أربعة تحديات رئيسية: هي تقلب أسعار السلع الأساسية، وتقلد القوى العاملة، والاقتصاد منخفض الكربون، والتحول الجيوسياسي، ويعتبر التحول الرقمي الحل الأمثل لخفض التكاليف وزيادة الإيرادات، ما يتكامل بعصر جديد من التحول الرقمي ذي الكفاءة التشغيلية، ونظراً لأن الصناعة تكافح من أجل توسيع نطاق رقمي ناجح في جميع الصناعات العالمية، فإننا نقدم إطاراً لتحديد التطبيقات التي بإمكانها التشر على مستوى المؤسسة لتجنب التشل على نطاق واسع. وقد خلص محللو، مثل شركة لوكس للأبحاث، إلى أنه على الرغم من أن غالبية التطبيقات سهلة بالفعل للتوسع، فإنها لا تحقق جميعها مكاسب مالية عالية، بل إنها لا تسهم سوى بحفنة من التطبيقات في دوافع القيمة الأخرى مثل الاستدامة، وبناء على ذلك، ومع تطور التحول الرقمي للصناعة، صار من المتوقع حدوث المزيد من التعاون الرقمي بين المشغل والمشغل، وإنشاء أسواق البيانات، وتأسيس شركات النفط "الرقمية"، وتوقف شركات الخدمات التقليدية بواسطة شركات البرمجيات العملاقة. وتواجه صناعة النفط والغاز - اليوم - سلسلة من التحديات التي أدت إلى انخفاض القيمة السوقية الجماعية لشركات النفط في العقد الماضي. وعلى مستوى أوسع، يمكن تصنيف هذه القضايا في المحاور الأربعة الرئيسية أذناد وهذه التحديات مدفوعة خارجياً بعوامل خارجة عن سيطرة الصناعة، ونتيجة لذلك، يجب أن تكون الصناعة استباقية للغاية للتغلب على مثل هذه التحديات، وتواجه صناعة النفط والغاز الحديثة الآن تحدياً من أربعة محاور تشجع على إعادة تشكيل القطاع.

- 1 - تقلب أسعار السلع: تم صناعة النفط والغاز - بشكل منظم - بفترة ركود تؤثر على عوائدنا المالية، وعلى الأخص انهيار أسعار النفط في عام 2014.
- 2 - الاقتصاد منخفض الكربون: مع الدور الذي تلعبه الحكومات في جميع أنحاء العالم على تشجيع كفاءة النقل البري، تعرضت شركات النفط لضغوط للحفاظ على النمو وتقليل انبعاثاتها.

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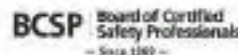
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