

TECHNICAL REVIEW

النشرة التقنية - الشرق الأوسط

MIDDLE EAST

Annual Construction Review 2023

ANNUAL CONSTRUCTION REVIEW 2023 INCLUDES CONSTRUCTION BUYERS' GUIDE 2023

THE ROAD AHEAD

THE REGION'S CONSTRUCTION INDUSTRY EMBRACES
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Inside

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EDITOR'S NOTE

WELCOME TO OUR special Annual Construction issue. On page 16, you can read all about the challenges of BIM and how the AEC industry can overcome them. We also shed light on the role digital twins can play in creating smart cities (p18), and how robotics can contribute to safer industry practices (p24).

Modular construction industry in the region is also bouncing back after the pandemic years, thanks to stakeholders' business continuity measures (p26). Meanwhile, companies across the region are looking to reduce embodied carbon (p28), while also looking to manage and treat water in smarter ways (p29,33).

Elsewhere in the issue, we feature an insightful piece on the role of AI in construction. And don't miss our feature (p34) on how companies are making construction smarter!

At Technical Review we always welcome readers comments to trme@alaincharles.com



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TECHNICAL REVIEW

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Briefly

Masdar issues first green bond

MASDAR COMPLETED ITS first green bond issuance for US\$750mn, in 10-year senior unsecured notes. The orderbook peaked at US\$4.2bn, meaning that it was oversubscribed by 5.6 times. Pricing tightened 35bps between launch and final terms, with a final landing spread of 115bps over US Treasuries and a coupon of 4.875%. Allocation was finalised with a split of 87.5% to international investors and 12.5% to MENA investors.

Net proceeds from this bond and future offerings will be used to invest exclusively in 'dark green' renewable energy projects, many of which will be in developing economies and climate-vulnerable countries that have a critical need for investment.

This bond is the first part of a programme to raise up to US\$3bn of bonds to meet Masdar's equity funding commitments on new renewable energy projects at home and overseas, as it seeks to grow its global portfolio to 100GW of capacity by 2030. Proceeds from all bond offerings under the programme will be deployed towards the greenest projects in the renewables sector, namely solar, wind, renewable power transmission and distribution infrastructure, and battery storage assets. Strict ESG criteria will apply to restrict the eligibility of projects.

Dr Sultan Al Jaber, UAE Minister of Industry and Advanced Technology, chairman of Masdar and COP28 president-designate, said, "We must champion initiatives that advance climate finance and decarbonisation. Today, the successful issuance of Masdar green bonds will support these twin aims, by helping to provide funding towards renewable energy projects where they are needing our ambitious growth plans, which includes maintaining our investment grade credit ratings from Fitch and Moody's."

Other firms who have issued green bonds in the region include Abu Dhabi National Energy Company (Taqa), Majid Al Futtaim, Aldar Investment Properties, and Dubai Islamic Bank. In February this year, Saudi Arabia's Public Investment Fund raised US\$5.5bn through the sale of a green bond.

Deyaar commences construction work in Dubai's Al Furjan district

UAE-BASED PROPERTY DEVELOPER Deyaar Development PJSC has begun construction on three plots in Al Furjan. These comprise of the Millennium Talia Residences and Amalia Residences, apart from a third project, which will be announced soon.

The total value of the projects will be approximately US\$82mn (AED 300 million). Once completed, the three plots will include residential units and hotel apartments,

apart from 371 diverse units consisting of one, two and three bedrooms.

The Millennium Talia Residences will feature furnished hotel apartments operated by Millennium Hotels & Resorts. Strategically situated at a convenient location in Al Furjan, the project will be the fourth property managed by Millennium Hotels & Resorts under Deyaar's portfolio, following Millennium Atria Business Bay, Millennium Mont Rose at Dubai Science Park and Millennium Al Barsha.

Amalia Residences will also offer residential units suitable for families, consisting of one, two and three bedrooms.

According to Deeyar, the project's location between Sheikh Zayed Road and Sheikh Mohammed Bin Zayed Road will offer convenient access to public transportation, Dubai's business districts and major tourist attractions.

Al Furjan is also well connected to malls,



The three plots will include 371 apartments.

Photo Credit : Deeyar

education and healthcare facilities, entertainment hubs, beaches and parks.

Commenting on the announcement, Ayman Al Hammadi, senior vice president for development at Deyaar, said, "We are pleased to announce the commencement of construction works for these important projects in the Deyaar portfolio at the heart of Al Furjan, one of Dubai's most up-and-coming districts. The start of construction for a project of this magnitude is always an essential milestone, as we seek to engage reputed parties with a proven track record in delivering projects on time and to the highest standards."

"This vital step reflects our steadfast commitment to delivering world-class quality and on-time completion for these three projects in Al Furjan. As with all our projects, we will provide our investors with construction updates and keep them posted on the key milestones of Millennium Talia Residences and Amalia Residences as they unfold."

ACWA to bring innovative desalination solutions to Egypt

IN A MEETING with Egyptian Prime Minister Mostafa Madbouly, ACWA Power's CEO Marco Arcelli underscored the company's efforts to bring sustainable desalination solutions to the MENA region.

The meeting took place on the sidelines of the ceremony signifying the official allocation of land for a 10GW wind project in Egypt's Western Sohag region, and saw the Prime Minister emphasise ACWA Power's credibility and capabilities in delivering giga-scale projects of strategic importance.

Madbouly expressed his wish to extend the cooperation with the organisation in the field of water desalination, to help counter Egypt's challenges with water shortages.

Speaking on the occasion, Arcelli said, "We



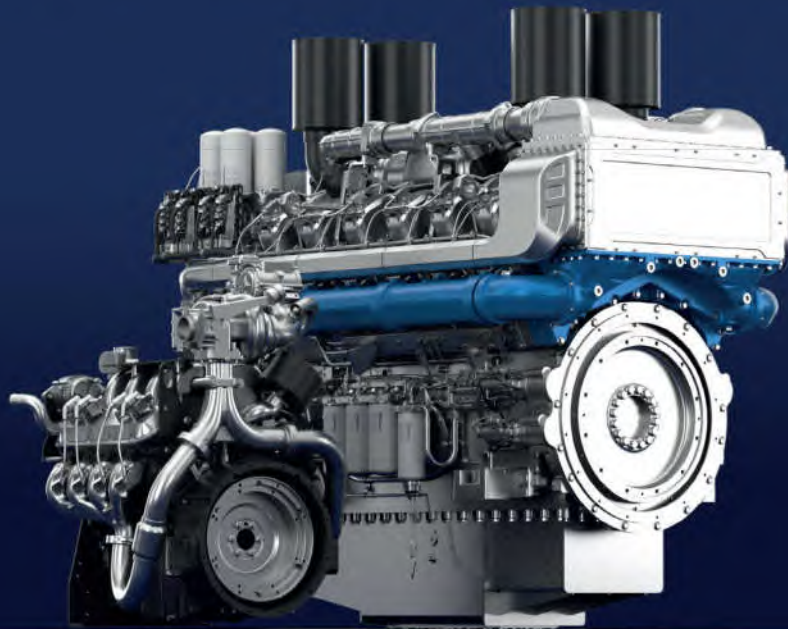
The meeting took place in Egypt, where the country's prime minister discussed the allocation of land for a wind farm in Sohag.

Photo Credit : ACWA Power

look forward to working closely with the Egyptian authorities over the coming years, who clearly share our commitment for the sustainable and responsible development of its communities and ensuring a brighter future for all."



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Briefly

Aviation's progress towards net zero emissions

THE INTERNATIONAL AIR Transport Association (IATA) will publish an annual Track Zero report using IATA's Net Zero Tracking Methodology to report industry-level progress towards aviation's commitment to Net Zero carbon emissions by 2050.

IATA will aggregate and report annually inputs from IATA member airlines on an industry basis. After thorough validation, aggregate industry data from the previous calendar year will be reported annually in the fourth quarter of each year. The first report with airline-contributed data is planned for publication in Q4 2024. Non-IATA member airlines are also encouraged to contribute data and participate in the reporting.

Individual airlines may use the aggregate data of the Track Zero report to benchmark their own progress towards decarbonisation. They may also choose to report their progress on decarbonisation to key stakeholders including governments, investors and customers, using IATA's Net Zero Tracking Methodology.

The first key feature of the Net Zero Tracking Methodology includes standardisation, which establishes a transparent framework for accurate reporting which can be used industry-wide by identifying the relevant emissions scope, sources, and processes for emissions tracking and measurement.

The second key feature is accuracy, which includes best practices for data collection and validation with minimal administrative burden.

And finally, comprehensiveness accommodates reporting of all manner of decarbonisation activities on a lifecycle basis, including usage of conventional and sustainable aviation fuel (SAF), carbon offsets/carbon capture, and future power sources (hybrid-electric, electric, and hydrogen-powered aircraft).

The decision to publish a Track Zero report follows the release by IATA of five roadmaps detailing critical actions for aviation to achieve net zero CO₂ by 2050. They address aircraft technology, energy infrastructure, operations, finance, and policy.

Strategic MoU signed for energy sector advancements

THE ROYAL COMMISSION for Jubail and Yanbu (RCJY) and the Gulf Cooperation Council Interconnection Authority (GCCIA) have signed an MoU at RCJY headquarters in Riyadh. The agreement was signed by His Excellency Engineer Khaled bin Mohammed Al-Salem, president of RCJY, and His Excellency Engineer Ahmed Al-Ebrahim, the CEO of the GCCIA.

While aiming to strengthen collaboration frameworks, promoting shared standards, and fostering the exchange of expertise, the agreement will also develop cooperation in various fields, including industry, development, strategy, academia, science, research, and training.

The MoU focuses on fostering academic, research, and consultancy cooperation in scientific research and studies as well.

Furthermore, the MoU encourages the exchange of research findings, training programmes, developmental initiatives, scientific endeavors, and cultural visits, while also facilitating the provision of technical consultations.

Under the agreement, RCJY and GCCIA will collaborate on conducting comprehensive studies pertaining to environmental, social, and governance practices. The objective is to align their respective visions and goals. They will also engage in research and development activities, with a particular focus on energy transformation technologies and resource efficiency enhancement techniques. The sharing of experiences and expertise will encompass areas such as investor management, corporate communication, reputation management, and marketing, ultimately leading to the formulation of viable and executable projects.



Photo Credit : GCC Interconnection Authority

At the signing ceremony.

Al-Salem commended the pivotal role played by GCCIA in enhancing and ensuring energy security across Gulf Cooperation Council (GCC) countries. Notably, this encompasses addressing challenges such as loss of generation capacity during emergencies and reducing generation reserves.

It will also help in mitigating carbon emissions, minimising the costs associated with fibre optic network construction, and establishing the foundation for the exchange and trade of electrical energy among member countries.

Al-Salem also emphasised that this project is part of the comprehensive integration efforts among GCC countries, which exemplify the cooperative spirit among member states.

Similarly, Al-Ebrahim emphasised that the signing of this MoU signifies a commitment to enhancing collaboration between RCJY and GCCIA. This partnership is centred on human development and efficiency enhancement.

Honeywell launches new fire detection system

HONEYWELL ANNOUNCED THE launch of the Morley-IAS Max fire detection and alarm system that helps improve building and occupant safety. The compact, powerful, performance-driven intelligent fire alarm control panel offers installers and end users a technically advanced range of functions that is easy to install, commission and maintain.

The system features an advanced 7-inch touch screen panel, providing a highly intuitive and ergonomic user interface. The panel displays colour-coded events and graphical icons. It boasts cutting-edge technologies such as multi-Boolean logic and CAN bus protocol between panels, helping enable faster communication.

The system incorporates serial communication ports, relays and CAN bus



Photo Credit : Honeywell

The Morley-IAS Max panel is EN 54-2 and EN 54-4 certified.

network to help reduce complexities typically encountered during ordering and installation. The panels offer multiple installation options in addition to standard wall mounting and flush mounting.



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Briefly

Jubail Island gets water network connection

JUBAIL ISLAND HAS announced the successful connection of the water network on the island. The water network has been seamlessly linked to the existing water Transmission Line, operated by Abu Dhabi Transmission & Despatch Company (TRANSCO), in coordination with the Abu Dhabi Distribution Company (ADDC). This connection paves the way for the final stages of testing and commissioning the internal water network of Jubail Island. The connection to Jubail Island ensures that homeowners will have access to a reliable supply of clean and fresh potable water. The network is complemented by the existing sewage system, which plays a crucial role in regulating water flow throughout the island.

The project is a critical step in supporting the completion of construction works on the island. The water connection closely follows the first official energisation on the island, with the development's substations now operating, providing permanent grid power to key areas. The key milestones work together in harmony to ensure the seamless completion of the villas and apartments that are currently undergoing the final steps of development before being handed over to their owners.

Abdulla Saeed Al Shamsi, engineer and corporate director of Jubail Island Investment Company (JIIC) said, "Connecting the official water network from Abu Dhabi to Jubail Island is solid evidence of the immense dedication and collaborative efforts of our team and government authorities."

"The process of connecting water to construction projects is a complex undertaking that involves meticulous testing, infrastructure works, and development. Through close cooperation with TRANSCO and ADDC, we have achieved this significant stage of Jubail Island's journey by ensuring that all engineering and site works adhere to the required standards and specifications."

The project highlights LEAD Real Estate's unwavering commitment to delivering the project on time, the developer said.

Vögele launches its latest set of mini pavers

FOLLOWING THE PREMIERE at Bauma 2022, Vögele has now started supplying the diesel-powered MINI 500 and MINI 502 models. The company's smallest pavers have pave widths of 0.25 m to 1.8 m and are thus ideal for undertaking even the narrowest building projects using machines. The battery-powered MINI 500e and MINI 502e models will be available in 2024.

Maximum quality at minimum width

With a basic width of just 0.9 m and pave widths of 0.25-1.8 m, they are suitable, among other things, for paving between rail tracks, filling narrow ditches or constructing footpaths and cycle paths. This allows contractors to complete even the smallest project using a machine, rather than by hand, resulting in much greater efficiency, convenience and quality. This is particularly helpful on long, narrow sections – when laying fiberoptic cable or repairing pipelines, for example.

"The market launch in Europe has been very successful to date, demand is high," said Marcio Cavalcanti Happle, head of sales, local marketing and product/customer support at Vögele. "The new pavers plug the gap in the Mini class segment and complete our product range. Our complete range of pavers and screeds now covers minimum and maximum pave widths of 0.25-18 m."



Vögele has launched its smallest road pavers for the European market.

Photo Credit: Vögele

Compact, light and manoeuvrable

With their water-cooled 2-cylinder diesel engine, the MINI 500 and MINI 502 deliver an output of 10.2 kW and are especially agile. Both machines have a very small turning circle and need very little space to manoeuvre. With their compact dimensions and a weight of around just 1,200 kg (wheeled model) and 1,400 kg (tracked model), the pavers are also particularly easy to transport. The material hopper with hopper sides means that pavers can also be fed with mix very easily via either wheel loaders or excavators.

E-powered models available in 2024

After the market launch in Europe, Vögele is extending the sales area for diesel-powered pavers. The battery-operated models, the MINI 500e and the MINI 502e, will follow next year.

PEUGEOT to launch electric vehicle in the UAE

PEUGEOT ANNOUNCED THE delivery of its first fully electric light commercial vehicle in the UAE.

Called the PEUGEOT E-Partner, the vehicle will be launched by its local dealership PEUGEOT Abu Dhabi and Al Ain, the automotive division of Omeir Bin Youssef & Sons, to Abu Dhabi based sustainability company, EMOB.

PEUGEOT's first LCV customer in Abu Dhabi, EMOB, specialises in bringing electric vehicle (EV) charging services directly to drivers' doorsteps, making EV charging convenient and accessible. The vehicle features a powerful electric propulsion system that delivers impressive acceleration and a smooth driving experience. The E-Partner ensures businesses can cover their daily operations efficiently. The spacious cargo capacity allows for easy



PEUGEOT E-Partner is built on the EMP2 platform.

Photo Credit: PEUGEOT

transport of goods, and it comes with advanced safety features as well. Additionally, the E-Partner offers fast charging capabilities, enabling businesses to minimise downtime and maximise productivity.

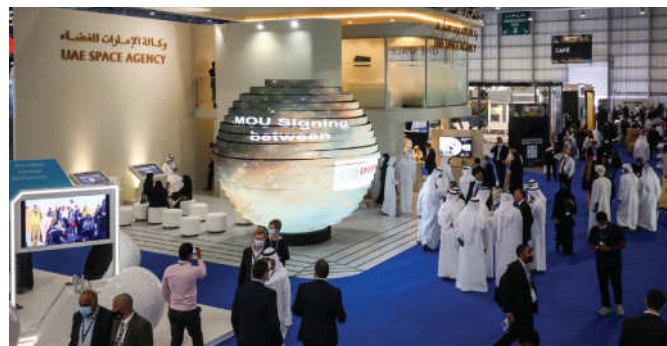
Dubai Airshow to have a focus on space technology

SPACE WILL BE a key theme at this year's Dubai Airshow. Following the signing of a Memorandum of Understanding (MoU) between Dubai Airshow and the UAE Space Agency at the 2021 Airshow, the two parties are collaborating to further enhance the event's focus on space. The aim is to create a more collaborative approach towards space, both locally and globally, in an effort to develop more pioneering partnerships and future projects.

H.E. Ibrahim Al Qasim, deputy director general of the UAE Space Agency commented, "The UAE has made great strides in building national capabilities in earth observation, training astronauts, sending missions to the moon and soon to the asteroid belt. The most critical component in the next five to 10 years will be to build major capabilities in the private sector. We're looking to facilitate enormous opportunities for startups to be established in the UAE, and there's no better platform to do this than at the Dubai Airshow. In its 18th cycle lifespan, the show has generated upward of three trillion dirhams in business."

The 18th edition of Dubai Airshow 2023 will take place from 13-17 November at Dubai World Central (DWC), Dubai Airshow Site. It will be a key platform for companies and investors who are keen to see and learn about the latest space technologies from industry trailblazers at the biggest Space pavilion to date.

Dubai Airshow 2023 will host a dedicated two-day conference programme. The sessions will align with the Airshow's focus on sustainability, highlighting how space plays a vital role in informing



18th edition of the Airshow will see an increased focus on space.

sustainable policies and finding solutions for climate change through earth observation. Other themes include the advances in space technology, launch costs reduction, increase in private investments and how the possibility of space tourism is positively affecting the space industry.

The 18th edition will also offer a host of networking opportunities and will provide students, graduates and young professionals with the opportunity to meet prospective employers and take part in activities through its youth engagement programme.

For more information, please visit the website <https://www.dubaairshow.aero/>

Transforming the cement industry

THE GREEN CEMENT Conference took place in July in Athens, bringing together visionaries, thought leaders, and industry experts from Europe, Middle East, Africa and North America, to propel the green cement revolution.

The conference's panel discussions delved into critical topics crucial to transforming the cement industry and driving a factual net zero transition. Attendees actively engaged in enlightening conversations on climate challenges, technological innovations, market trends, opportunities, collaboration, and partnerships. These dynamic exchanges of ideas will fuel progress towards a greener cement sector.

"We are thrilled to host The Green Cement Conference, providing an exceptional platform for industry leaders to come together and drive the transition towards a greener cement sector," said Terry Pavlopoulos, CEO of CEMBR Group. "Through dynamic discussions, innovative ideas, and collaborative efforts, we aim to unlock the full potential of green cement in advancing the circular economy agenda."

Amr Nader, CEO of A³&Co., the knowledge partner, expressed his belief that The Green Cement Conference promises to be a catalyst for change, igniting a collective effort to achieve a sustainable and green future for the cement industry.

The conference featured a distinguished lineup of speakers from the World Cement Association, McKinsey & Company, IFC, A³&Co.®, HERACLES Group, Titan Cement Company, Ciments de l'Afrique – CIMAT, Heidelberg Materials, Cemex Ventures, CemBR, Stifel, EBRD, KHD, Carbon Upcycling Technologies, C2CA Technology, Geocycle Hellas, DLA Piper, and Carbon Re.



The conference discussed topics crucial to transforming the cement industry.


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Photo Credit: Dubai Airshow

Photo Credit: A3 & Co

EXECUTIVES' CALENDAR 2023

OCTOBER 2023

2-5 **ADIPEC** ABU DHABI www.adipec.com

NOVEMBER 2023

1-2 **MENA HSE Forum** DUBAI www.hse-forum.com/mena

15-17 **WETEX & Dubai Solar Show** DUBAI www.wetex.ae

21-22 **The Mining Show** DUBAI www.terrapinn.com/miningme

30 November - **COP28** DUBAI www.cop28.com/en
12 December

DECEMBER 2023

4-7 **The Big 5 Show** DUBAI www.big5global.com

Readers should verify dates and location with sponsoring organisations, as this information is sometimes subject to change.

WETEX returns to highlight region's clean energy technology

THE WATER, ENERGY, Technology, and Environment Exhibition (WETEX) is set to return to Dubai on 15 November this year. Organised by Dubai Electricity and Water Authority (DEWA), the event is being held under the patronage of HH Sheikh Ahmed bin Saeed Al Maktoum, chairman of the Dubai Supreme Council of Energy.

Running until 17 November, the event will run alongside the Dubai Solar Show (DSS) as well. Both WETEX and DSS will showcase the region's latest technology in the energy, water, green development, sustainability, and related sectors.

The co-located events provide an ideal opportunity to learn about future technologies that accelerate climate action and strengthen the UAE's leadership in forecasting and shaping a sustainable future.

Here, attendees will be able to learn about market demands, future initiatives, and chances to participate in renewable or clean energy projects in the UAE and the region, as well as to explore investment horizons, create relationships, sign deals, and meet corporations, decision-makers, and investors from across the world.

The exhibition serves as a platform for international organisations to present their

most recent solutions and products, as well as to learn about cutting-edge technologies from around the world in the fields of energy, water, sustainability, green technologies, renewable and clean energy, green mobility solutions, sustainable development, green buildings, water desalination technologies, smart cities, and others. It also gives possibilities to share views with various worldwide professionals and specialists through specialty seminars and panel discussions hosted on its sidelines.

Held under the theme 'At the forefront of sustainability', at the Dubai World Trade Centre, the show aims to highlight the efforts of the UAE and Dubai in the field of renewable and clean energy. HE Saeed Mohammed Al Tayer, managing director and CEO of DEWA, founder and chairman of WETEX and the Dubai Solar Show, said, "The 2023 WETEX and DSS has notable momentum, as it coincides with the 'Year of Sustainability' in the UAE. It is expected to witness an exceptional turnout, especially with the UAE's preparations to host the COP28 by the United Nations Framework Convention on Climate Change (UNFCCC) at Dubai Expo City in November."

"DEWA will also organise the first Middle



Photo Credit : WETEX

The MENA Solar conference will also take place during the show.

East and North Africa Solar Conference 2023, in conjunction with the exhibition. This will attract additional experts and researchers specialised in clean and renewable energy. It is the first scientific and technical conference of its kind in the region that specialises in photovoltaic systems," he added.

Al Tayer also said that the event "supports the Dubai Clean Energy Strategy 2050 and the Dubai Net Zero Carbon Emissions Strategy 2050 to provide 100% of Dubai's total power production capacity from clean energy sources by 2050."

Copper products to be manufactured in the UAE

DUBAL HOLDING HAS signed an MoU with Oriental Copper Co., Ltd., a Thai manufacturer of high conductivity copper products, to manufacture high-quality copper products in the UAE.

DUBAL is the investment arm of the Dubai Government in the commodities, mining, power, energy, and industrial sectors. The partnership aims to manufacture high-quality copper products including ETP and oxygen-free copper bus bars, profiles, strips, sheets/tapes, alloys, and magnet wires through a production unit with an installed capacity of 30,000 MT of copper processing per annum.

Under this MoU, DUBAL Holding will provide assistance with local resources, in addition to being a co-investor, while Oriental Copper will contribute its extensive technical, operational, and market expertise. This joint venture will further boost the regional economy and provide employment opportunities for around 700 individuals at a local level. As part of the MoU, both parties will invest a capital expenditure (Capex) of about US\$41mn. The production unit will utilise innovative techniques including hot extrusion methods and conform processes.

Tuang-Hong Thiptarangoon, president of Oriental Copper, said, "We are excited to work with DUBAL Holding for the manufacture of copper products in the UAE. At Oriental Copper, we constantly strive to produce copper of the highest quality for use in the electronics and non-electrical industries as well as in the generation, transmission, and distribution of electrical power."



The MoU aims to generate around 700 jobs in the UAE's manufacturing sector.

Photo Credit : DUBAL Holding

Through this partnership, DUBAL Holding aims to produce high-quality copper goods locally to effectively meet the UAE's increasing demand for downstream copper products.

This partnership aligns with the MENA region's goal of shifting away from the heavy reliance on copper imports and meeting the growing demand for downstream copper products.

Ahmad Hamad Bin Fahad, CEO of DUBAL Holding, said, "We are confident that this joint venture will increase local employment opportunities and boost the regional economy. This further falls in line with our sustainability objectives, as Oriental Copper products foster green energy and lower carbon footprints in the UAE."

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“KEZAD Group is continually looking for ways to improve the business experience of our clients. By improving our road network systems and facilities in Mussafah, we are providing our existing clients faster and more efficient world-class connectivity, in addition to sustainable and high quality infrastructure with global standards, that meets their requirements, in line with the vision of the wise leadership. The upgradation of the vital industrial area in KEZAD Musaffah (ICAD 1) will go a long way in reinforcing Abu Dhabi's position as an advanced economic and industrial hub, which plays a key role in the development of the emirate's economy.”



MOHAMED AL KHADAR AL AHMED

CEO
Khalifa Economic Zones Abu Dhabi

“We are very pleased to participate in this mega project and contribute to the success of the Saudi Vision 2030 of developing the Kingdom into a global logistics hub. This partnership represents Hutchison Ports' continued commitment to the Kingdom, and we look forward to a fruitful partnership with future business opportunities.”

ERIC IP

Group managing director
Hutchison Ports

(On the concession manage and operate agreement signed between King Salman Energy Park and Hutchinson Ports)

“This agreement marks a pivotal moment for us as it strengthens our position in global trade and reinforces our commitment to economic resilience. The establishment of the first Silicon Metal plant in Oman showcases our dedication to diversifying industries. Moreover, it demonstrates our ability to attract significant foreign direct investment, fostering business growth by increasing throughput and creating new opportunities, shaping a brighter and more sustainable future for SOHAR and beyond.”

OMAR AL MAHRIZI

CEO
SOHAR Freezone

(On the land lease agreement signed between SOHAR Port and Freezone and Green Ferro Alloy to establish Oman's first silicon metal plant)

“Abu Dhabi continues its efforts to consolidate economic diversification, sustainability, knowledge-based, innovation-driven economy, capitalising on human development, which is a top priority for us. Our cooperation with Japan External Trade Organisation is part of these efforts as Japanese experience and progress reflect role of competent talent in the scientific and technological fields, and the effectiveness of its human capital development programmes.”

HE RASHED ABDULKARIM AL BLOOSHI

Undersecretary
ADDED

“With revenues reaching AED6.7bn (US\$1.8bn), an increase of AED3.2bn (US\$870mn) over the same period of the previous year, we continue to strengthen our position as one of the leading companies in the marine dredging field. The record numbers we achieved in 2023 reflect our strong and increasing growth and indicate the robust performance of a number of major projects.”

MOHAMMED THANI MURSHID GHANNAM AL-RUMAITHI

Chairman
NMDC Group

“Dubai Chambers remains committed to supporting its members on their global expansion journeys in strategic markets around the world. The New Horizons initiative assists in driving the international growth of member companies and will play a vital role in achieving Dubai's goal of increasing non-oil foreign trade to AED2 trillion by 2026, in line with the emirate's five-year trade plan. Our target is to help 100 Dubai businesses to expand globally by the end of 2024.”



MOHAMMAD ALI RASHED LOOTAH

President and CEO
Dubai Chambers

“Asfar will activate the role that Saudi Arabia's cities play in supporting the national economy. It will enable each city to make the most of its unique tourism offering, further diversifying and enriching the tourism and entertainment experience in Saudi Arabia. PIF tourism projects and companies are working side by side, supporting and strengthening the tourism ecosystem. The creation of the company is in line with PIF's strategy to create opportunities in the tourism sector and reinforce strategic partnership opportunities with the private sector, creating jobs and diversifying sources of income for the local economy in line with Saudi Vision 2030.”

MISHARY ALIBRAHEEM

Head of entertainment, leisure and sport in
MENA Investments
The Public Investment Fund (PIF)

“We are honoured to deepen our collaboration with ADNOC by bringing our state-of-the-art healthcare services to the Al Dhafra region. This agreement is a testament to Burjeel Holdings’ capabilities and experience in the O&M space, enabling the group to grow and expand further in an asset-light manner in the UAE and region. Our longstanding experience in working with ADNOC will enable us to unlock the best offerings with highest standards to the region, all centred around providing the highest quality patient care.”

JOHN SUNIL
CEO
Burjeel Holdings

“I am grateful to our Ooredoo leadership, who have supported me throughout my career. Although technology can be seen as more of a male-dominated field, I have always been encouraged, recognised and rewarded according to my talent alone. As group chief human resources officer, I am dedicated to furthering this legacy and to continuously upgrading our working environment.”



FATIMA SULTAN AL KUWARI
Group chief human resources officer
Ooredoo Group

(After being recognised as ‘Female Executive of the Year – Business Products – More than 2,500 Employees’ at the International Stevie Awards for Women in Business)

“The End Plastic Waste Innovation Platform has been a great way for the Alliance to actively engage with the start-up community identifying solutions from across the world including new technologies and business models. With the launch of the 8th edition of the programme in Riyadh, we are excited to tap into the innovation potential of the dynamic Middle East region, nurturing entrepreneurs and innovators on their journey. Through the joint efforts of Plug and Play and the Alliance, the Riyadh programme will enable impact – leveraging a proven platform to connect start-ups with investors and mobilising capital to support our mission to end plastic waste and drive forward plastics circularity.”

NICHOLAS KOLESCH
Vice president of projects
Alliance for Plastic Waste

“The Omani economy is growing significantly as a leading destination for international investments in the MENA region. This MoU is consistent with OIA’s efforts and mandates to attract foreign direct investments in line with Oman Vision 2040’s national goals. The partnership is founded upon our solid relationships with PIF, and it is expected to pave the way for more cooperation and the creation of varied partnerships to accelerate Oman’s and Saudi Arabia’s economic diversification. Moreover, it opens the door for many private-sector partnerships between the two countries. It boosts the developmental and transformative trends in the two brotherly nations, eventually resulting in growth, sustainability, and prosperity.”

MULHAM AL JARF
Deputy president for investments
Oman Investment Authority (OIA)

(On the MoU signed between OIA and Public Investment Fund (PIF) to enable new promising opportunities)

“Saudi Arabia is a priority market for IHG in the Middle East and the continual expansion of our global portfolio in the kingdom demonstrates our commitment to Vision 2030. The opening of Regent Jeddah next year in collaboration with our esteemed partner, Almuhaysin Group will bring a new era of luxury hospitality to the kingdom for domestic and international guests, as well as business travelers who seek luxurious experiences during their stay.”



HAITHAM MATTAR
Managing director
IHG Hotels & Resorts India, Middle East and Africa

“We have made significant strides in addressing energy efficiency and Greenhouse Gas emissions in the past few years, including achieving a 47% reduction in flaring since 2019. There has historically been a lack of reliable, accurate and quantified data on methane emissions across the portfolio, which has started to improve with greater focus on this area, such as leak detection and repair programmes and more robust measurement and monitoring of fugitive losses. We have reported methane emissions numbers for the first time in our latest 2022 Sustainability Report. Working towards eliminating methane emissions from our operations is a top priority for the company and we look forward to collaborating with the Aiming for Zero Initiative to further improve and implement best-in-class approaches for our industry.”

PATRICK ALLMAN-WARD
CEO
Dana Gas

ON THE WEB

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

Saudi Arabia to begin mass exploration for critical minerals

SAUDI STATE MINING firm Ma'aden and US-based Ivanhoe Electric have agreed to explore 48,500 sq km of unexplored territories in the Arabian Shield for minerals.

Surveys could begin as soon as September in the new joint venture, which is worth nearly US\$130mn, according to AGBI. It is believed that the Saudi area has a high potential for essential minerals such as copper, nickel, gold, silver, and potentially lithium.
<https://www.technicalreviewmiddleeast.com/construction/mining/saudi-arabia-to-begin-mass-exploration-for-critical-minerals>



Photo Credit: Reuters

The kingdom intends to produce 500,000 EVs per year by 2030.

Sauer launches high pressure compressors

GERMAN COMPANY SAUER Compressors has introduced its latest high pressure products.

The new Orkan series of high-pressure compressors for industrial applications will be available in the first four standard types, and are suitable for the compression of many gases and a wide variety of applications. A newly developed magnetic coupling makes the compressors hermetically gas-tight. Furthermore, these compressors come with a redesigned cooling system. It enables pure air cooling, which goes up to 110 kW drive power.

<https://www.technicalreviewmiddleeast.com/construction/machinery/sauer-launches-high-pressure-compressors>

Bosch hydrogen technology hits the assembly line

GERMAN ENGINEERING COMPANY Bosch has begun mass production of its hydrogen-powered fuel-cell power modules for commercial vehicles.

It is a scalable fuel cell power module that uses hydrogen to produce energy in cars. Commercial vehicles are where it is most commonly used, especially for long distances. The system consists of a fuel cell stack as well as any necessary fuel cell submodules, such as those for hydrogen and air.
<https://www.technicalreviewmiddleeast.com/power-a-water/power-generation/bosch-hydrogen-technology-hits-the-assembly-line>



Photo Credit: Robert Bosch GmbH

The pilot customer is the U.S. company Nikola Motors and its fuel cell-electric truck.

Mubadala Energy to develop carbon capture tech in Indonesia

THE ABU DHABI-BASED energy company signed an agreement with Pertamina to enhance carbon capture technology in the southeast Asian country.

Mubadala said that it will explore and potentially engage in energy transition initiatives, focused on carbon capture, utilisation and storage (CCUS) applications with the Indonesian state-owned integrated energy company.

The companies will look at business development activities in carbon mitigation, while also exploring research options in the region.

<https://www.technicalreviewmiddleeast.com/power-a-water/water-a-environment/mubadala-energy-to-develop-carbon-capture-tech-in-indonesia>

OCI organises event to highlight its sustainable growth

OMAN CABLES INDUSTRY (OCI), along with its strategic partner Prysmian Group, unveiled its vision for a sustainable future, at an event held in Muscat.

Industry leaders from across the GCC region gathered under the theme 'Going Green, Going Digital'. Oman Cables Group has identified 50 projects over the next three years and dedicated investments have been approved for 2023.

<https://www.technicalreviewmiddleeast.com/manufacturing/innovations/oci-organises-event-to-highlight-its-sustainable-growth>



Photo Credit: OCI

Cinzia Farisè, CEO, Oman Cables Industry.

Masdar looks to develop renewable energy in Malaysia

MASDAR AND CITAGLOBAL Berhad have signed an MoU for the joint development of renewable energy projects across solar, battery energy storage system (BESS), wind and other renewable energy technologies.

Malaysian company Citaglobal Berhad is currently involved in civil engineering and construction (CEC), telecommunications, oil and gas (OG), power generation, property development, manufacturing and renewable energy.

Masdar and Citaglobal will collaborate to build renewable energy projects in Malaysia's state of Pahang. Solar, battery energy storage systems (BESS), wind, and other renewable energy technologies are being investigated.

<https://www.technicalreviewmiddleeast.com/power-a-water/renewables/masdar-looks-to-develop-renewable-energy-in-malaysia>



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Evolving needs for a rapidly changing industry

Technical Review Middle East looks at how BIM technologies are changing, and what challenges need to be addressed.

BUILDING INFORMATION MODELLING (BIM) is perhaps one of the most important construction technologies available in the market. And rightly so, as it comes with a huge set of advantageous features. The technology is constantly evolving to meet the industry's demands.

According to Ahmad Faeq M. Salih, senior director at engineering company Khatib & Alami, "BIM is a centralised platform for data sharing and real-time information exchange; stakeholders can work harmoniously within the BIM environment, facilitating seamless communication and coordination."

Salih adds "Moreover, when integrated with Artificial Intelligence (AI), the construction industry in the Middle East stands to benefit from even greater value. AI-powered tools can analyse vast amounts of data from various sources, such as BIM models, construction schedule, and sensor data, providing valuable insights and predictive analytics.

"These data-driven decisions, along with AI-driven autonomous equipment and robotics, streamline construction tasks, increase productivity, and enhance safety on construction sites. The synergy of BIM and AI in the Middle East's construction sector promises to foster innovation, boost productivity, and deliver projects of superior quality while meeting the region's growing infrastructure demands."

BIM is continuously updated to reflect the as-built conditions, ensuring that the digital twin remains accurate and aligned with the real-world asset

At the same time, the concept of digital twins is also becoming increasingly inseparable from BIM. At the MENA Construction 4.0 Forum held in Dubai in May this year, which was organised by Alain Charles Events, Salih said that, "If there's no BIM model, there's no digital twin."

Expanding on this sentiment, Salih explains "This wealth of data [created by BIM] forms the fundamental basis for developing a digital twin of the physical asset. The BIM model is the starting point, providing foundational design and construction information. As the project progresses and modifications are made, BIM is continuously updated to reflect the as-built conditions, ensuring that the digital twin remains accurate and aligned with the real-world asset."

Despite all these advantages however, BIM can be difficult to implement. Why is this? Salih explains that using BIM means that devices often cannot converse with each other.

"While BIM offers many advantages, some areas could be improved. Interoperability of BIM software and data formats is one such area. As the industry embraces BIM, it's crucial to establish universal standards that allow different software applications to exchange information seamlessly. This would promote collaboration across various platforms while avoiding data loss or inaccuracy during data exchange."



Ahmad Salih, senior director, Khatib & Alami.

Vitaly Berezka, Regional head Central Asia, MENA and APAC at PlanRadar, says, "It is crucial to acknowledge that a mere 20% of the BIM data generated is effectively utilised."

Effective data management, says Berezka, involves "establishing clear protocols for data exchange, adopting standardised data formats, and utilising data management software to effectively track and manage the data. Opting for interoperable software can help overcome this challenge by ensuring seamless data exchange without any loss or distortion of information. Moreover, adopting industry-standard data formats can further enhance interoperability."

Moreover, "Ensuring all team members receive comprehensive BIM training is vital

Photo Credit : Khatib & Alami

for overcoming this challenge. Initiatives such as "BIM A+" in Europe aim to address this issue by promoting higher levels of education and improving the availability of skilled BIM professionals," he adds.

Omnix International is another company which can help with managing software. "To keep ahead of the curve, we welcome technological innovations. We consistently use the most up-to-date CAD and BIM tools and processes, providing our valued clients with future-ready solutions that suit the expectations of an ever-changing industry," says Priyesh Prathap, regional business unit head - CAD/BIM Services at Omnix International.

"Recognising the significance of talented professionals in project success, we supply great personnel to supplement our clients' existing project teams. We improve productivity and efficiency by seamlessly integrating our professionals, elevating overall project performance and outcomes," he adds.

"Realising the importance of time in the construction and design industries, Omnix accepts turnkey BIM projects with the solid commitment to delivering great results within strict deadlines. Our emphasis on efficiency enables us to fulfil tight deadlines without sacrificing the quality of our work.

"From design to flawless execution, we provide complete end-to-end BIM solutions that span the whole project lifecycle, from initial design to faultless implementation.



Priyesh Prathap, regional business unit head - CAD/BIM Services, Omnix International.

Our highly skilled personnel design and execute projects attentively, assuring remarkable results at every level."

The company also provides a virtual design office and studio setup. "We give remote teams working on live projects with seamless project collaboration around the clock using the latest cloud-based tools and technology, resulting in cost and time savings. The entire process is monitored by our central to ensure that the required quality of work is met," says Prathap.

According to Ibrahim Hegazy, con-tech expert at Green Figure Technique, BIM will continue to play a pivotal role in shaping the future of building design, construction, and management.

"One of the primary drivers of BIM's growth in the Middle East is the increasing awareness of its benefits. Construction professionals, project owners, and government authorities are recognising how BIM can enhance collaboration, reduce errors, and optimise resources in complex projects."

One solution to this problem [of high costs associated with BIM] is to encourage the software to become open source

Ahmed Muharram, BIM manager at IBIMS - Integrated BIM Services

Adding that "government support is another key factor propelling BIM's adoption," Hegazy says that "several GCC governments are actively encouraging digital transformation in the construction sector through policies and mandates that promote BIM implementation."

Hegazy notes a number of solutions to tackle the challenges that come with BIM. One of them is to change management strategies. "Employing change management strategies will help communicate the benefits of BIM and address resistance among stakeholders," he says.

Encouraging collaboration and BIM adoption throughout the entire supply chain to ensure the effectiveness of BIM implementation, will also be necessary.



Vitaly Berezka, regional head Central Asia, MENA and APAC at PlanRadar.

Conducting periodic BIM project audits to identify challenges and best practices will enhance future implementations, he adds. He also adds that implementing robust cybersecurity measures and data encryption protocols will safeguard sensitive project information.

Meanwhile, Ahmed Muharram, BIM manager at IBIMS - Integrated BIM Services, says that the costs of implementing BIM software can force smaller companies to not use it altogether. "One solution to this problem is to encourage the software to become open source, or try to have different prices for the third world countries, so that they can afford it as well."

"Promoting BIM adoption among smaller construction firms and projects may take time due to cost considerations and the need for specialised expertise. Addressing these barriers by making BIM solutions more accessible and affordable and investing in training and education for industry professionals could encourage wider adoption and maximise BIM's potential benefits," adds Salih.

Muharram is positive that the technology will continue to thrive. "BIM is leading the digital transformation in AEC industry. It's already one of the leading technologies and workflows in AEC, it's developing rapidly, and will integrate with AI to lead to a better digital twin." ■

The role of AI in construction for safety and sustainability

From optimising energy efficiency to enhancing safety, AI will soon take over the construction industry, Ayad Chammas tells *Technical Review Middle East*.

AYAD CHAMMAS, A partner at Nirman Ventures, has led and executed construction projects in multiple countries.

According to Chammas, Artificial Intelligence (AI) will be at the forefront of digital transformation when it comes to construction, along with collaborating with cutting-edge startups to drive advancements in the industry.

Promising applications of AI in construction

In this interview, the Abu Dhabi-based digital construction expert explains the potential of AI to revolutionise construction, with the most obvious use-case being the enhancement of safety.

“AI can monitor construction sites for hazards and predict accident-prone areas, ensuring worker well-being,” says Chammas.

At the same time, it can also optimise costs. “AI optimises energy efficiency, water usage, and waste disposal, leading to eco-friendly and sustainable structures. By identifying efficient materials and construction methods, AI significantly reduces costs without compromising quality.”

Challenges and adoption advice

While AI's potential is vast, challenges to adoption include data availability and quality, scarcity of skilled AI experts, and initial implementation costs. Ayad says that companies should start with small, focused pilot projects to address specific pain points. Building an AI-savvy team is crucial for success, and patience is essential during the solution development process.

Long-term implications of AI

“AI's transformative impact on construction includes safer sites with wearable AI-powered devices, increased productivity through automation, and



Ayad Chammas, partner at Nirman Ventures.

Photo Credit: Nirman Ventures

sustainable buildings with innovative materials and methods,” explains Chammas. This means that the widespread adoption of AI could create new job roles and specialised AI-focused businesses in construction.

Current state and future impact

Citing recent industry reports, Chammas says that only a fraction of construction companies have integrated AI solutions into their processes. However, that number is rapidly increasing, as the benefits become more apparent.

“It is predicted that by 2030, AI could contribute to over 30% of cost savings in the construction sector, and productivity could see an impressive boost of up to 60%

through AI-powered automation,” says Chammas.

Innovative technologies in construction

He also highlights the role of autonomous construction equipment like self-driving trucks, and other equipment, which are still far from being deployed on large scale. “But drones and other robotics used for site surveying and inspections are already being used globally, improving worker safety and enabling cost effective operations.”

According to him, AI and automation are likely to augment human capabilities rather than replace workers. For this, he says, upskilling the workforce is crucial for fully embracing AI's potential, and organised data integration will be useful when it comes to enhancing decision-making and innovation. “Construction companies that prioritise data integration into their processes and dedicate time and effort to building artificial intelligence models for their most critical operations, will reap the benefits soon.”

Chammas is also positive that his advocacy for AI in construction demonstrates its potential to change the industry. “From enhancing safety and optimising costs to promoting sustainability, AI paves the path to a safer and more sustainable construction landscape.” He says that despite all the challenges, AI's transformative power makes the journey worthwhile, ensuring construction remains at the forefront of technological progress.

“As construction CEOs contemplate the future of the industry, a profound truth emerges. The journey toward AI in construction is more than just embracing technology; it's embracing an extraordinary metamorphosis. With AI, the once familiar landscape of construction transforms into a dynamic tapestry of safety, sustainability, and awe-inspiring innovation,” Chammas concludes. ■

Kick-starting the development of an urban digital twin

Helber López, solution manager for cities and campuses at Bentley Systems, explains how cities can use digital twins.

MANY CITIES HAVE not even started thinking about digital twins as a solution for their challenges, and those who have are only scratching the surface connecting data and offering visualisations.

Things get complicated from the moment two people start discussing a digital twin. It seems everyone has a different picture of what it means in the urban context. For the sake of this article, BIM, 3D city models, transport models, can be called urban digital twins. As a bare minimum we should agree that a digital twin connects the physical and the digital worlds to enable stakeholders to make data-driven decisions.

The bottom line is that an urban digital twin should solve at least one urban problem. In that sense there are many frequent topics such as energy, mobility, and many others, but every city has its own challenges and intricacies. There is little chance that the problems and solutions of one city are the same, with the same actors, and the same restrictions of another city, even a neighbouring one. Before you start looking for solutions, ask around: do we know which are the problems we want to solve?

If not, it is important to build a joint vision for the digital twin with the participation of every relevant stakeholder. It does not mean that everyone should agree on one vision, because that is not going to happen, but rather redefine the participation processes, building up competencies and communicating effectively back and forth across relevant actors and even citizens. When talking about digital twins, it only makes sense to leverage every bit of technology to do so. Data visualisations and social media can help to bring everyone around the table.

The wide scope of participation aims at setting the basis for a collaborative way to manage and scope the future digital twin. This is not only applicable to digital twins but is a skill that is becoming more and

more relevant to act locally and tackle global challenges.

When urban digital twins are deployed, they need to solve a problem and bring value to cities, organisations, and citizens. But how can we gauge their value when most cities in the world have not even started discussing Digital Twins? This is a chicken and egg problem, and many municipalities have not the slightest motivation to risk one of their baskets.

As with many innovative technologies, pilot projects might be the answer. And to lower the risks, intervention from the top can help. By narrowing down what the issues are, you have already thought about what the solution might be, but more importantly you have identified some information to solve it. That is your starting point, and you should try to capitalise on those datasets as much as possible. Do not force unnecessary data requirements or a maturity model from a provider to solve your problems. You know where you stand and where to go. Stick to it and look for a solution fitting to it.

Find a solution that fits your wallet, and a solution that allows you to grow modularly. You don't want your urban digital twin to underperform and then run out of political and financial support. Look for solutions that allow you to start small and help you to scale with modular components. Give yourself time to discover new problems that

“Find a solution that fits your wallet, and a solution that allows you to grow modularly.”



Photo Credit: Bentley Systems GmbH

Digital twins should solve at least one urban problem, says López.

are “low-hanging fruits” with the addition of a couple of capabilities to your existing technology stack.

Your choice will be around for some time with the city, and it is likely that it will outlive the problem you wanted it for in the first place. Actions taken will have a lifecycle and new challenges will arise. Complex planning processes will evolve into collaborative design processes, tendering, construction, and eventually balancing supply and demand in operations. Modularity should also help you to reinvent and renew your digital twins for your current problems, and from Day One you should be able to capitalise on all the knowledge and data connected and generated. The worst investment in the digital twin space is one that you drop after a few years because your projects have moved to the next stage of their lifecycle.

The phrase urban digital twins was coined about 10 years ago. Urban digital twins were expected to fix every problem in cities. The expectations have become more realistic these days, and it is a great time to start thinking seriously and ask: what can they do for your city? ■

Briefly

Registration has opened for the Excellence and Creative Engineering Award

THE UAE SOCIETY of Engineers has announced that registration has officially opened for the second edition of the Excellence and Creative Engineering Award, under the patronage of Sheikh Rashid bin Hamdan Al Maktoum.

The Award aims to promote and encourage a culture of excellence, innovation and creativity, as well as highlight the significance of national engineering work. The Award also encourages competition across various engineering fields to keep up with the fast-paced global advancements.

Eng. Abdulla Yousef Al Ali, president of the UAE Society of Engineers, said, "I am pleased to officially announce the launch of the second edition of the Excellence and Creative Engineering Award, which will accept entries until 17 October, 2023. This award is a testament to our commitment to promoting innovation and excellence in engineering across the UAE."

"The Award honours the outstanding contributions and achievements in the engineering sector, and inspires the next generation of engineers to push boundaries of what is possible and make a positive impact on society."

The Award organisers has also unveiled the new subcategories for this year's competition, including Pioneering Engineering Project, Best Engineering Consultancy Company, Best Engineering Services Company, Best Construction Company, and Best Industrial Company.

Those eligible to join are government officials and ministers, consultants and engineering service providers, industrial companies, engineering start-ups, contractors, students and professors in educational institutes, research centres, project owners and project management companies.

The UAE Society of Engineers was established in 1979 and has attracted more than 65,000 engineers and engineering companies to its membership. The association has made remarkable progress in the engineering certification field, and developing the skills and qualifications of all engineers across the UAE.

Cat promises powerful performance with new 955 Wheel Loader

CAT IS BUILDING on the success of its 994K machine with its new 995 Wheel Loader which bolsters a 19% increased productivity level when compared to the previous model with its higher rated payload. The 995 will deliver up to 13% lower hourly-fuel consumption and offers an additional 8% efficiency gain when operating in Enhanced Eco Mode.

Built to the same size as the 994K, the 995 offers a higher rated payload and enables a one-pass reduction when loading Cat 785, 789 and 793 Mining Trucks. This equates up to a 33% increase in production and efficiency when loading the 785, up to a 25% increase for the 789 and 20% with the 793.

Enhancements to the front linkage include casting design, increased weld size, larger bearings and pins, and profile changes for increased service life. The 995 incorporates larger capacity buckets which offer an extended floor for fast loading, high fill factors reaching 11% and a high level of material retention.

Integrated with electronics, the 995 offers flexible levels of information and technology for a smart machine and a more informed operator. Standard tip up prevention technology avoids unnecessary stress on the drivetrain and structural components by delivering full breakout forces while preventing the back tires from significantly lifting off the ground.

Standard Vital Information Management System (VIMS) allows customers to connect directly to the machine to access a wide range of sensor information and enhanced machine data.

In terms of optimising both machinery and



Photo Credit: Cat

The new Cat 995 Wheel Loader offers unparalleled performance and efficiency.

operator efficiency, the on-board training tool, operational coaching measures and reports on individual operator behaviours all provide training on measured behaviours, with the system showing 21 operating technique aspects. These include videos regarding how to properly reduce tire rotation, avoid untracking in-dig, enter the pile with a level bucket, avoid excessive usages of the impeller clutch, reduce dump height and use the kick out.

The 995 offers a higher performance rate, with a 500-hour engine oil change interval and improved air filter life, meaning the 995 can spend longer working. The number of steering hoses has been reduced from 15 to 10 and tubes have been cut from 11 to one in order to improve steering system reliability. An enhanced service station provides access to functions like coolant and oil as well as level indicators, and it features a Cat battery charging connector and indicator lights for fuel tanks.

The full list of details regarding the new 995 Wheel Loader can be found on Cat's website.

Kleeman's impact crusher offers simple operation and flexibility

THE MOBIREX MR 130 Zi EVO2 (MOBIREX) mobile impact crusher from Kleeman is making an impact in the Ramco Beaumont disposal site, California, processing recycled material, crushing concrete product down from 18 inches to one inch.

The MOBIREX has an innovative 'diesel direct-drive' concept to ensure high performance with economical consumption. The system widths of the impact crusher open in the direction of the material flow for better utilisation and higher productivity.

The machine is easy to transport with short set-up times during commissioning and maintenance, as well as bolstering high machine availability. The flexibility of the



Photo Credit: Wirtgen Group

The impact crusher bolsters high levels of flexibility and simple operation.

machine enables the company to crush wherever necessary, allowing Ramco to crush the material directly as and when the customer requires it.

"The Kleemann EVO2 impact crusher is wonderful. It's extremely user-friendly, simple. The technology involved with it and all the sensors and safety features are extremely handy," said Darrel Burroughs, operator at Ramco.

Making construction greener, one step at a time

With advancements in technology, new materials that support sustainability principles are fast becoming popular, says Jens Otterstedt, general manager at Al Masaood Bergum.

THE CONSTRUCTION INDUSTRY, like many others, is undergoing a shift towards sustainability. The work of architecture and design plays a crucial role in this process, as architects determine the materials used in construction. With advancements in technology, new materials that support the principles of sustainability are fast becoming popular, with green concrete and timber being examples of some of these materials. Al Masaood Bergum seeks to further this shift in the Middle East by expediting the launch of Cross Laminated Timber (CLT), which has become a popular choice because it is recyclable, reusable, and significantly reduces carbon emissions.

From concrete to timber: the move towards sustainable materials

The Middle East region is leading the charge for sustainable construction through initiatives like Emirates GBC's Green Building Regulations and Specifications to define sustainability goals and requirements for buildings in the UAE. On the other hand, Qatar Green Building Council has developed the Qatar Sustainability Assessment System (QSAS), which defines sustainability criteria for buildings in Qatar, including energy consumption, water efficiency, and indoor environmental quality.

New materials, and technologies are essential in making the construction industry sustainable. Green concrete is an excellent choice as it absorbs carbon dioxide from its surroundings and purifies the surrounding air. A great example is the Qatar National Convention Centre (QNCC) in Doha built using green concrete, which incorporates waste materials such as fly ash and slag.

Modular and panelised construction, as well as hybrid solutions, are some of the new design approaches that support the sustainable construction industry. For example, AIN Dubai, the world's largest ferris wheel, incorporated modular construction



Jens Otterstedt, general manager of Al Masaood Bergum.

Photo Credit: Al Masaood LLC

techniques for faster construction and reduced environmental impact. Similarly, the Opus building in Dubai used panelised construction methods for more efficient assembly and minimised waste generation during the building process.

With government regulations and policies supporting the industry, adoption of new technologies becomes faster. Platforms like the Saudi Green Building Forum (SGBF) promote sustainable design approaches and guidelines for green building projects in Saudi Arabia, encouraging architects and builders to adopt environmentally friendly practices.

Reducing waste, maximising efficiency

The Middle East has set ambitious sustainability goals, such as the UAE's Energy Strategy 2050, which aims to increase the share of clean energy in its total energy mix to 50% and reduce carbon emissions by 70%. Such goals highlight the urgency of adopting sustainable construction practices in the region.

The World Green Building Council estimates that globally, construction and demolition waste accounts for about 30% of all waste generated. Construction waste and non-recyclable materials pile up in landfills, posing significant environmental risks. Efforts towards reversing this trend are necessary – such as Dubai Municipality's 'Zero Waste' initiative aiming to divert 100% of construction and demolition waste from landfills.

The work of architecture and design forms the building blocks of a sustainable construction industry. Efforts towards sustainability will be realised through new materials, technologies, and design approaches. Government regulations and policies will make the adoption of these methods faster, with concerted efforts by all players in the industry. Ultimately, our environment and the industry will be better off. ■

Modular and panelised construction, as well as hybrid solutions, are some of the new design approaches that support the sustainable construction industry.

Making generators more efficient

Aggreko's Middle East head of sales, Adam Read, talks about the challenges in reducing emissions in the construction industry, and what solutions Aggreko is offering to help abet them.

AGGREKO HAS BEEN improving its technology and services to help clients begin the transition to a greener future. Some of these solutions are practical ways to increase energy efficiency and performance, while others represent more permanent ways of lowering impact on the environment. These can include potential fuel, CO₂ and local emissions savings across sites by making certain switches.

Right sizing

Often, generators are oversized on a construction site to cope with motor starts, pump starts, and in general start-up currents. This is because the actual load is not known, or because a safety net or error tolerance has been added to cope for any unknowns. As a result, hired equipment is usually running at less than 30% load, which means it is being inefficient.

However, if we design solutions where the equipment is running at 80% load or above regularly, then significant savings in fuel, carbon and local emissions can be made. Aggreko uses flywheel technology and the right battery hybrid technology that can cope with startup currents and minimise the runtime of the generator. In larger packages, batteries can also be utilised in spinning reserve to minimise run hours and offer emissions savings. The company's entire fleet incorporates smart metering, enabling consultation on sizing requirements. Utilising telemetry capability can also refine capacity to give optimum performance.

Load on demand solution

These power solutions replace a large, constantly operating generator with a group of smaller generators that can power up or down automatically, according to onsite demand. For instance, if a site requires a total peak output of 1500 kVA, it is possible to use three smaller 500 kVA generators together to achieve this output when the site is operating at full capacity. When the demand for

“If we design solutions where the equipment is running at 80% load or above regularly, then we can offer significant savings in fuel, carbon and local emissions.”

Adam Read, head of sales - Middle East, Aggreko



Adam Read, head of sales - Middle East, Aggreko.

Photo Credit : Aggreko

power fluctuates and this reduces to lower than 500 kVA, two of the generators can power down when not required.

This also means harmful emissions are reduced as well as noise pollution.

Greener technology

Aggreko's range of hybrid packages models have a battery system paired with a generator, meaning fuel is only used when it's needed most. During non-peak hours or at night, the generator turns off and the battery system provides 12 hours of power at 4 KW – ideal for welfare structures, lights and security systems. They are also fully automated and require minimal maintenance and can provide up to 75% in fuel savings as well lower emissions.

Aggreko also provides PV panels, which feature a single-axis tracking system to maximise energy production, while enabling a more stable and predictable yield curve. They can be mounted on frames and connected to cabin loads in the same connection in order to provide power to the cabins. They closely track the sun as it moves across the sky and this increases the amount of energy delivered by 10%-20% without exceeding the maximum PV power penetration, saving more fuel without compromising system stability. Aggreko solar power is part of a hybrid system offering and integrates seamlessly with thermal and battery storage solutions. ■

Efficiency for a faster energy transition

At 'The Smarter E Europe' energy trade fair and conference, Rittal and Eplan demonstrate standardised solutions to accelerate the engineering and construction of systems to implement projects more economically.

Rittal and Eplan support customers along the entire value chain, from planning and designing and semi-automated plant construction to plant operation.

Photo Credit : Rittal GmbH & Co. KG

RITTAL AND EPLAN showcased its plans to show how the energy transition can be sped up, at this year's 'The Smarter E Europe' trade fair. The two companies demonstrated options to save time and costs for customers from all sectors of the energy industry and are thus accelerating the growth of the energy infrastructure. "Electrical engineering companies and grid operators have their hands full in meeting the high demand. Standardised, modular and industry-proven solutions save time and money and are thus extremely important," Jan-Oliver Kammesheidt, vertical market manager of energy at Eplan explained.

"Rittal and Eplan support customers along the entire value chain, from planning and designing and semi-automated plant construction to plant operation. This is the way we are actively shaping the transformation of energy supply together," added Raphael Görner, executive vice president of Rittal's Energy and Power Solutions Business Unit.

Getting started faster with preconfigured solutions

At the trade fair, Rittal and Eplan presented a preconceived compact transformer station. It can be planned from preconfigured subsystems and standardised products and then also semi-automatically manufactured in high quality. These basic solutions can be created for a wide variety of energy industry requirements using a modular system, thus providing the basis for a wide range application options. The decisive advantages of preconfigured solutions are suitable project planning and complete documentation by Eplan Software. Customers can build directly on a project – including standardised industrial hardware – and must only customise when required. As a result, costs and time are saved, instead of new products having to be repeatedly developed. Rittal and Eplan also showcased PV systems, which can be planned more easily thanks to pre-designed configurations for AC distributors, and how eMobility charging parks can be

easily scaled with a powerful backend infrastructure.

Rapid and secure set-up of charging infrastructure

With end-to-end design tools from Eplan and using Rittal's standardised solutions, the two companies are also supporting the expansion of the grid and charging infrastructure, helping implement the mobility revolution. Solutions for AC and DC charging, as well as megawatt charging, can be implemented efficiently.

New energy monitoring for manufacturing processes

Rittal and Eplan also presented an integrated system solution comprising hardware and management software, permitting comprehensive energy monitoring in production processes. Transparent manufacturing data and the corresponding energy flows enable efficient energy management, which will play an increasingly important role in companies' future economic operations.

The vital question of how systems' energy consumption can be further reduced will also be addressed. With its Blue e+ cooling unit series, which offers vast energy consumption savings of up to 75%, Rittal shows how hybrid technology makes energy efficiency possible. ■

Rittal and Eplan presented pre-designed solutions for the energy sector, created through the intelligent combination of hardware and software.

Embracing robotics for a smarter, safer industry

Paul Wallett, regional director, Trimble Solutions - Middle East and India, explains how robots, drones, and sensors can transform the construction industry.

TECHNICAL REVIEW MIDDLE East spoke to Trimble Solutions, a UAE-based construction technology solution provider, to discuss its robotics solutions that are paving their way through the industry.

Technical Review Middle East (TRME): How is robotics transforming the BIM workflow?

Paul Wallett (PW): With drones and autonomous vehicles equipped with sensors and cameras, companies can better collect real-time data from construction sites, thereby increasing efficiency and accuracy. A robotic arm can be used to print 3D models of construction materials, ensuring a precise implementation of complex designs from a BIM model. Furthermore, robots can reduce errors during on-site installation by automating prefabrication and assembly processes, and also monitor construction progress and quality through comparisons with Building Information Modelling (BIM) to detect deviations and ensure alignment across the project. However, the successful integration of these tools requires careful planning and skilled personnel.

TRME: What is the Trimble RTS and what problems does it solve?

PW: Simply speaking, a Robotic Total Station (RTS) is a Total Station that allows remote operation. Trimble RTS is an advanced surveying instrument that combines robotic technology with total station capabilities to automate a diverse range of construction and surveying tasks. It is designed to address several issues in the construction sector by automating layout, boosting productivity, improving accuracy, integrating with BIM, and enabling real-time data collection. Traditionally, a layout would entail a survey by two or more people with a manual approach all the way from laying out points to calculations whereas a robotic total station is linked directly to a 3D BIM model, which enables the robot to do all



Photo Credit : Adobe Stock

calculations directly or through a dynamic auto prism tracking system.

In summary, Trimble RTS effectively automates tasks to expedite layout processes and improve accuracy and minimises human error. In addition to facilitating real-time data collection for up-to-date project information, its integration with BIM further ensures alignment between the digital model and on-site construction, leading to more efficient project management. The solution has been widely employed in an array of construction and surveying applications, and has been used in marquee construction projects, including the Museum of the Future, whereby RTS was used to accurately layout all the hanger positions for the extremely complex MEP systems, taking the digitally designed MEP BIM model direct to field placement.

TRME: How does Trimble promote the adoption of robotics by companies?

PW: We offer user-friendly robotics solutions that are designed to be accessible

by organisations. By offering intuitive interfaces, simplified workflows, and extensive training resources, these solutions help companies quickly comprehend and utilise robotic technologies. This is especially significant as industry reports predict that the construction robots market size will increase at a CAGR of 15.50% from 2023 to 2028, from US\$331.7mn to US\$681.8mn. However, it is also important to remain cognisant of the different requirements and budgets of businesses, resulting in the need to provide scalable solutions that can be tailored to these unique business demands.

TRME: How is Spot the Robot helping the construction industry?

PW: Spot is a cutting-edge robotic dog developed by Boston Dynamics, a robotics firm known for its innovative and agile robotic systems. As a global technology company, Trimble was keen on partnering with Boston Dynamics to incorporate Spot into its construction and field operations solutions. Spot is a four-legged robot that

can navigate through difficult terrain and environments, owing to its high level of mobility and agility. It is fully equipped with a range of sensors, cameras, and onboard processing capabilities, allowing it to effectively perceive and interact with its surroundings, and enable managing hazardous work and promote worker safety. Spot can also be equipped with Trimble's advanced positioning and data capture technologies, such as laser scanners, cameras, and GNSS (Global Navigation Satellite System) receivers, enabling it to autonomously navigate construction sites, collect data, and capture detailed imagery.

TRME: Lastly, tell us more about your partnership with ResponsibleSteel, and the Tekla software. What challenges does the software aim to solve?

PW: The steel industry, as one of the largest industrial emitters of CO₂, is taking an



Photo Credit: Trimble Solutions

Paul Wallett, regional director, Trimble Solutions - Middle East and India

industry-wide approach through ResponsibleSteel, a non-profit organisation is driving the steel industry's first global multi-stakeholder standard and certification

initiative to ensure that steel is responsibly sourced and produced. Trimble is the first BIM software technology provider to join the ResponsibleSteel initiative. Trimble's Tekla software is one of the construction industry's most widely used software product suites for the design, engineering, fabrication and detailing of steel structures.

With owners and operators of both building and infrastructure assets increasingly expecting their construction partners to choose sustainably sourced materials, there is a growing opportunity and urgency for the steel industry to minimise its environmental impact. With Trimble's Tekla software solutions, engineering, detailing and construction firms and fabrication workshops can more effectively calculate and plan the use of steel in structures and in reinforcements for concrete structures.

Tekla's Embodied Carbon Calculator enables designers and detailers to assess the potential environmental implications of designs to quickly compare various structural options' carbon impact. Additionally, a plugin to Tekla Structures enables the upload of material quantities in a design to One Click LCA, a life cycle assessment software that helps users calculate and reduce the environmental impacts of their designs. ■

“Robots can automate repetitive tasks for example, sharing real time updates of construction (onsite point cloud scans) and comparing those with the digital model for daily or weekly progress monitoring.”

ENGIE and PIF to co-develop Saudi hydrogen projects

ENGIE, WHICH PROVIDES low-carbon energy services and solutions for integrated utilities management, has signed a memorandum of understanding (MoU) with the Public Investment Fund (PIF) for the joint development of green hydrogen projects and its derivatives in Saudi Arabia, exploring opportunities that contribute to enhancing the energy transition within the objectives of the Saudi vision 2030.

The MoU was signed by Frederic Claux, managing director, flexible generation and retail, AMEA from ENGIE and Yazeed Alhumied, deputy governor and head of MENA investments from PIF, paving the way for the two parties to explore opportunities to jointly develop projects for green hydrogen and derivatives production for export.

Claux said, “The MoU between ENGIE and PIF will foster strategic partnership in developing green hydrogen projects in the Kingdom.

“We, at ENGIE, are proud to contribute



Photo Credit: ENGIE

Frédéric Claux said, “The MoU between ENGIE and PIF will foster strategic partnership in developing green hydrogen projects in the Kingdom.”

to driving the energy transition in the Kingdom and achieving its aspirations and goals in the green hydrogen sector. Our partnership with PIF will contribute to laying robust foundations for the green hydrogen industry, enabling the Kingdom to be one of the top exporters of green hydrogen worldwide.”

PIF and ENGIE are to evaluate the feasibility of co-development opportunity.

Additionally, the two parties will jointly formulate a strategy to best approach the international market and secure offtake arrangements.

The MoU will enable ENGIE to work closely with PIF in Saudi Arabia in diversifying the Kingdom's economy and to strengthen its global competitiveness in producing and supplying hydrogen and derivatives.

Dubai Municipality has given permits to build up to six floors using modular construction.



Photo Credit : Adobe Stock

The growth of modular construction in the UAE

Post-pandemic construction activity in the region is booming, and modular designs are gaining popularity. Sania Aziz reports.

“Modular construction reduces the transport and other related costs significantly.”

Bashar Kayali,
general manager, LINQ Modular

IN AN INTERVIEW with *Technical Review Middle East*, Dubai Municipality’s head of building systems Ahmad Alsalami, said that modular construction has existed in the UAE since the late 90s.

However, he added that activity had stopped in 2020, thanks to the pandemic, which brought a halt to the construction industry worldwide. Since then, the industry has picked up pace, and consequently, so has modular construction.

Most recently, these developments have come from ALEC Contracting and Engineering, a UAE-based company that has forayed into the modular sector.

ALEC’s LINQ Modular will focus solely on modular construction.

New technology

At an event at LINQ’s factory in Dubai Industrial City on 12 July this year, Dubai Municipality awarded LINQ the license for constructing buildings with a G+6 building

design. This is the first time that a Dubai-based company would be able to construct six floors using this technology. The factory functions as a facility where rooms are manufactured via an assembly line. The modules are pre-fabricated units that can be assembled together to create complete buildings. According to LINQ, it will be able to produce better quality products, because modular construction necessitates a factory-controlled production environment. This means that every product at the factory will be of the same quality every single time it is manufactured.

At the factory, every room is built and fitted with all the electricals and plumbing, along with any extra fittings that the client may require. The modules contain wheels, which are meant to be run on tracks, so that the workers can easily move the modules between them.

LINQ's general manager Bashar Kayali, told *Technical Review Middle East*, "When you go modular, you transfer the material to the site in the shape of the final unit assembled. You don't make a lot of trips to deliver loose components. You deliver one module, one time, with all components already installed inside, with MEP, floors, and all other fittings. This reduces the transport and other related costs significantly."

"This focus on sustainability in modular construction aligns with the growing demand for eco-friendly building solutions."

Ahmad Alsalamy, head of building systems, Dubai Municipality

He also spoke about the durability of these products. "We are using the same material when it comes to wall panelling, fit outs, and even MEP equipment. We only use some different connection details, some special accessories and hardware. So when it comes to durability, you get the same product as compared to traditional construction."

Challenges

As such, even the challenges pertaining to modular remain the same. "It's like any other challenges you find in the construction



Bashar Kayali, general manager, LINQ Modular.

sector. Construction in a controlled environment is a big add on, which allows you to produce better quality, much faster."

At the same time, Kayali added that "We need to continue working hard and build our knowledge base.

We need to get the market supply chain to start supporting this industry. Clients can also join this development by starting to move their project to modular."

The future of the industry

Kez Taylor, the CEO of ALEC, said that traditional construction methods are no longer efficient, and that modular construction will be the future of the industry. Echoing the same sentiment, Al Salamy added that modular construction will also be the future of mass production. A report by McKinsey showed that modular production can speed up the construction process by as much as 50%, while reducing costs by 20%.

Support from regulatory bodies

Meanwhile, Dubai Municipality is also aiming to support companies looking to go modular.

Alsalamy thinks that traditional construction companies will also slowly adapt to modular construction.

"This is what we see now with traditional construction companies. Here, the market is tough, and competition is high. Using the latest technology will help companies in the region to market themselves better, and to be more successful in this space."

When it comes to technology, Alsalamy is proud of Dubai Municipality's efforts to certify products. According to him, there is a body of products which were first certified in Dubai, and are now being used all over the world.

Modular construction also fits in with Dubai's green building regulations, thanks to reduced carbon emissions as compared to on-site construction. "Modular buildings can be designed with recyclable components, ensuring minimal impact on landfills when the building reaches its end-of-life. This focus on sustainability in modular construction aligns with the growing demand for eco-friendly building solutions," concluded Al Salamy. ■

Photo Credit: Dubai Municipality



Ahmad Alsalamy, head of building systems, Dubai Municipality.

Tackling construction emissions

Teeba Aljabery, sustainability specialist at Egis, explains how the construction industry can reduce embodied carbon emissions.

“THE WORLD STILL needs a giant leap on climate ambition. The red line we must not cross is the line that takes our planet over the 1.5 degree temperature limit. In the fight for climate justice and climate ambition, we can and must win this battle for our lives.” Those were the words of the United Nation’s Secretary-General António Guterres during COP27 held in Sharm Elsheikh in 2022.

The building industry is responsible for a vital share of global carbon emissions forming 39%, out of which 11% is embodied carbon, as the World Green Building Council stated. By the middle of this century, with the global population nearing 10 billion, it is anticipated that the size of the worldwide building stock will double. However, a concerning issue lies in the carbon emissions produced even before the building starts operating, jeopardising a significant portion of our remaining carbon budget.

Assessing carbon emissions

As a result, the built environment sector plays a crucial role in addressing the climate emergency. The urgent critical focus should be directed towards tackling upfront carbon to effectively respond to this challenge. The term embodied carbon refers to the total greenhouse gas emissions that are associated with the extraction, manufacturing, transportation and construction of building materials. As the world focuses on the challenge of mitigating climate change, the construction industry needs to adopt sustainable practices and reduce its carbon footprint. This article explores various strategies and initiatives that can help the construction industry reduce embodied carbon in its activities.

A great way to start managing the carbon footprint during construction is to carry out carbon assessment exercises. Through this exercise, contractors can identify the major sources of carbon emissions and take targeted actions to reduce their environmental impact.

Aside from operating carbon emissions, what drives up emissions is the usage of raw materials with a high energy consumption manufacturing process and are typically transported over greater distances.

This causes companies to drive up their carbon emissions, especially because sourcing local materials can often be more expensive compared to shipping them from overseas. Apart from this, reducing emissions also requires companies to adopt certain

“With the global population nearing 10 billion, it is anticipated that the size of the worldwide building stock will double.”



Photo Credit : Egis

Teeba Aljabery, sustainability specialist at Egis.

policies which they might not yet be willing to do.

The procurement process should consider sourcing the project materials locally if feasible, which will minimise the travel distance required to the project site. Additionally, contractors must consider efficient transportation methods and plan logistics to optimise delivery routes as much as possible.

Energy-efficient machinery

Contractors can also opt for the use of energy-efficient machinery and equipment during the construction process. It is also encouraged that renewable energy is explored to support the construction process with the power necessary including solar-powered generators.

Another strategy with significant influence on embodied carbon reduction is to utilise prefabrication and modular construction techniques, where components are manufactured off-site and assembled on-site. The approach reduces material waste and speeds up the construction process. Innovative technologies are also encouraged that include 3D printing for construction, which can use fewer materials and minimise waste.

Due to the lack of embodied carbon benchmarking in the region, clients are increasingly becoming interested in lifecycle assessments that cover embodied carbon. At Egis we helped clients develop embodied carbon benchmarks for their assets and designed projects with embodied carbon reduction targets and strategic plans.

Collaboration between stakeholders such as architects, engineers, suppliers, and contractors is crucial to reduce the embodied carbon in the construction industry.

Setting ambitious targets early on and creating feasible reduction plans for all stages of the building’s life cycle, including the construction phase, will lead to a more sustainable and environmentally-friendly built environment. ■

Resolving the Middle East's water crisis through technology

Wilco's MENA group director and managing director for UAE, Yasser Nagi, discusses ways to make the most out of the limited water resources in the region.



Photo Credit: Wilo

THE MIDDLE EAST has been facing several challenges with its water supply due to the region's arid climate, limited water supplies, and rapidly expanding population, all of which have put tremendous strain on the water management systems.

Recent technological advances, however, have given the region an upper hand in addressing these challenges and moving towards a more sustainable and resilient future. One of the most innovative technological approaches to addressing the Middle East's water shortage is desalination. The MENA region is home to more than 50% of the world's desalination capacity, with Saudi Arabia and the UAE having the largest desalination facilities.

Smart water networks represent an important technological advancement with great potential for effective water management in the Middle East. Smart water networks can optimise water consumption and decrease waste by

integrating sensors, data analytics, and real-time monitoring. These networks can also detect leaks and other issues in the water supply system, allowing for quicker response times and reduced water loss. Besides that, smart water networks can provide valuable data on water usage patterns and assist in identifying water conservation opportunities.

One example of a smart water network in the Middle East is the Dubai Electricity and

“The DEWA smart water system uses AI to optimise water flow and pressure, which reduces waste and increases efficiency.”

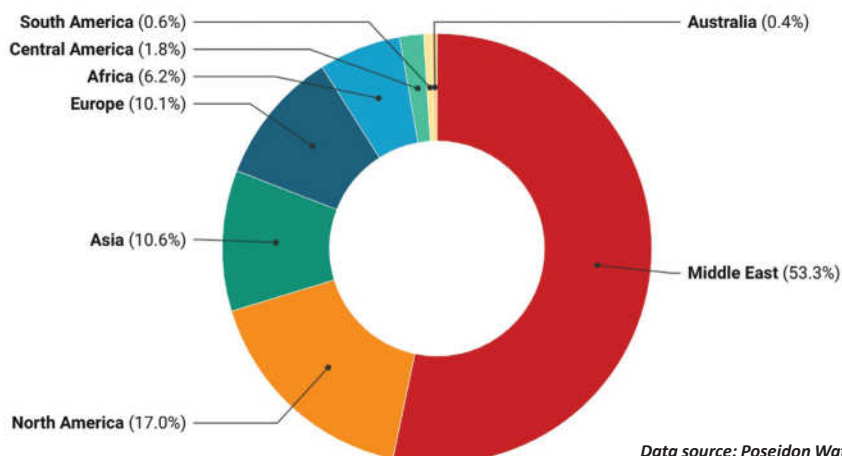
Water Authority (DEWA) smart water system. The system uses real-time data to monitor water consumption and locate leaks, resulting in an estimated 10% reduction in water loss. In addition, artificial intelligence (AI) algorithms are used to optimise water flow and pressure, which further reduces waste and increases efficiency.

The list also includes cloud seeding, which is the process of dispersing substances into the air to promote precipitation. This is a significant method that is being explored as a promising solution for the water shortage in the Middle East. Although controversial, cloud seeding has been used to increase rainfall in several regions of the world. The UAE government has also made investments in cloud seeding technology as part of its key initiatives to address water scarcity. Reusing and recycling water is another strategy for addressing the Middle East's water crisis. Various industries can benefit from this practice by reducing demand on freshwater resources and using wastewater as a sustainable water source.

As a result of recent improvements in wastewater treatment technology, the procedure is now both efficient and affordable, making it a viable solution for the region. The Jebel Ali sewage treatment plant in Dubai, which reuses wastewater for irrigation and landscaping, is a prime example of water recycling practices used in the Middle East. The facility can treat up to 300mn gallons of sewage each day, offering the city's parks and green spaces a reliable source of water.

It is evident that these technological developments promise hope in resolving the water management problems faced by the Middle East. The region can progress towards a future with more resilient and sustainable water supplies by continuing to invest in and implement these technologies. ■

Global desalination capacity 2022





Distribution networks must adapt and perform more efficiently, according to Eaton Middle East.

Shifting the spotlight to the smart grid

Eaton Middle East's managing director Ashraf Yehia explains how the utilities sector in the MENA region can adopt smart grid technology.

ENERGY NEEDS ARE on a surge, and with the grid becoming increasingly dynamic and complicated, the integration of new tools becomes imperative for distribution networks to address future challenges effectively. This pressing need for reliable, resilient, zero-emissions, and cyber-secure energy is the driving force behind the UAE's \$163 billion and Saudi Arabia's \$186 billion investments toward fostering a greener economy.

So, it is crucial to embrace novel tools that empower distribution networks to tackle the forthcoming challenges effectively.

Three fundamental capabilities driving the implementation of the intelligent grid

With the advancements and evolving needs of the grid, flexible load management is a vital element in grid configuration and optimisation. It is important to recognise the significant need and assist utilities in

establishing adaptable energy systems through innovative capabilities to anticipate, prepare, and manage the ever-changing dynamics of energy supply and demand.

Firstly, incident isolation is the key to increasing power availability despite weather events. Each year, extreme weather conditions and natural disasters reach unprecedented levels, resulting in

“As the world continues to electrify, it will encounter new peak energy requirements that need to be met.”

more frequent service disruptions and safety concerns for utility workers engaged in equipment repairs and replacements.

Intelligent equipment plays a crucial role in mitigating the frequency and duration of interruptions by autonomously and remotely isolating and handling faults. For instance, the latest advancements in recloser technology allow for faster response to fault conditions, automatically reconfiguring energy flow and minimising the impact of power outages, thereby enhancing the availability of the electric grid.

Secondly, sophisticated modelling and planning are essential for seamlessly integrating renewable energy sources and accurately determining capacity requirements.

Determining whether the addition of distributed energy resources (DERs), such as battery systems, can alleviate the need for expensive grid upgrades necessitates intricate engineering analysis.

Considering the high demand for engineering resources in short supply, companies need to simplify the complexities of engineering analysis for utilities by providing sophisticated software that imparts the necessary knowledge. Novel digital tools aid in informed decision-making, bridging the gap between regulatory pressure to decarbonise energy systems and practical implementation. Moreover, new analytics offer comprehensive insights into grid potential and performance. These capabilities empower utilities to swiftly and precisely identify optimal strategies for integrating

“Sophisticated modelling and planning are essential for seamlessly integrating renewable energy sources.”

renewables, incorporating storage solutions, and expanding energy efficiency programs.

Finally, real-time response enhances grid reliability as more variability enters the game. As the introduction of more variable

renewable sources impacts grid stability, real-time response becomes critical. Balancing grid voltage requires increased efforts with the growing reliance on the grid to power vehicles, homes, and buildings.

Innovative integrated Volt/VAR control software efficiently manages power factor and power quality while supporting conservation voltage reduction (CVR), a strategy that reduces energy demand and consumption. As a result, a higher proportion of energy is effectively delivered to utility customers, allowing for the deferral of new generation capacity additions and reducing the carbon footprint. This translates into a more efficient, higher-quality, and cost-effective power supply.

Taking a step forward to new energy horizons

The power flow has been from large, centralised power plants to utility customers for over a century. In other words, the flow was unidirectional. Today, things have changed, and it is no longer true. Presently, there exists an immense opportunity to revolutionise the distribution network to support a world that is increasingly reliant on electrification and decentralised generation.

Recognising the need for a sustainable



Ashraf Yehia, managing director, Eaton Middle East

and resilient future, companies should understand that the distribution network must adapt and perform more efficiently. Regardless of weather events, uninterrupted power supply is imperative. As the world continues to electrify, it will encounter new peak energy requirements that need to be met. Rather than merely managing energy supply to meet demand, the integration of new grid intelligence will facilitate the balance between supply and demand. ■

Photo Credit : Eaton Middle East

ACCIONA invests in machine learning

ACCIONA HAS BECOME a lead investor of SAALG Geomechanics, a software and engineering startup that predicts real ground movement during the entire construction cycle with a large volume of data.

ACCIONA, as strategic partner, will allow SAALG Geomechanics to apply its DAARWIN analysis software to the field of tunneling. The technology company has raised US\$4.31bn through an operation partially funded by the European Commission's EIC Accelerator program, in a mixed model of capital investment and subsidies, with ACCIONA as lead investor and Credit Andorrà as financial supporter. SAALG Geomechanics aims to subsequently raise new capital to reach US\$5.9mn.

SAALG was one of the companies that decided to apply for the programme and, after a successful pilot project in direct collaboration with the business teams, ACCIONA decided to invest in it.

Autonomous TBMs

Tunnel-boring machines (TBMs) have emerged as the safest tunneling method in a context of technological advances in geotechnical engineering, improving working conditions inside tunnels and the use of ventilation systems, among other developments.

Currently, more than 30% of tunnel construction projects worldwide experience geotechnical difficulties that lead to cost overruns or delays, with an average additional cost that can reach more than 55% of the original budget. The new functionalities of

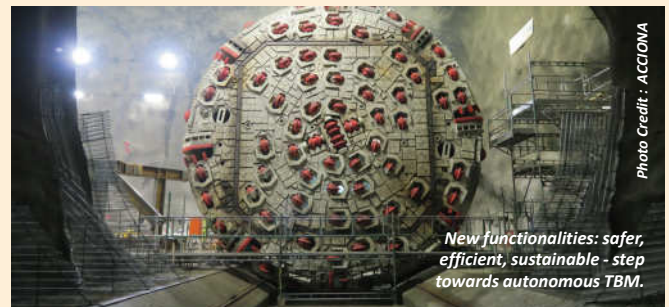


Photo Credit : ACCIONA

New functionalities: safer, efficient, sustainable - step towards autonomous TBM.

the DAARWIN software, based on machine learning algorithms, make it possible to predict a TBM's forward speed, detect geotechnical anomalies in advance, assist TBM pilots in optimising tunneling phases, and gather information for use in future projects. The new functionalities of this solution, which represents a significant increase in safety, efficiency and sustainability, are the first step towards the autonomous TBM.

Since its creation in 2016, SAALG Geomechanics has been involved in more than 50 civil engineering, large building and mining projects worldwide: tunnels, large excavations and roads in more than 15 countries. Since 2020, its DAARWIN software is being used, for example, as a strategic innovation tool for the UK's High-Speed Two (HS2) project, the largest European high-speed rail infrastructure project.

Breaking down any challenge

Crushing equipment is being utilised for a range of applications.

A SA MEANS of reducing the size and form of rocks, ore and waste materials, crushing represents a vital process in heavy industries such as construction and mining. As a result, it is vital that the equipment and machinery that facilitates this activity are efficient, robust and reliable, enabling operators to deal with the most resilient minerals with minimal unexpected downtime.

Fortunately, for those with crushing needs, there is no shortage of manufacturers who have dedicated extensive time and resources to provide suitable solutions. One of the biggest gatherings of these occurred earlier in the year at CONEXPO CON/AGG 2023, an international tradeshow which welcomes more than 139,000 attendees and 2,400 exhibitors. Among these stood Terex Materials Processing Systems, a producer of crushing and screening equipment to customers around the world, which displayed its new Cedarapids CRC1350 Cone Plant. Described as being in 'a class of its own', the portable plant is designed for high production at lower costs per ton.

It features the enhanced TC1300X cone crusher with 400 hp and high-efficiency roller bearings to increase the overall power and increase the stroke from 45-70 mm. This configuration, Terex MPS stated, results in an increase throughput and improved quality product shape and can meet customer demands for higher production capacity and lower cost per ton while remaining highly portable, especially when paired with the TSV7203P, 7 ft wide-3 deck horizontal screen. The company announced that after the event in Las Vegas, it had received extensive positive feedback and even secured several orders on site.

Another novel solution, albeit at different scale, has been introduced by FRITTSCH. The internationally-recognised manufacturer has a number of solutions available in the areas of mining and metallurgy, chemistry, geology and mineralogy, the glass

*A combination of Jaw Crusher
and Disk Mill classic line.*

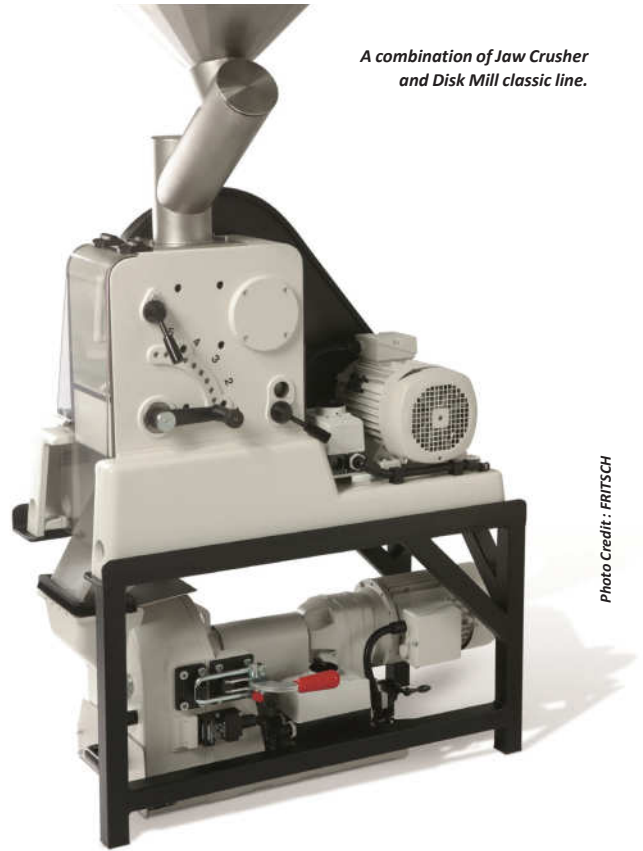


Photo Credit : FRITTSCH

industry, ceramics, rocks and soils. One of its latest introductions here is the Jaw Crusher PULVERISETTE 1 classic line, an instrument for the fast and effective pre-crushing of hard and brittle materials.

Advantages of the equipment include fast, uniform comminution; final fineness of 1-15 mm with gap width adjustment from the outside; crushing jaws and lateral support walls available in various steel types, tungsten carbide and zirconium oxide; simple crushing jaw removal; dust-free operation; and an emphasis on robustness.

The PULVERISETTE 1 classic line comes in two models with different maximum feed sizes, both of which can be combined with the Disk Mill PULVERISETTE 13 classic line to automatically grind material from a particle size of up to 95 mm to final fineness of down to 100 µm quickly and effectively.

Recycling around the globe

Elsewhere, MB Crusher has emphasised the versatility of its units by exploring the various examples from around the world, of their use in reducing the amount of waste sent to landfill.

In Croatia, a rotating sorting grapple MB-G1200 was paired with a Komatsu PC210 excavator at a recycling centre. The solution was deployed to move and sort waste, which it was able to do effectively due to the extreme precision it can provide, the company stated.

Meanwhile in Italy, an MB-HGS314 padding bucket was mounted on a Caterpillar 315 excavator to clean topsoil as part of the construction of a new sports centre. An 8 mm rotor – kit RE8 – was installed to permit the reuse of excavated soil directly on site.

Finally, MB Crusher highlighted a BF90.3 crusher bucket which is being deployed to crush reinforced concrete pillars in Brazil. Once crushed, it is possible to reuse the aggregates, as the jaw crusher provides regular output, and also sell the iron. While units can be mounted on excavators from 21 to 32 tons, the company noted that, with its solutions, recycling can be done easily with any excavator, loader or skid steer to help facilitate operations. ■

*An MB-HGS314 padding
bucket mounted on a
Caterpillar 315 excavator.*



Photo Credit : MB Crusher

AI for a better water treatment system

Tawfeek Mahmoud, projects sales manager, MEA, for Emerson Automation Solutions speaks about how the company is using artificial intelligence to monitor equipment.

Technical Review Middle East (TRME): What are some of the challenges faced by the water industry in the region?

Tawfeek Mahmoud (TM): The water industry faces challenges, which can have significant environmental, economic, and operational implications. There are high energy costs, and fluctuating energy prices can strain the budgets of water utilities, leading to increased costs for consumers and potential financial challenges for the industry. Outdated infrastructure also makes the systems less energy-efficient. Inefficiencies in equipment and processes can lead to energy waste.

At Emerson, we address high energy costs by utilising IIoT-powered intelligent pumping technologies that optimise energy consumption and reduce waste.

TRME: How is Emerson working with industry operators to improve operational efficiency and reduce energy use?

TM: Emerson offers a range of energy management solutions to help industry operators optimise energy usage. This may include advanced control systems, real-time monitoring, and data analytics to identify areas of energy inefficiency and recommend improvements. Our automation and control systems are designed to enhance operational efficiency and reduce energy consumption by optimising processes, minimising downtime, and improving overall system performance.

Apart from this, we also provide asset management solutions that enable industry operators to monitor equipment health, perform predictive maintenance, and optimise asset performance to reduce energy waste. When it comes to water management solutions,

“Pumps, motors, and other machinery that are not properly maintained or optimised may consume more energy than necessary. Identifying and replacing or retrofitting energy-inefficient equipment is crucial for reducing energy consumption.”



Tawfeek Mahmoud, projects sales manager, MEA, Emerson Automation Solutions.

Emerson's technologies and expertise in water management can help operators reduce water losses, improve water treatment efficiency, and optimise water distribution systems, indirectly reducing energy consumption associated with water operations

TRME: How are Industrial Internet of Things (IIoT) technologies helping to collect real-time data from remote systems?

TM: Emerson's intelligent pumping solutions can use data from sensors to identify and optimise pump performance, which can result in significant energy savings and reduced maintenance costs. In addition to improving operational efficiency, Emerson's IIoT solutions also help improve water quality. Our Ovation Water Treatment System uses sensors to monitor water quality in real-time. This data can be used to identify and address challenges before they cause water quality issues.

As the water industry embraces IIoT and automation technologies, there is an increased risk of cyber-attacks. To safeguard critical infrastructure, we have implemented security measures that secure wireless networking technologies. We also employ advanced anomaly detection algorithms that promptly identify and respond to any potential threats. ■

Construction projects with reduced carbon footprint are essential for a greener future.

Green innovations fuel sustainable construction

Constructing a smart built environment requires digital transformation and Industry 4.0.

“**C**ONSTRUCTING A SMART built environment comprises of three key components,” says Hassan Al Balawi, CEO of WakeCap, an IoT-based enterprise solutions provider. He explains that while the first involves using tools like BIM, the Internet of Things (IoT), and Artificial Intelligence (AI), the second component is employing sustainable construction practices by utilising green building materials and technologies, optimising designs for energy efficiency, and practising waste reduction to transform into a circular economy.

“Together with public-private partnerships, cross-industry collaboration, knowledge sharing, and best practice adoption, construction progress can be achieved on a larger scale. With a collective effort towards innovative construction modules, we can be one step closer to achieving an environmentally friendly, efficient, and collaborative infrastructure.”

Al Balawi added that WakeCap’s tamper-proof, shockproof, and waterproof wearables ensure 100% PPE compliance and accurately measure time spent on site, travel time, attendance, and unproductive hours. It provides clear pictures of what is happening at the construction site, enabling project managers to optimise their projects so that savings can be made without

compromising on delivery.

3D technology also plays a significant role in advancing sustainable construction practices and facilitating the development of environmentally friendly and energy-efficient buildings. It allows resource efficiency, design optimisation, waste reduction, carbon footprint reduction, adaptability and reusability, and innovative construction techniques.

Enhanced efficiency and reduced expenses can improve the construction landscape.

UAE-based 3D building solutions company, 3DXB, has a well laid out plan for the next six months of their construction activities. Badar Rashid AlBlooshi, chairman of the company, breaks them down as research and development, expansion and partnerships, project acquisitions, technological advancements and sustainability initiatives.

“It [3D printing] can minimise the need for transporting large quantities of construction materials to the site, reducing carbon emissions,” he says, explaining that “the optimised use of materials and reduced waste can help in minimising environmental impact.”

When selecting materials for 3D printing, AlBlooshi says, “Assess the range of materials available for 3D printing and our suitability for your project. Consider the properties of the materials, including strength, durability, thermal performance, and compatibility with other construction materials. Ensure that the selected materials meet regulatory requirements and desired sustainability goals.”

Apart from this, using better software and integration tools can aid in sustainable construction.

An innovative digital management tool worth mentioning here is PlanRadar’s Document Management. “It supports day-to-day accurate data management so that more time can be freed up for high-value tasks, increasing efficiency, limiting errors and achieving better results. Importantly, it simplifies workflows, ensuring there are no gaps in record management, and encourages seamless collaboration to empower project teams to build with certainty and clarity,” says Ibrahim Imam, co-founder and group co-CEO at PlanRadar. ■

DoE and FDF have organised conservation awareness workshops

IN COLLABORATION WITH the Family Development Foundation (FDF), the Department of Energy in Abu Dhabi has organised a series of awareness workshops as part of the Year of Sustainability initiative.

The workshops will aim to strengthen the role of government entities in promoting sustainable awareness and encourage behavioural change to coincide with key components of the Abu Dhabi Demand Side Management and Energy Rationalisation Strategy 2030.

The content of the workshops hopes to elevate the level of awareness among community members and urge them to become more conscious in their adoption of responsible lifestyles when it comes to electricity and water consumption. As well as this, the workshops will act as an opportunity for the community to learn more about innovative technologies and modern systems within the industry.

The workshops saw significant engagement from a range of diverse sections of the community, including students, teachers, homemakers and government employees. The sessions were held at the FDF centres, including Al Ain, Al Wathba, Zayed City and Al Mirfa, as well as in schools affiliated with the FDF in Abu Dhabi.

Maryam Mohammed Al Rumaithi, director general of Abu Dhabi's FDF, commented, "The Family Development Foundation is committed to launching workshops and awareness campaigns aimed at instilling a culture of responsible consumption in the educational sector, government and semi-governmental entities, and all segments of society. This is in line with the framework of our integrated strategy



Students, teachers, homemakers and government employees attended the conservation workshops.

Photo Credit: Department of Energy Abu Dhabi

that aims to create a mindful and sustainable society.

"We are extremely proud to announce the successful implementation of these workshops, conducted in partnership with our strategic ally, the Abu Dhabi Department of Energy. We are eager to deepen our collaboration and broaden its reach to create a positive impact on society, aligning with government objectives while fostering community awareness to enhance the well-being and quality of life for families."

Ahmed Huma Al Falasi, acting executive director of Energy Efficiency at DoE, added, "The awareness workshops contribute to the achievement of Abu Dhabi Demand Side Management and Energy Rationalisation Strategy, which aims to reduce electricity consumption in the emirate by 22% and water consumption by 32% by 2030 (...) This concerted action aims to secure a sustainable future for generations to come."

AEG Power Solutions chosen to secure power supply for metro line

AEG POWER SOLUTIONS, which provides AC & DC power supply systems, has announced that it has been selected to provide AC UPS systems to secure the power supply for an important metro line in northern Africa.

The company was chosen by Thales, Ground Transportation Systems in Italia, to provide the complete power supply solution for the metro line, consisting of 38 Protect 8 S14 UPS systems which have a proven track record in securing power for railway applications in extreme environments.

The systems range from 60-100 kVA, and will be installed in a redundant setting to provide the highest reliability of power. The Protect 8 system has a minimum expected lifetime of 20 years due to its robust nature and proves to be a cost-effective solution which is optimised for minimal operator costs. Designed for highly demanding applications, the Protect 8 ensures the safe operations of critical loads, delivering complete control wherever there is a requirement for reliability, availability and maintainability.

AEG Power Solutions provided its power supply expertise to Thales during the technical project analysis to help finalise the project.

Stefano Marmino, project procurement



The AC UPS systems are expected to be delivered in 2024.

Photo Credit: Adobe Stock

leaders at Thales, Ground Transportation Systems in Italia, said, "Having started to build a relationship with AEG Power Solutions during the procurement process, we could see that they have the technical excellence and experience required and we were confident that AEG Power Solutions, like in the past, was the right choice to provide these mission-critical UPS systems."

Alberto Dall'Asta, managing director of 3W Power S.p.A, the leading subsidiary of AEG Power Solutions for this project, commented, "We are honoured that Thales has recognised our industrial product range to meet the requirements for a reliable power solution aligned with their technical specifications."

The systems are scheduled to be delivered in 2024.

Briefly

Durable cabling and chain guides

INDUSTRIAL AUTOMATION SYSTEM designers face a significant challenge in creating durable and reliable electrical connections with dynamic elements such as extension arms, robot arms, and machine tool heads. To address this issue, two companies, Brevetti and LAPP, offer specialised solutions in the form of chain guides and cabling designed for industrial applications. LAPP, a leading industrial solutions provider, offers a range of cables from their ÖLFLEXs and UNITRONICs series. The ÖLFLEXs series includes cables for diverse control applications, with specific subseries denoted by letter designations. For example, the P symbol indicates a polyurethane (PUR) external sheath, which offers advantages such as longer lifetime, flexibility, and resistance to chemicals and oils. The ÖLFLEXs FD 855 cables are designed for 300 V/ 500 V voltages and come in various configurations to meet different industrial needs.

The ÖLFLEXs SERVO FD 796 cables are tailored for controlling servomechanisms and feature excellent chemical and mechanical resistance due to their PUR construction. Some products in this series are hybrid cables, providing simultaneous power supply and signal transmission, ideal for servomechanisms. The ÖLFLEX ROBUST series on the other hand, utilises thermoplastic elastomer (TPE) in its external jacket, making it highly resistant to harsh environmental conditions, such as chemical plants and food processing facilities. The UNITRONIC series, designed for data transfer, complements the LAPP offering with cables suitable for use in industrial automation and robotics. With thermal tolerance ranging from -40°C to 90°C, these cables come in both screened and unscreened versions and offer flexibility in handling digital signals. In addition to cables, Brevetti Stendalto specialise in manufacturing chain guides and accessories. The LIGHT series of chain guides stands out for its relatively light weight, allowing safe cable movement with a bending radius ranging from 50-150 mm. The guide's open-link construction ensures durability and resistance to torsion and tension.

Panasonic unveils breakthrough capacitor solutions

PANASONIC HAS INTRODUCED a range of cutting-edge capacitor solutions, revolutionising the world of electronics with enhanced reliability and compactness.

Capacitors are critical components in electronic devices, impacting their performance and longevity. Panasonic's dedication to research and development has resulted in incremental improvements and streamlined production processes, leading to a portfolio of capacitors known for their superior quality and compact designs.

The electrolytic capacitors, like the EEU-FR series, boast an impressive lifetime of up to 10,000 hours at 105°C. This makes them ideal for durable converters, power supply modules, and various circuits. For industrial and automotive equipment, the EEU-FP capacitors adhere to the stringent AEC-Q200 standard, ensuring optimal performance in car electronics.

Panasonic's surface-mounted capacitors (SMD) offer capacitance ranging from 1 µF to 13 mF and operating voltages from 4 V to 450 V DC. With low Equivalent Series Resistance (ESR), they reduce energy losses and tolerate ripple currents effectively. Capacitors like the EEE-FK series are designed to withstand vibrations and shocks up to 30 G, making them suitable for industrial automation and automotive applications.

The hybrid capacitors, combining polymer and aluminium-electrolytic technologies, deliver low ESR, minimal leakage current, and resistance to high ripple currents. These capacitors are well-

ECQUAAF105K
classic-format THT
polymer capacitor

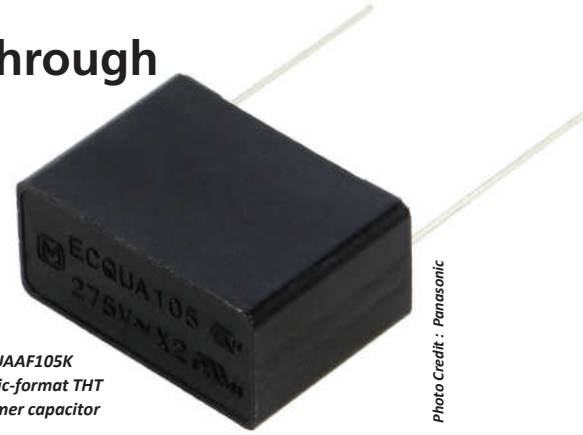


Photo Credit : Panasonic

suited for systems operating at higher frequencies, including computers, LED drivers, and switching power supplies.

Panasonic's film capacitors withstand voltages up to 2 kV DC and temperatures from -40°C to 110°C, featuring tight tolerance ranges up to ±3% and self-healing capabilities. These capacitors find applications in filters, audio equipment, converters, and switching power supply modules.

The polymer capacitors come in three groups: POSCAP, OS-CON, and SP-Cap. POSCAP capacitors, surface-mounted and crafted from sintered tantalum, offer a compelling alternative to multilayer ceramic capacitors (MLCC) in high-frequency circuits. OS-CON capacitors excel with stable ESR ratings, suitable for filter and ripple suppression circuits. SP-Cap capacitors provide high current tolerance and ultra-low equivalent series resistance, ideal for DC/DC converter outputs.

Panasonic's innovative capacitor solutions empower manufacturers to develop durable, efficient, and compact devices, catering to diverse engineering looks brighter than ever before.

Flyability hosts drone event with partner, HiTechdrone

FLYABILITY RECENTLY HOSTED an event with their partner, HiTechdrone, to bring their indoor drones closer to the mining, oil and gas, and infrastructural industries in the Kingdom of Saudi Arabia. The event, which took place on 17 July, included a product demonstration of Flyability's latest drone, Elios 3, along with hands-on testing and user testimonials. The Elios 3 is a collision-proof drone inside a cage tailored for drone inspections in confined spaces. The patented shock-proof cage is 48 cm wide and 38 cm high and protects the Elios 3 when in confined spaces. The drone uses both visual cameras and LiDAR scanning to gather data as well as guide the drone pilot when it is out of the line of sight.

The outputs of the Elios 3 can be used for visual inspections or to create highly accurate 3D models. In addition, the Elios 3 is modular, allowing different payloads to be mounted according to the mission goals. The Elios 3



The event highlighted the drone's capabilities.

Photo Credit : Flyability

presents three key benefits regarding safety, reducing inspection times, and saving money. The drone can access areas such as underground pipelines or mines, culverts, and the interiors of assets like oil tanks. It has proven use cases in mines, cement production, and infrastructure among others. "We want to make industrial work safer by putting drones in confined spaces, rather than people," said Fabio Fata, area manager for the Middle East, Flyability.

Construction Buyers' Guide 2023

The Middle East's annual where-to-buy guide

Section One: Listings by category

Section Two: Suppliers of construction & mining equipment and services

Section Three: Contact details of MENA region agents, distributors and subsidiaries listed alphabetically by country

Section One: Listings by category

AIR COMPRESSORS

Cummins Middle East FZE
Doosan Portable Power
Rotair Spa

ALTERNATORS FOR GENSETS

Linz Electric S.p.A.

ASPHALT PLANT

Ciber Equipamentos Rodoviários Ltda
Marini S.p.A.

ATTACHMENTS AND ACCESSORIES

Bobcat

BACKHOE LOADERS

Bobcat
Magna Tyres Group

BATCHING PLANT

Vortex Hydra S.r.l.

BREAKERS

Bobcat
Doosan Portable Power
Keestrack

BUILDINGS

COELMO spa

COMPACTION EQUIPMENT

Doosan Portable Power

COMPONENTS AND ACCESSORIES

Deep Sea Electronics Ltd
Hi-Force Ltd.

COMPONENTS AND SPARE PARTS

COELMO spa
Liebherr-Export AG
Marini S.p.A.
Nidec Leroy-Somer

CONCRETE

Liebherr-Export AG

CONCRETE EQUIPMENT OTHER

Bobcat
Doka Gulf FZE
Doosan Portable Power
Vortex Hydra S.r.l.

CONCRETE EQUIPMENT

Liebherr-Export AG
Vortex Hydra S.r.l.

CONSTRUCTION VEHICLES - OTHER

Liebherr-Export AG

CONSTRUCTION VEHICLES

Goldhofer AG
Liebherr-Export AG
Magna Tyres Group
Perkins Engines Company Limited.
Renishaw plc
ROKBAK (formerly Terex Trucks)
Volvo Construction Equipment AB

CONSULTANCY SERVICES

Cummins Middle East FZE
Imeco Handelsgesellschaft M.B.H.
Renishaw plc

CRANES

Liebherr-Export AG

CRUSHING, SCREENING AND WASHING

Keestrack

DEMOLITION EQUIPMENT

Bobcat
Doosan Portable Power
Liebherr-Export AG
Volvo Construction Equipment AB

DIESEL DRIVEN

Deep Sea Electronics Ltd
Doosan Portable Power
Perkins Engines Company Limited.
Rotair Spa

DOZERS

Liebherr-Export AG

DRILLING - OTHER

Doosan Portable Power

DRILLING MACHINERY AND PLANT

Herrenknecht AG
Imeco Handelsgesellschaft M.B.H.

DUMP TRUCKS AND HAULERS

Magna Tyres Group
ROKBAK (formerly Terex Trucks)

DUMPSTERS

Liebherr-Export AG

EARTHMOVING EQUIPMENT - OTHER

Bobcat
Liebherr-Export AG

EARTHMOVING EQUIPMENT

Bobcat
Liebherr-Export AG
Magna Tyres Group
Perkins Engines Company Limited.
Volvo Construction Equipment AB

ELECTRIC

COELMO spa

ENGINES, COMPONENTS AND ACCESSORIES

COELMO spa
Deep Sea Electronics Ltd
Jubaili Bros
Perkins Engines Company Limited.
Volvo Penta

EQUIPMENT

Jubaili Bros
Vortex Hydra S.r.l.

EXCAVATORS

Bobcat
Liebherr-Export AG

FABRICATION AND STRUCTURES

Al Masaood Bergum
Galva Coat for Galvanizing & Lighting Poles
Kirby Building Systems

FENCING

METALLURGICA ABRUZZESE S.p.A.

FINISHING

Al Masaood Bergum

FORMWORK

Doka Gulf FZE
Herrenknecht AG
PASCHAL-Werk G. Maier GmbH

HOISTS

Liebherr-Export AG

HYDRAULIC

Hi-Force Ltd.

JACKING EQUIPMENT

Hi-Force Ltd.

LIFTING EQUIPMENT

Hi-Force Ltd.
Liebherr-Export AG
Perkins Engines Company Limited.

LIGHTING MASTS/TOWERS

Doosan Portable Power
Galva Coat for Galvanizing & Lighting Poles
Jubaili Bros
Visa S.p.A.

LOADERS - OTHER

Bobcat
Liebherr-Export AG

MECHANICAL

Hi-Force Ltd.

MINI-EXCAVATORS

Bobcat
Liebherr-Export AG

MOBILE POWER SUPPLY UNITS

Cummins Middle East FZE
Doosan Portable Power
Jubaili Bros
Linz Electric S.p.A.
Visa S.p.A.

OTHER SITE EQUIPMENT AND MATERIALS

Bobcat
COELMO spa
Cummins Middle East FZE
Doosan Portable Power
Renishaw plc

PETROL DRIVEN

Rotair Spa

PILING

Imeco Handelsgesellschaft M.B.H.

PIPE AND PIPELINE FITTINGS/COATINGS

METALLURGICA ABRUZZESE S.p.A.

PNEUMATIC

Doosan Portable Power
Hi-Force Ltd.

PUMPING EQUIPMENT - OTHER

Deep Sea Electronics Ltd

PUMPING EQUIPMENT

Visa S.p.A.

QUARRYING

Doosan Portable Power
Liebherr-Export AG

RECYCLING

Keestrack
Liebherr-Export AG
Marini S.p.A.

RENTAL EQUIPMENT

Cummins Middle East FZE
Herrenknecht AG
Hi-Force Ltd.
Jubaili Bros
Peter Berghaus GmbH
ROKBAK (formerly Terex Trucks)
Rotair Spa
Visa S.p.A.

ROAD BUILDING EQUIPMENT - OTHER

Bobcat
Doosan Portable Power
Marini S.p.A.
Peter Berghaus GmbH
Rotair Spa

ROAD MARKING

Peter Berghaus GmbH
Rotair Spa

ROAD BUILDING EQUIPMENT

Bobcat
Doosan Portable Power
Liebherr-Export AG
METALLURGICA ABRUZZESE S.p.A.
Volvo Construction Equipment AB

SAND BLASTING EQUIPMENT

Doosan Portable Power
Rotair Spa

SCAFFOLDING

Doka Gulf FZE
PASCHAL-Werk G. Maier GmbH
Wilhelm Layher GmbH & Co KG

SERVICES

PASCHAL-Werk G. Maier GmbH

SKIDSTEER LOADERS

Bobcat
Magna Tyres Group

SOFTWARE

PASCHAL-Werk G. Maier GmbH
Renishaw plc

STEEL - OTHER

METALLURGICA ABRUZZESE S.p.A.

TELESCOPIC HANDLERS

Bobcat

TEMPORARY HOUSING AND OFFICES

Al Masaood Bergum

TOOLSDoosan Portable Power
Hi-Force Ltd.**TOOLS - OTHER**

Hi-Force Ltd.

TRACTORS

Goldhofer AG

TRAILERSFAYMONVILLE DISTRIBUTION AG
Goldhofer AG
Magna Tyres Group**TRENCHING AND PIPE LAYING**

Imeco Handelsgesellschaft M.B.H.

TUNNELLINGDoka Gulf FZE
Herrenknecht AG
Imeco Handelsgesellschaft M.B.H.
Liebherr-Export AG**USED EQUIPMENT**Herrenknecht AG
ROKBAK (formerly Terex Trucks)
Visa S.p.A.
Vortex Hydra S.r.l.**WELDING EQUIPMENT**

Linz Electric S.p.A.

WOOD-WORKING EQUIPMENT / SERVICES

Doka Gulf FZE

Section Two: Suppliers of construction & mining equipment and Services**Al Masaood Bergum**

PO Box 24089

DIP 2

Dubai

United Arab Emirates

Tel: +971 4 88 77727

Fax: +971 4 33 82201

Web: www.amb.ae

E-mail: dxboffice@amb.ae

Modular Building Systems & Hybrid Building
Manufacturer: Tailored engineering solutions
leading to the manufacturing of sustainable
modular building systems.**Baudouin**

Technoparc du Brégadan

13260

France

Tel: +33 488 688 500

E-mail: j.keen@baudouin.com

Bobcat

PO Box 262688

JLT Platinum Tower

Cluster I

Level 18

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United Arab Emirates

Tel: +971 4 2767206

Fax: +971 4 2767204

Web: www.bobcat.com

E-mail: gaby.rhayem@doosan.com

Bobcat manufactures the widest range of
market-leading compact equipment including
skid-steer and compact tracked loaders,
compact excavators, backhoe loaders and
telescopic handlers. The impressive selection
of Bobcat attachments for use with these
machines includes wheel saws, trenchers,
planers, hydraulic breakers and graders, saving
time, effort and cost in carrying out an increasing
range of applications in the Middle East.**Agents:**Bahrain - Yusuf Bin Ahmed Kanoo Co. WLL
Egypt - Otrac Heavy Equipment
Iraq - Vara Company for General Trading LTD
Kuwait - Bahrah Trading Co. WLL
Libya - Danah for Import of Road Equipment and
Heavy Machinery
Oman - International Heavy Equipment LLC
Qatar - Jaidah Motors & Trading Co.
Saudi Arabia - General Trading & Equipment
United Arab Emirates - Kanoo Machinery LLC
Yemen - Blue Triangle Trading LTD**Cat Lift Trucks**

Hefbrugweg 77

Almere

1332 AC

Netherlands

Tel: +31 36 5494411

Web: www.catlifttruck.com

E-mail: info@catlifttruck.com

Agents:Bahrain - Mohamed Abdulrahman Al-Bahar Bahrain
Iraq - Mantrac Group Iraq (Cat)
Jordan - Jordan Tractor & Equipment Co. Ltd. (Cat)
Kuwait - Mohamed Abdulrahman Al-Bahar Kuwait
Lebanon - M. Ezzat Jallad & Fils (Lebanon)
Oman - Oasis Trading & Equipment Co. LLC
Qatar - Mohamed Abdulrahman Al-Bahar Qatar
Saudi Arabia - Zahid Tractor & Heavy Machinery Co. Ltd.
United Arab Emirates - Mohamed Abdulrahman Al
Bahar Al Ain
United Arab Emirates - Mohamed Abdulrahman Al
Bahar Dubai
United Arab Emirates - Mohamed Abdulrahman Al-
Bahar Abu Dhabi
United Arab Emirates - Mohamed Abdulrahman Al-
Bahar Sharjah
Yemen - The Tehama Trading Co. (CAT Lift Trucks)**Caterpillar Electric Power**

USA

Web: www.cat.com/demand_cat

E-mail: Electric_Power@cat.com

Caterpillar has the widest electric power
portfolio in the industry including diesel and
gas generator sets, containerized power
modules, cogeneration systems, rental units,
solar microgrids and energy storage solutions,
and advanced monitoring and control systems.
The Cat dealer network provides long-term
service agreements, technical training, and
parts availability. Visit cat.com/dealer-locator.**Agents:**

United Arab Emirates - Caterpillar SARL Branch

Ciber Equipamentos Rodoviários Ltda

Rua Senhor do Bom Fim, 177

Porto Alegre/RS

CEP: 91140-380

Brazil

Tel: +55 51 33649200

Web: www.ciber.com.br

E-mail: ciber@ciber.com.br

In Porto Alegre - Brazil, CIBER Equipamentos
Rodoviários, has been located for more than 60
years. Pioneer in the development of mobile
counterflow asphalt plants, keeping up to the
present day always on the cutting edge,
launching new technologies and products.
CIBER - A Wirtgen Group Company.**Agents:**

Brazil - Ciber Equipamentos Rodoviários Ltda.

COELMO spa

Via Delle Industrie, 278

Agglomerato Industriale ASI

Acerra (NA)

80011

Italy

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Fax: +39 081 8039724

Web: www.coelmo.it

E-mail: sales@coelmo.it

info@coelmo.it

Coelmo is one of the oldest European
manufacturers of industrial and marine
generators from 3kVA up to 4000kVA. Based in
Italy, with a large stock of generating sets
available to be shipped overnight to any
destination in the world. Company profile,
products and models are available online at
www.coelmo.it.**Agents:**

United Arab Emirates - COELMO (DMCC Branch)

Cummins Middle East FZE

PO Box 17636, South Zone 2

Jebel Ali Free Zone

Dubai

United Arab Emirates

Tel: +971 4 8809911

Fax: +971 4 8860518/9

Web: www.cummins.com

E-mail:

cummins.middleeast@cummins.com

For more than 100 years, Cummins'
technology has powered success around the
world. Our comprehensive portfolio delivers
innovative solutions for your unique power
need - commercial, industrial, marine,
mining, recreational, emergency and
residential. Products include diesel engines
ranging from 49 to 5,500 hp, diesel and gas
powered generator sets ranging from 15 to
3750 kVA, alternators, generator-drive
engines and integrated power systems,
combining generator sets and power control
and transfer technologies. Services range
from system design, project management,
operations and maintenance contracts to the
development of turnkey power plants. With
more than 10,600 certified dealer and
distributor locations in approximately 190
countries and territories, we offer global
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whenever you need us. Cummins
technologies and employees are always
innovating for a world that's always on.**Deep Sea Electronics Ltd**

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Hunmanby

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Tel: +44 (0) 1723 890099

Web: www.deepseaelectronics.com

E-mail: sales@deepseaelectronics.com

UK designed & manufactured single-set and
multi-set genset controllers, hybrid genset
controllers, lighting tower controllers and
specialist remote communications solutions,
programmable displays and controllers for
off-highway vehicles, commercial battery
chargers and automatic transfer switch
controllers.**Agents:**United Arab Emirates - Deep Sea Electronics
(DMCC Branch)**Doka Gulf FZE**

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Worldwide, Doka is one of the leading firms in
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organisation with 160 sales and logistics locations
give construction companies around the world fast
access to safe, dependable and high-performing
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speedy and prompt availability of required
formwork together with Doka's unmatched
services for every type of building construction
and civil engineering project.**Agents:**Bahrain - Omar Salmeen Bin Mahfoudh Est.
Jordan - Doka
Kuwait - Doka Kuwait - Div. of Riham General
Trading & Contracting Co. WLL
Oman - Doka Muscat SPC
Qatar - Doka Qatar WLL
Saudi Arabia - Advanced Formwork Company LLC
Saudi Arabia - Doka Saudi Co. Ltd. for Trading
(Dammam)
Saudi Arabia - Doka Saudi Co. Ltd. for Trading (Riyadh)
Turkey - Doka Kalip - skele Sanayi ve Ticaret AS
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(Abu Dhabi Branch)
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Doosan Portable Power

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Doosan Portable Power is a market leading manufacturer of portable compressors, generators and mobile lighting systems for the Middle East market. All Doosan Portable Power products are designed and rigorously tested to ensure they give outstanding operation on the toughest sites and in the most extreme conditions around the world, for applications in construction, roads, utilities, rental, quarrying and many other industries.

Agents:

Bahrain - Mohammed Jalal & Sons WLL
Egypt - Otrac Heavy Equipment Co. (Doosan Portable)
Iraq - VARA machinery
Kuwait - Bahrah Trading Co. WLL
Libya - Gunny Oilfield Services
Mauritius - Prime Plant Company Limited
Oman - General Engineering Services (GENSERV)
Qatar - Jaidah Group
Saudi Arabia - Saudi Diesel Equipment
Saudi Arabia - The Machinery Group LLC
United Arab Emirates - Al Futtaim Auto & Machinery Co. LLC
Yemen - Blue Triangle Trading LTD

Eland Cables

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Global supplier of power, data, instrumentation and control cables to industries including mining, renewables, petrochemical and infrastructure projects. Focused on quality, expert technical support, and customer service. Our IEC/CE CBTL & ISO/IEC 17025 accredited cable testing laboratory provides rigorous QA assessments. Delivered with tailored logistics services.

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Fax: +352 26 90 04 425
Web: www.faymonville.com
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Faymonville manufactures low loaders, lowbed trailers, flatbed trailers and modular trailers for payloads from 20 tons to 500 tons.

Galva Coat Industries

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Goldhofer AG

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Web: www.goldhofer.com
E-mail: info@goldhofer.com

Goldhofer manufactures transport vehicles with payloads extending from 25 to over 15,000 tons. The product range covers different product line: trailers (Steered and unsteered), semitrailers (steered and unsteered, with/out dropdeck/flatbed, 2 to 12 axles, payloads up to approx. 150 tons), heavy duty modules (for voluminous and heavy loads, combinable longitudinal/transversal, payloads up to 15,000 tons, can be equipped with hydrostatic drive), transport vehicle for wind power plants.

Herrenknecht AG

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Herrenknecht is a technology and market leader in the area of mechanized tunnelling systems. As the only company worldwide, Herrenknecht delivers cutting-edge tunnel boring machines for all ground conditions and in all diameters - ranging from 0.10 to 19 meters.

Agents:

United Arab Emirates - Herrenknecht Middle East FZE

Hi-Force Ltd.

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E-mail: daventry@hi-force.com

Hi-Force is the UK's leading manufacturer and supplier of hydraulic tools and bolting equipment, and offers a wide range of products suitable for use in several industries worldwide.

Agents:

Saudi Arabia - Jassem Ibrahim M. J Al Shikar Est.
United Arab Emirates - Ebrahim Al Shaker Industrial Equipment Trading LLC
United Arab Emirates - Hi-Force FZE
United Arab Emirates - Hi-Force Hydraulics

Imeco Handelsgesellschaft M.B.H.

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Tel: +43 1 3289980
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John Deere Power Systems

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John Deere Power systems develops, manufactures and markets diesel engines for a large variety of generator sets, compressors, industrial and agricultural applications. John Deere is one of the very few engine manufacturers that doesn't make gen-sets, this makes us unbiased partners with gen-set OEMs, offering them a robust power generation line-up from 30 to 500 kVA.

Agents:

Lebanon - Ghaddar Machinery Co.
Oman - General Engineering Services Est
Turkey - TDMED
United Arab Emirates - GENAVCO

Jubaili Bros

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E-mail: jbdubai@jubailibros.com

Jubaili Bros with over 45 years of experience, is a leading provider of Energy Solutions in the Middle East, Africa and Asia. Jubaili Bros serves its customers by offering high quality diesel generating sets through 11 countries with 3 manufacturing plants and 30 branches & service centers that are dedicated to customer satisfaction.

Agents:

Kuwait - Jubaili Bros (Kuwait)
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Qatar - Jubaili Bros WLL

Keestrack

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Keestrack designs and produces mobile crushing and screening equipment. Quality, innovation, flexibility and after sales support are key. R&D ensures Keestrack equipment is recognized as a market leader in quality and performance all over the world. Keestrack has a wide range mobile screens, impact crushers, jaw crushers, cone crushers and stackers.

Agents:

Jordan - Green & Grey
Lebanon - Green & Grey
Qatar - Green & Grey

Kirby Building Systems

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Kirby Building Systems, having HQ at Kuwait, is a global leader in Pre-Engineered Steel Buildings (PEB). In operation since 1976, Kirby maintains a strong reputation for providing cost effective solutions for Steel buildings, manufactured to the highest standards across its 7 Plants in Kuwait, UAE, India (Hyderabad, Haridwar, Halol), Vietnam and KSA.

Kohler Power Systems

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4761 ZC, Netherlands
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Web: www.kohlerpower.com
E-mail: powersystems.emea@kohler.com

For every aspect of your critical load requirements, Kohler has engineered the product: EPA-compliant generator sets from 5 to 4000kW, a full line of automatic transfer switches, customizable paralleling switchgear, controls that can manage a multitude of power systems applications, along with wireless and Web-enabled remote PC power system monitoring.

Agents:

Saudi Arabia - A.Abuanyan Trading Corporation

Liebherr-Export AG**LIEBHERR**

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The Liebherr Group comprises more than 140 companies in every continent of the world and employs a workforce of more than 51,000 people. In 2022, the Liebherr Group achieved a total consolidated turnover of more than 12.5 billion Euros. The Liebherr Group's Holding Company is Liebherr-International AG in Bulle, Switzerland, which is entirely owned by members of the Liebherr family.

Linz Electric S.p.A.

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Linz Electric specializes in manufacturing alternators from 1.7kVA to 1,500kVA and rotary welders up to 500amp. The company's main goal is customer satisfaction through high quality Made in Italy products and quick and complete service. Linz Electric is part of the Pedrollo Group with which it shares values and production synergies to ensure the highest quality standards.

Magna Tyres Group

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Marini S.p.A.

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Marini is a worldwide leader in the manufacture of batch mix asphalt plants (production 60 to 400tph), both stationary and mobile, plants for recycling of asphalt pavements and for production of cement mixes. Its products are the results of the most modern technologies and 50 years of experience.

Agents:

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Egypt - M.S.E. - Modern Structures & Equipment
Iran - Fan Va Tose EH Co. Ltd.
Jordan - Space for Technical Solutions - Global Smart Co
Oman - Saud Bahwan Projects & Equipment LLC
Qatar - Oriental Trading Co. Ltd.
Saudi Arabia - Arabian Trucks & Construction Equipment Co
Turkey - Marini Makina AS
United Arab Emirates - Fayat Middle East FZE

METALLURGICA ABRUZZESE S.p.A.

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Nidec Leroy-Somer is the world leader in low, medium & high voltage alternators from 10 kVA to 35,000 kVA. We specialize in high-quality products combining long-lasting performance and reduced lifetime costs. With generator set manufacturers and electric power producers worldwide, we help the industry to provide reliable, efficient power solutions

Agents:

United Arab Emirates - Nidec ASI LLC

PASCHAL-Werk G. Maier GmbH

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The PASCHAL Group is an international specialist for concrete formwork, shoring systems and formwork planning software with more than 50 years of experience. Our services range from the development and production of high-performance formwork and support systems through to worldwide sales and right through to reliable product and customer support.

Agents:

Bahrain - PASCHAL Concrete Forms Co. W.L.L.
United Arab Emirates - PASCHAL EMIRATES Co. L.L.C

Perkins Engines Company Limited.

Frank Perkins Way, Peterborough
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A world-leading supplier of off-highway diesel engines in the 4-2000kW market, Perkins has 90+ years' experience of designing, building and servicing industrial power solutions. Working in collaboration with 800+ equipment manufacturers in the construction, agricultural and power generation markets, we tailor our engines to meet their needs and exacting standards.

Agents:

United Arab Emirates - Power Systems Gulf LLC (Perkins Engines)

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Renishaw is one of the world's leading engineering and scientific technology companies, with expertise in precision measurement and healthcare.

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ROKBK (formerly Terex Trucks)

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Rokbak is a manufacturer of off-highway articulated haulers that are used in mining, quarrying, and construction applications around the world. A member of the Volvo Group and headquartered in Motherwell, Scotland, UK, Rokbak has two models of articulated haulers, with payloads ranging from 28 to 38 tonnes.

Rotair Spa

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ROTAIR S.p.A is an Italian manufacturer of Portable Screw Air Compressors. Since its inception in 1961, the company is specialized in design and manufacturing of highly efficient and reliable screw compressors. Today ROTAIR compressors are supporting customers in 70+ countries to meet their demanding business needs in the most efficient way.

- Product range: 25 – 900 CFM / 7 – 14 bar
- Aired: Manufactured in-house
- Engines used: Perkins-UK, Kubota-Japan, Honda-Japan, Deutz-Germany and Cummins-UK
- Version: Diesel, Petrol and Hydraulic

SSAB

Middle East head office and stock area is in Sharjah, Hamriyah Free Zone United Arab Emirates
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SSAB is a Nordic and US-based steel company. SSAB offers value added products and services developed in close cooperation with its customers to create a stronger, lighter and more sustainable world. SSAB has production facilities in Sweden, Finland and the US. SSAB's 2 main product brands: Hardox® wear plate and Strenx™ Performance Steel

Visa S.p.A.

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Visa S.p.A is one of the world's leading genset suppliers, based in Italy, designing and manufacturing diesel gensets, from 9 to 3000 kVA, in standard or customized versions for a large variety of applications. It also provides specific equipment for the construction sector (such as mobile site pumps for dewatering and sewage). It is present in over 100 countries through a global network to support in the successful completion of projects through an efficient engineering department, guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for more than 60 years.

Volvo Construction Equipment AB

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Iraq - Zamzam General Spring Trading
Lebanon - Abdelmassih Trading Co. - Amtrac
Qatar - Arabian Agencies Co. WLL
Saudi Arabia - FAMCO (Al-Futtaim Auto & Machinery Co. LLC)(Saudi)
Syria - Nassib Saad Est. Trading & Import
Turkey - Ascendum Makina
United Arab Emirates - Al Futtaim Auto & Machinery Co. LLC
United Arab Emirates - FAMCO (Al-Futtaim Auto & Machinery Co. LLC) (UAE)
Yemen - Elaghil Trading Co.

Volvo Penta

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Volvo Penta, with approximately 4,000 dealers in over 130 countries, is a world-leading and global manufacturer of engines and complete power systems for both marine and industrial applications. The engine programme comprises diesel and gasoline engines with power outputs of between 10 and 900hp. Volvo Penta is part of the Volvo Group, one of the world's leading manufacturers of trucks, buses and construction equipment.

Agents:

Bahrain - International Agencies Co. Ltd.
Egypt - Orascom Trading SAE HQ
Iraq - Inma
Jordan - Mithkal, Shawkat & Sami Astour Co.
Kuwait - Al Boom Marine Co.
Lebanon - Khonaysser Motors
Libya - LIBTRAC
Oman - Muscat Overseas Industrial & Marine Equipment Trading Co. LLC
Qatar - Al-Badi Trading & Contracting Co. Ltd.
Saudi Arabia - Alkhorayef Commercial Co. Ltd.
Tunisia - SC Bateaux De Plaisance et de Peche Bateaued
United Arab Emirates - Al Masaood Trucks, Equipment & Marine Engines Division

Vortex Hydra S.r.l.

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Based in Italy, Vortex Hydra have obtained the enviable reputation of being world leaders in the specialist field of concrete roof tile manufacture. Renowned for their "state of the art" large scale, fully automatic production plants, the company has applied its expertise in developing the Uno System lower volume affordable plants.

Wilhelm Layher GmbH & Co KG

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Agents:

United Arab Emirates - Layher FZE

Section Three: Agents, distributors and subsidiaries within the MENA region

BAHRAIN

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Gulf Equipment & Technology W.L.L.

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PASCHAL Concrete Forms Co. W.L.L.

Bahrain Intl. Investment Park

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EGYPT

M.S.E. - Modern Structures & Equipment

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Otrac Heavy Equipment Co. (Doosan Portable)

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Mantrac Group Iraq (Cat)

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Nabaa Zamzam Co for Gen Trade Ltd

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Vara Company for General Trading LTD

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VARA machinery

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JORDAN

Doka

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Green & Grey

Al Zarka Free Zone., G&G Lot #001,

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Hicham.sebaali@gngmachinery.com

Jordan Tractor & Equipment Co. Ltd. (Cat)

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Web: www.jordantractor.com

E-mail: jtecmgmt@jtec.com.jo

Mithkal, Shawkat & Sami Asfour Co.

Jabal Amman

19 Outhman Bin Afan St.

Amman, 11118

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Space for Technical Solutions - Global Smart Co

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Al Rai Industrial Area

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في خدمة الشركات النشطة منذ 1981
TECHNICAL REVIEW
النشرة التقنية - الشرق الأوسط
MIDDLE EAST

Project Databank

Compiled by Data Media Systems

INFRASTRUCTURE PROJECTS, IRAQ

Project Name	City	Facility	Budget (US\$)	Status
Imam Hussein Holy Shrine - Karbala International Airport (KIA) - Phase 1 - Six Million Passengers Per Year	Karbala	Airport	1,000,000,000	Commissioning
Ministry of Health - Hurriya Hospital	Baghdad	Medical/Health Facilities/Spa	150,000,000	Construction
MOT - Baghdad Elevated Train (BET)	Baghdad	Railway	2,500,000,000	EPC ITB
Ministry of Sports and Youth - Al-Russafa Stadium	Baghdad	Sports Stadium/Facilities	100,000,000	Construction
Ministry Of Sports and Youth - Al Sunbula Stadium	Al Diwaniyah	Sports Stadium/Facilities	114,000,000	Construction
Ministry of Health - Al-Hakeem General Hospital	Najaf	Medical/Health Facilities/Spa	200,000,000	Construction
Ministry Of Sports and Youth - Mosul Olympic Stadium & Hotel Complex	Mosul	Sports Stadium/Facilities	114,000,000	Construction
Ministry of Health - Al-Qarma General Hospital	Anbar	Medical/Health Facilities/Spa	120,000,000	Construction
Ministry of Transportation - Diwaniya Airport	Al Diwaniyah	Airport	1,430,000,000	EPC ITB
Ministry of Health - Kirkuk General Hospital	Kirkuk	Medical/Health Facilities/Spa	185,000,000	Construction
Ministry of Health - Al-Nahrawan General Hospital	Baghdad	Medical/Health Facilities/Spa	150,000,000	Construction
Ministry of Health - Hussaynia General Hospital	Baghdad	Medical/Health Facilities/Spa	60,000,000	Construction
Ministry Of Sports and Youth - Shatt Al Arab Hotel	Basra	Hotels	60,000,000	Construction
Basra Holding Company - General Company for Ports of Iraq - Grand Faw Port - Overview	Basra	Port	200,000,000	Construction
Lucky Cement - Clinker Production Facility	Samawah	Cement	109,000,000	Construction
General Company For Iraqi RailWays - Karbala to Najaf Tram	Al Diwaniyah	Mass Transit Systems	70,000,000	Feasibility Study
Ministry of Health - Samawa General Hospital	Samawah	Medical/Health Facilities/Spa	148,000,000	Construction

Iraq construction market forecast to grow by more than 4% from 2024-2027

THE IRAQ CONSTRUCTION market size was US\$11.4bn in 2022 and is projected to achieve an AAGR of more than 4% from 2024-2027, according to a new report from GlobalData on the Iraq construction market size, trend analysis by sector and forecast.

The growth of the construction industry in Iraq will be supported by ongoing work on various stalled infrastructure projects, coupled with the positive impact of high oil prices. The expansion will also be driven by the start of the government's new transportation, energy, and oil and gas development projects.

The key sectors in the Iraq construction market are commercial construction, industrial construction, infrastructure construction, energy and utilities construction, institutional construction, and residential construction. Residential construction was the leading sector in the Iraq construction market in 2022.

Commercial construction: The growth of the commercial construction sector will be supported by investments in hotel, retail, office, logistics, and sports projects, along with retail projects, as part of the country's post-war rebuilding efforts.

Industrial construction: Output in the industrial sector will be supported by a rebound in manufacturing and export activities, coupled

with investments in free trade zones and industrial cities.

Infrastructure construction: Improved economic conditions and rising oil export revenue will enable the government to spend more on infrastructure development and new investments. The growth of the infrastructure construction sector will be supported by the government's plans to develop transport infrastructure, combined with cross-border transport infrastructure projects.

Energy and utilities construction: The construction activity in the energy and utilities sector is expected to be supported by the continued rise in oil prices and higher exports, along with the country's rising expansion in renewable energy and oil and gas developments.

Institutional construction: The growth of the institutional construction sector will be supported by investments in health and education projects.

Residential construction: The residential sector's output over the forecast period will be supported by public and private sector investments in house building, thus addressing the housing shortage in the country amid a rising population. The Construction and Housing Minister announced that in June 2023, Iraq approved projects to build new residential cities to deal with the country's housing crisis.

Project Databank

Compiled by Data Media Systems

Project Focus

Compiled by Data Media Systems

Imam Hussein Holy Shrine - Karbala International Airport (KIA) - Phase 1 - 6 Million Passengers Per Year

Name of Client	Imam Hussein Holy Shrine
Estimated Budget (US\$)	1,000,000,000
Award Date	2017-Q1
Main Contractor	Copperchase
Facility Type	Airport
Status	Commissioning
Location	Karbala, Iraq
Project Start	2008-Q4
End Date	2023-Q4

Background

Imam Hussein Holy Shrine plans to construct the Karbala International Airport (KIA). The Airport is located between Karbala and Najaf, around 35 km south of Karbala. At 4.5 km, the airport's runway will be one of the longest of its kind in Iraq. KIA will operate with the main purpose of serving the pilgrims of the Mosques of Imam Hussein and Abbas.

Project Status

Date	Status
Jul 2023	The project is nearing completion. Works are currently focused on interior fittings which include lights and devices installations. Q4 2023 remains the deadline to start the operation of the airport.
Feb 2023	The runway work has been completed.

Project Scope

The airport will be developed in three phases:

- Phase I will have a capacity of 6 million passengers per year
- Phase II will have a capacity of 12 million passengers per year
- Phase III will have a capacity of 20 million passengers per year

Phase one consists of the following:

- Concrete runway (4.5k m in length)
- Concrete Apron 240,000 sq m area
- Taxiway
- 2 passenger terminal buildings
- A 4 km long runway
- 62 m control tower
- Asphalt roads
- 29 Aircraft's fuel farm
- Service units and systems for water and electricity
- A medical center and a security building
- Car park
- Fire station

Project Finance

The project ownership has transferred from the Ministry of Transportation (MOT) to Imam Hussein Holy Shrine The project is privately financed by funds from Al Rida Investment Group (RIG) and Khairat Al-Subtain (KAS).



ضم الحدث جلسات نقاش تفاعلية

مكانة مرموقة في هذا الحدث. خصص محمد الداوود، المدير المساعد لنمذجة معلومات البناء في مؤسسة البحر الأحمر الدولية، جلسة له. وكان الموضوع الرئيسي للعرض التقديمي بعنوان "كيف يمكن استخدام مصادر البيانات لإنشاء تمثيل دقيق للبيئة المبنية".

واختتم الحدث بجلسة نقاشية حول تقنيات البناء المستدامة، حيث حضرها متخصصون من شركات مثل ماجد الفطيم، وشوبا العقارية، وأومنيوم إنترناشيونال ليمتد، وإليفيشن لحلول البناء المستدام.

وقد ترأس المنتدى باقتدار ستيفن بورد في اليوم الأول، وهو مدير في شركة كوانتوم جلوبال سوليوشنز. فيما ترأسه في اليوم الثاني مايكل ديفيز، المدير القطري في شركة كوانتوم جلوبال سوليوشنز.

الدولية، إن الشركة تستخدم نمذجة معلومات البناء لجمع البيانات أيضاً. "يتم جمع البيانات الحية من الموقع وتغذيها في نظام نمذجة معلومات البناء".

اليوم الثاني

في اليوم التالي، عاد الحاضرون إلى برنامج آخر مليء بالطاقة من الجلسات التثقيفية. وقد بدأ بعرض دبي القابضة حول تسليم المشروع بكفاءة، وذلك من جانب محمد أحمد العطار. أما الجلسة الثانية، فقد تحدث فيها مدير المشاريع الرقمية في شركة كيو إنترناشيونال كونسلتنس، ماتيو لوكاسيفيتش، الذي عرض للحضور أنواعاً مختلفة من الأدوات والبرامج التي يمكنهم استخدامها للتحقق من صحة البيانات.

واستمر "نظام نمذجة معلومات البناء" في احتلال

وأعقب ذلك جلسة حول كيفية استخدام البيانات بدقة للتوصل إلى ابتكارات في مجال الإنشاءات، قدمها بسرات ديجيفا، رئيس التطوير الرقمي في شركة جليدز. كما قدم ايلبل دريدي، رئيس التحول الرقمي في شركة بيرو فيريetas، عرضاً تقديمياً ثاقباً عن نمذجة معلومات البناء (BIM)، والتوائم الرقمية، والذكاء الاصطناعي، وإنترنت الأشياء.

وقد درست حلقة النقاش الأولى في اليوم الأول العالم الرقمي للبناء. حيث ركزت مناقشة أعضاء اللجنة على إنشاء مدن ذكية، وكيف ستلعب عملية التحويل الرقمي دوراً في ذلك. وسلطت ياسمينة كريدلي، مديرة نمذجة معلومات البناء في شركة جاكوبس، الضوء على أهمية الترابط عند تطوير المدن. فقد قالت في معرض حديثها: "الآن، لدينا كل هؤلاء الخبراء الذين يمكنهم الاجتماع في بيئة افتراضية، والذين يمكنهم العمل في وقت واحد في مشروع ما. كما يمكن لجميع أصحاب المصلحة عرض القضايا ومناقشتها في وقت واحد. يمكنك أن تأخذ أي اجتماع تصميم في بيئة ثلاثية الأبعاد مفتوحة، ويمكنك في الواقع أن ترى - بصريا - المشكلات التي لم يسبق لك رؤيتها من قبل".

وخلال الجلسة النقاشية الثانية، قال سيد سعود، مدير تسليم مشاريع الأنظمة في مؤسسة البحر الأحمر

← مفكرة الفعاليات 2022

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جمع المنتدى كوكبة من الخبراء في أكبر شركات المنطقة

منتدى الإنشاءات الرابع يناقش الحلول الرقمية لتعزيز الاستدامة

المنتدى الرابع للإنشاءات في الشرق الأوسط وشمال أفريقيا، الذي عُقد في الفترة من 24 إلى 25 مايو/أيار في فندق الجبوتور جراند دبي، حقق نجاحاً منقطع النظير. فهذا الحدث، الذي رعته مجموعة أمانة وسوبريور إسكس، وأوبيدام، قدم مزيجاً مثيراً من العروض التقديمية وحلقات النقاش، وحضره أكثر من 150 مندوباً من مجتمع التشييد والبناء في الإمارات العربية المتحدة والمملكة العربية السعودية.

اليوم الأول

بدأ البرنامج من خلال استكشاف الجوانب المختلفة لحلول الإنشاءات الأكثر خضرة وفعالية، بما في ذلك العروض التقديمية التي قدمها علماء باسح، كبير مهندسي تطوير الأعمال في مجموعة أمانة. وأوضح كيف يمكن للتكامل الرقمي وإنترنت الأشياء (IoT) إنشاء مبانٍ ذكية يمكنها تحسين استهلاك الطاقة وتجربة المستخدم.

إلى أحدث الابتكارات للنهوض بعملية التحويل الرقمي والاستدامة.

وقد جرى استكشاف مجموعة واسعة من الموضوعات على مدار اليومين، من خلال مجموعة من العروض التقديمية المثيرة للتفكير ودراسات الحالة وحلقات النقاش التفاعلية، والتي أثارت أسئلة ومناقشات مباشرة من الجمهور. كما تمكن الحاضرون من الإجابة عن استطلاعات الرأي في بداية الجلسات.

اجتمعت، في هذا المنتدى، مجموعة من الخبراء من الشركات الرائدة في المنطقة، بما في ذلك شركة عزيزي للتطوير العقاري، ومؤسسة البحر الأحمر الدولية، وودي القابضة، وشوبا العقارية، وروشن العقارية، ومجموعة أمانة، وماجد الفطيم، وشركة المقاولين الموحدة، ووزارة الطاقة والبنية التحتية بدولة الإمارات العربية المتحدة، لمناقشة التطورات الحالية وتبادل الخبرات وأفضل الممارسات. هذا بالإضافة إلى الوصول

المحتويات

القسم العربي

تحليلات

منتدى الإنشاءات الرابع يناقش الحلول الرقمية لتعزيز الإستدامة ٤



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