

Q1 2023

INSIDE K&A

Khatib & Alami Newsletter

HORIZONS OF GROWTH

IN THIS ISSUE:

Supporting a Transformational Census in Nigeria • GIS Powers Electricity in Senegal
• The New Delta Wastewater Treatment Plant to Break New Records • National
Housing Company Projects Towards a New Dawn



**OUR MULTIDISCIPLINARY SERVICES SPAN
A WIDE SPECTRUM OF INDUSTRY SECTORS**

**ARCHITECTURE &
PLANNING**

Buildings

- Residential
- Commercial
- Hospitality
- Retail
- Healthcare
- Educational
- Special Facilities
- Sports & Recreation

City & Regional Planning

- Urban Planning & Design
- Sectorial & Regional Planning
- Landscape Architecture

Interior Design & FF&E

INFRASTRUCTURE

Transportation

- Roads & Highways
- Airports
- Rail & Mass Transit
- Bridges
- Ports
- Transport Planning & Traffic Engineering

Water & Environment

- Water Resources & Stormwater Drainage
- Water Treatment
- Urban Hydraulic
- Dams & Hydraulic Structures
- Environmental Studies & Waste Management

Geotechnical & Heavy Civil

- Foundations & Earthworks
- Heavy Civil Engineering

ENERGY

Power & Renewables
Oil & Gas
Energy & Utilities

**PROGRAM
MANAGEMENT
SERVICES**

Program Management
Consultancy
Sustainability

DIGITAL SERVICES

Geospatial Systems Integration
Energy & Utilities



A NOTE FROM OUR CHAIRMAN AND CEO



Dear clients and partners,

With 2023 well underway, I am pleased to share the exciting progress, remarkable growth, and achievements of Khatib & Alami in the past year. Throughout the year, we have expanded our product line, increased our market presence, and strengthened our partnerships with key stakeholders. Indeed, the Engineering News-Record (ENR) named K&A fourth among the Top 10 Middle East Firms for 2023 and 36th among the Top 225 International Design Firms. This recognition highlights our position as a leading firm in the region, showcasing our ability to deliver exceptional engineering and design solutions. We are enthusiastic about building upon the strong momentum we have generated and remain dedicated to innovation, excellence, and fostering meaningful collaborations. Your ongoing partnership is instrumental to our continued growth, and we are eager to explore new opportunities together.

During 2022 and the first quarter of 2023, we have made significant investments in research and development, yielding remarkable results, and leading to the creation of innovative new products that have exceeded our expectations in terms of project wins and customer satisfaction. Moreover, we have implemented new strategies to improve our supply

chain management, resulting in streamlined operations and significant cost savings. These improvements have allowed us to operate more efficiently and effectively, further enhancing our ability to deliver value to our clients. Similarly, keeping with our commitment to sustainability, we have actively supported the communities in which we operate through various projects and cutting-edge technologies.

In line with our commitment to staying at the forefront of innovation, I am thrilled to announce the consolidation of K&A's Geospatial Systems Integration, Utilities Digital Services, and other digital expertise into a unified entity known as "K&A Digital Services." This integration enables us to provide enhanced services across the entire digital spectrum, while leveraging the unique skills and engineering experience of our K&A experts. Through this collaboration, we aim to foster innovation, promote seamless partnerships, and develop cutting-edge digital solutions and products. This strategic approach has empowered us to adapt effectively to the evolving needs of our clients as they navigate new opportunities and trends, solidifying our position as "the partner of choice of our industry."

By leveraging our digital services and system integration expertise, we also drive growth and transformation for businesses and organizations across diverse industries, such as Architecture, Engineering and Construction (AEC), telecommunications, utilities, transportation, local government, emergency response, and commercial enterprises. A testament to our success is the recognition from Esri, the leading provider

of Geographic Information System (GIS) software, which has designated K&A as a State and Local Government Specialty Business Partner, highlighting our extensive track record of serving city, state, and local government clients. This prestigious designation further solidifies our position as Esri Platinum Partners. Notably, this recognition marks our fifth Esri Partner Network Specialty, complementing our existing ArcGIS System Ready, Indoor GIS, ArcGIS Marketplace, and Utility Network Management Specialties.

Looking ahead, we have identified several key areas that present exciting opportunities for growth and development. One of our primary focuses is expanding our global presence and geographic reach beyond our core markets in the Gulf region. In agreement with this objective, we have recently secured a significant GIS consultancy project in Senegal to provide digital solutions that will enhance the planning of electrification initiatives in the country. K&A is spearheading a comprehensive GIS deployment and implementation plan to support and modernize the electricity sector in both urban and rural areas, which currently face challenges such as high energy costs and limited access to electricity. Another milestone in our market expansion is the geospatial infrastructure project for the 2023 Nigerian National Housing and Population Census by the National Population Commission (NPC). Utilizing Esri technology, this endeavor marks a significant milestone for Nigeria, as the 2023 census will be the country's first digital census.

Our commitment to innovation extends beyond GIS. We continuously explore new technologies and approaches to

improve our services and deliver greater value to our clients. One example is our adoption of Building Information Modeling (BIM), which has revolutionized how we approach construction projects. Through BIM, we have transformed how we plan and execute construction projects. By creating digital models of buildings and infrastructure, we gain valuable insights and can proactively identify and address potential issues before they occur. This proactive approach results in faster and more efficient construction processes, improved coordination among project stakeholders, and enhanced overall project outcomes. Our expertise in BIM has earned us industry recognition. We are proud to have been recognized with the prestigious 2022 BIM Organization of the Year award. This accolade is a testament to our continuous efforts to establish ourselves as a leading international technology provider and systems integrator in the industry, extending beyond the Design and Supervision of Construction and PMC.

In addition to our advancements in BIM, we are actively exploring the potential of other emerging technologies, including artificial intelligence (AI), machine learning (ML), and virtual reality (VR). These transformative technologies are reshaping how we approach various aspects of design, planning, and construction processes. Our integration of ArcGIS location services with AI, ML, and VR has garnered recognition from Esri. We are honored to have received the ArcGIS Adoption Award at the prestigious 2022 Esri Partner Conference (EPC). Our dedicated team of experts is continuously researching and experimenting with emerging technologies,

ensuring that we stay at the forefront of innovation in the industry. With our commitment to technological innovation and our unwavering focus on providing high-quality services, we are confident in our ability to exceed our clients' expectations and maintain our position as a leader in the industry.

As we expand our market presence and broaden the scope of our services, our teams have been dedicated to developing innovative solutions tailored to address the specific challenges each community faces. From implementing sustainable water management practices to designing cutting-edge infrastructure, we have worked tirelessly to make a positive impact. We are driven by the larger purpose of improving the lives of people and making a positive impact on communities. Two notable examples that showcase our dedication to this mission are the Hub of Arts project in Kuwait and the New Delta Wastewater Treatment Plant in Egypt.

The Hub of Arts project in Kuwait exemplifies our commitment to reflecting the country's identity and contributing to its socio-economic and cultural aspects. This transformative project serves as a vibrant center for artistic expression, bringing together various disciplines and providing a platform for artists to showcase their talents. The Hub of Arts project not only enhances Kuwait's cultural landscape but also fosters creativity, community engagement, and economic growth.

Another remarkable achievement is the New Delta Wastewater Treatment Plant in Egypt, which achieved an impressive feat recognized

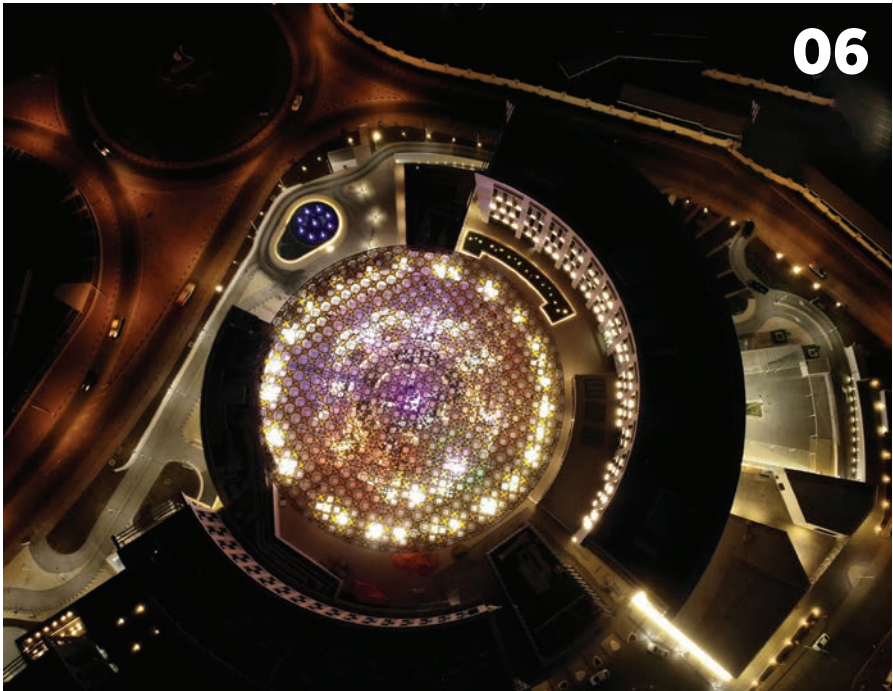
by the Guinness World Records. This state-of-the-art facility surpasses the Bahr Al Baqar project, repurposing a remarkable 36% more water. This accomplishment underscores our commitment to sustainable solutions and efficient water management. By maximizing water reuse, the New Delta Wastewater Treatment Plant contributes to water conservation efforts, supports agriculture, and addresses the water scarcity challenges faced in the region.

In this issue, you will discover a multitude of examples that showcase our ongoing commitment to pushing the boundaries of our expertise. We are proud to be engaged in a wide range of projects at any given time, reflecting our diverse capabilities and our dedication to positively contributing to the communities in which we operate. Ultimately, we value our clients, partners, and stakeholders, and are always available to provide more information about our capabilities or any specific topic you may be interested in. Please do not hesitate to reach out to us directly. Let's continue to create a brighter future together and build stronger communities.

Thank you for reading our latest newsletter, for your continued support and interest in K&A, and for our ongoing mutual collaboration and success.

Najib Khatib, Ph.D.
Chairman & CEO

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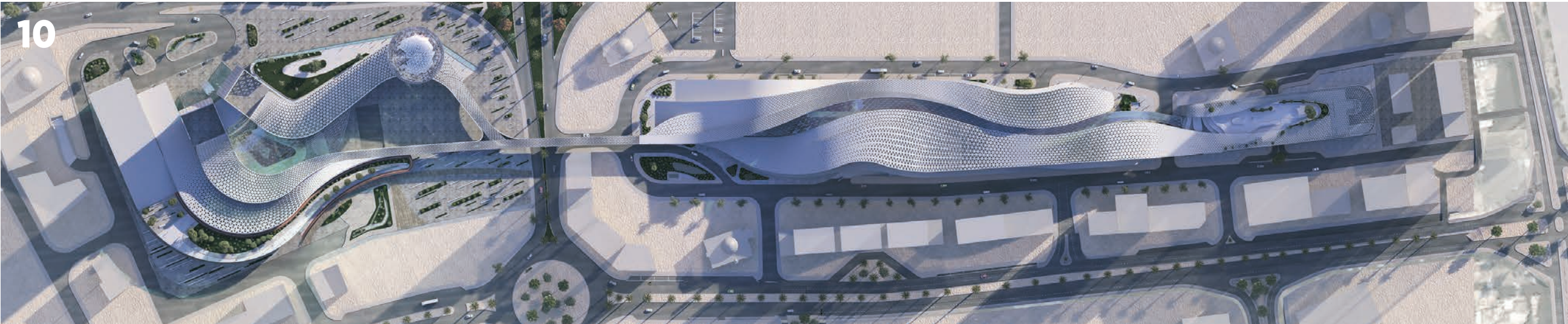


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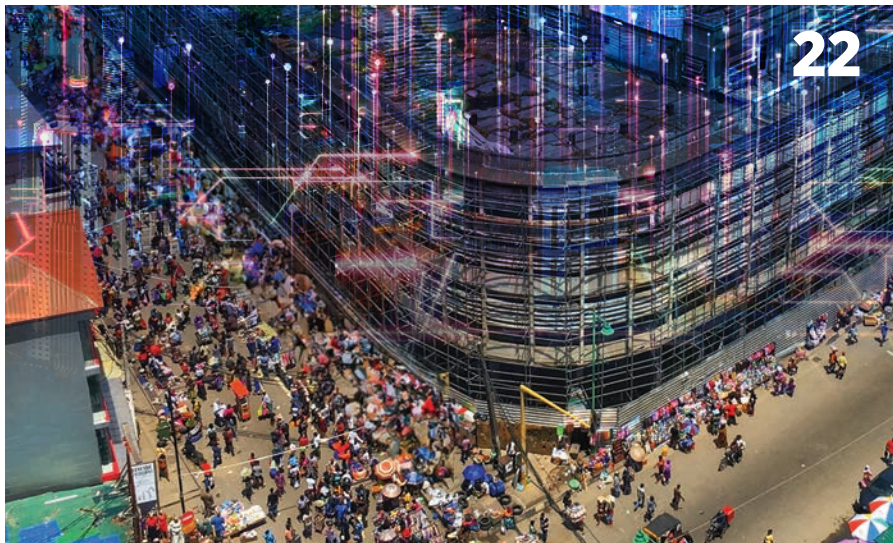
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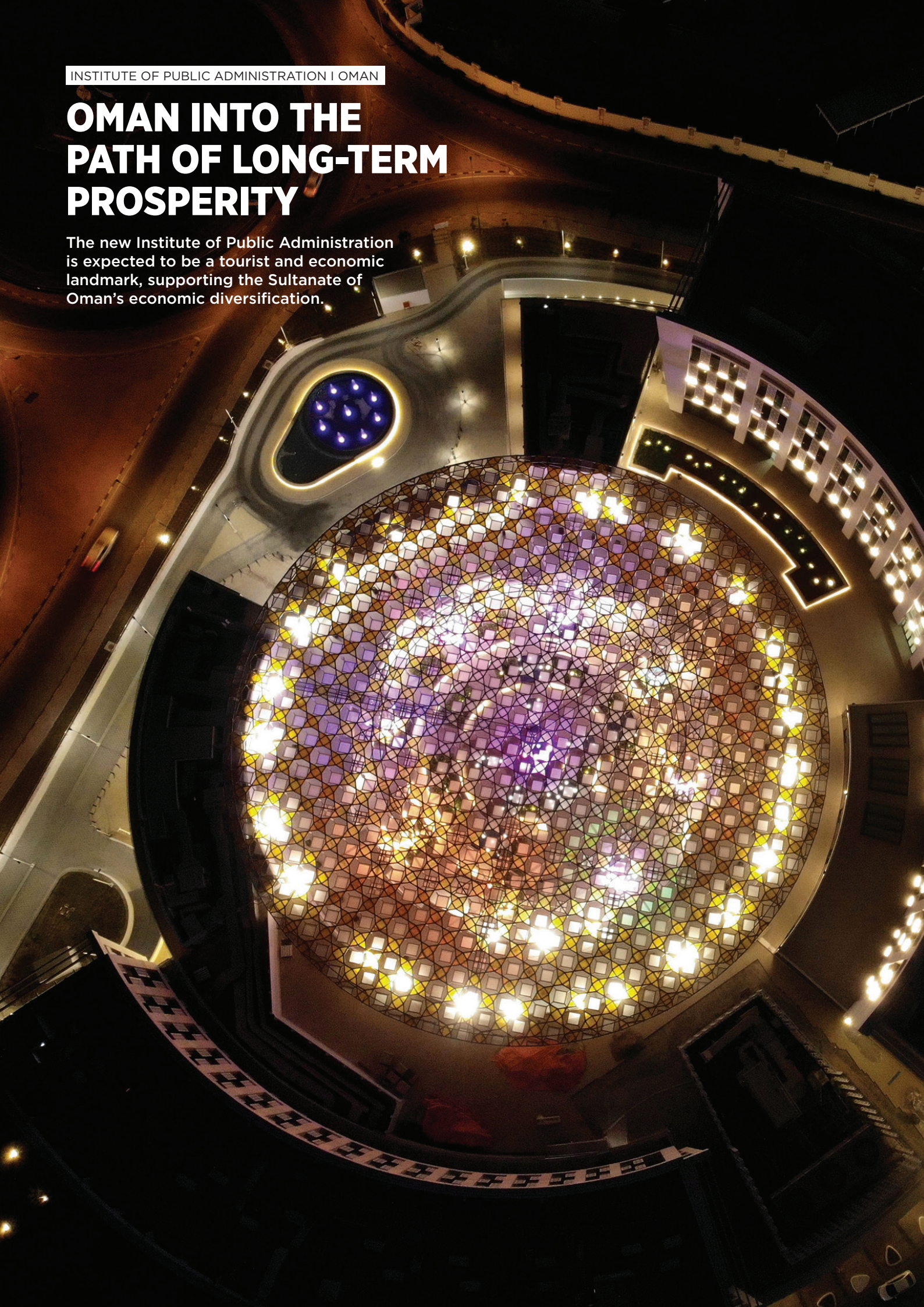


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OMAN INTO THE PATH OF LONG-TERM PROSPERITY

The new Institute of Public Administration is expected to be a tourist and economic landmark, supporting the Sultanate of Oman's economic diversification.



Khatib & Alami (K&A) was the consultant for the recently delivered Institute of Public Administration (IPA) headquarters in Muscat's Ministries District, Al Khuwair.

Spanning 28,124 m² of site area, the mixed-use development aims to increase IPA's capacity to host 20,000 trainees annually and become an integrated training destination, addressing local community's academic and vocational needs.

"We are so proud to have played a major role in delivering this landmark project for Muscat National Development and

"WE ARE SO PROUD TO HAVE PLAYED A MAJOR ROLE IN DELIVERING THIS LANDMARK PROJECT FOR MUSCAT NATIONAL DEVELOPMENT AND INVESTMENT COMPANY SAOC (ASAAS)"

Mostafa Sayed,
K&A Oman Director

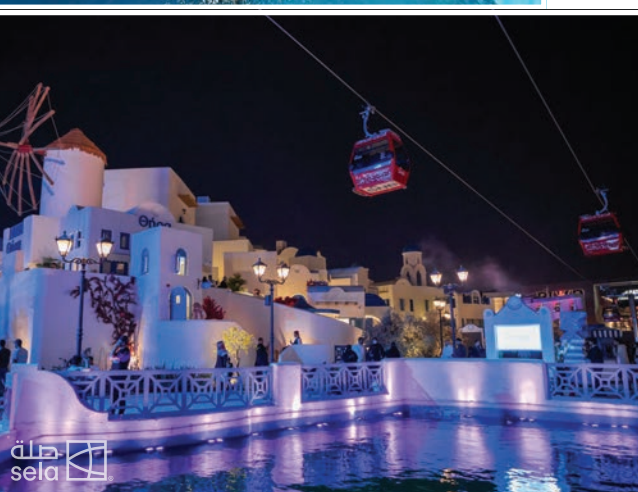
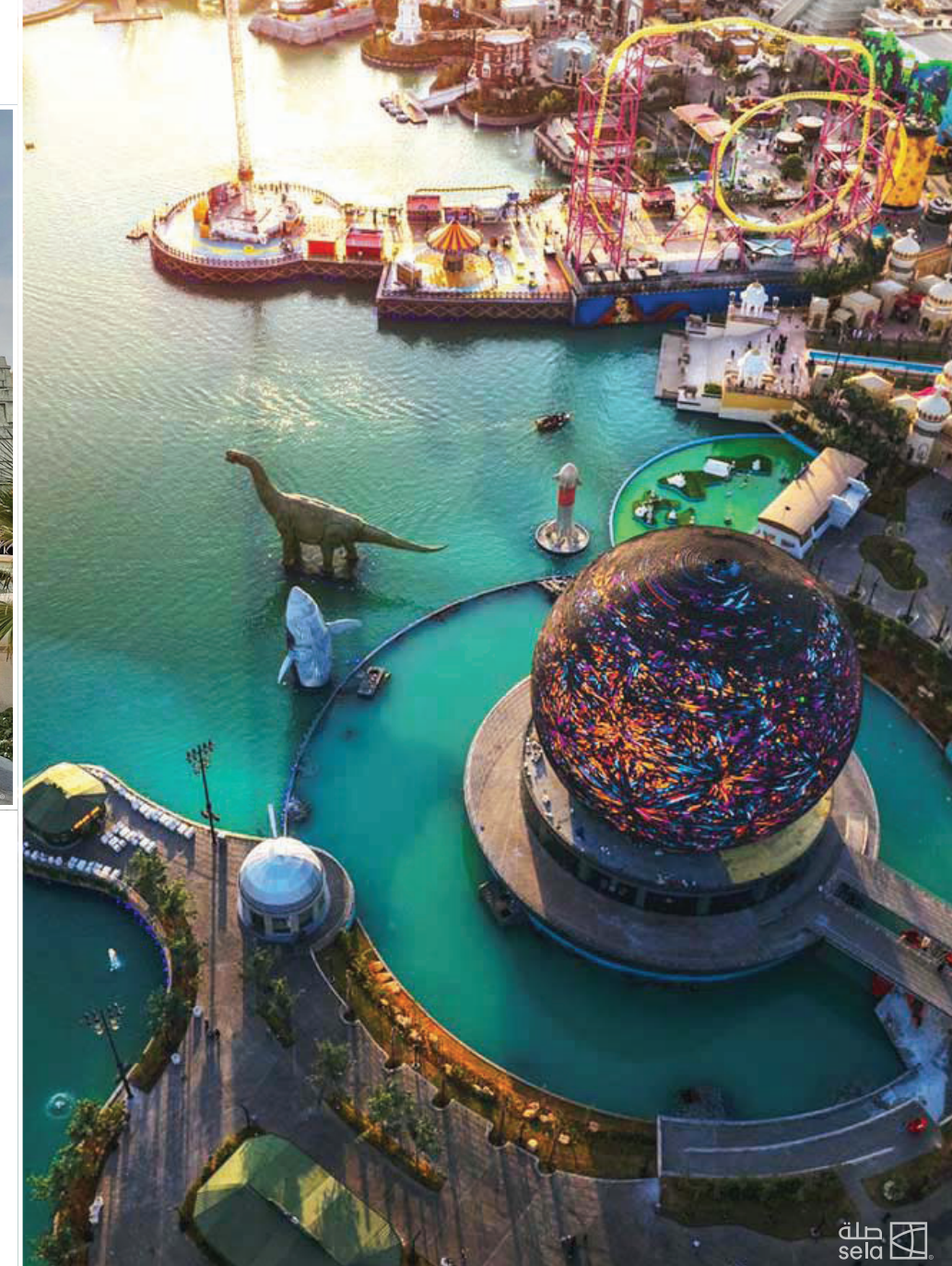
Investment Company SAOC (ASAAS)," said Mostafa Sayed, K&A Oman Director. "The IPA will help support Oman Vision 2040 in building capabilities in the public and private sectors."

K&A spearheaded the schematic design, detailed design development, tender preparation, and construction supervision. The state-of-the-art building boasts new training facilities and IPA offices, as well as a 4-star hotel, a multi-purpose hall, and retail components. It also provides meeting and conference rooms, 24 classrooms with 30 seating arrangement each, four laboratories, and a library.

Moreover, the circular arrangement of ground-floor shop retail spaces around the sheltered exterior landscaping and performance space creates a dynamic and lively atmosphere. The hotel, with its 285 rooms, offers brand new accommodation and features a range of convenient amenities, including 12 suites, a restaurant, a bar, a meeting center, a gym, and a swimming pool.

Officially launched in September 2022, the IPA is expected to become a tourism and economic beacon for the Sultanate. With its modern facilities and prime location in the city center, the project represents a qualitative shift in the administrative, tourism, and economic concept, and its range of services will help attract many industries and activities. ■





RIYADH SEASON'S BOULEVARD WORLD | KSA

AMBITIOUS RIYADH SEASON'S BOULEVARD WORLD AMASSES NEW GUINNESS WORLD RECORDS

The new entertainment zone in Riyadh Season 2022, the Boulevard World project, has achieved a remarkable feat in celebrating Riyadh's social positioning and cultural capital.

The multicultural theme park earned well-renown recognition from the Guinness World Records, breaking new records with its largest artificial lake, the tallest metal replica model of a fictional character, the biggest LED light ball, and the largest music production studio.

Mohamad Itani, Manager - Supervision Buildings, said: "Aligned with the Kingdom's Vision 2030 goals to promote culture and entertainment by providing a variety of leisure venues for Saudi residents and visitors, the Riyadh season's Boulevard World has emerged as a prominent participant in the entertainment industry."

In addition to garnering worldwide recognition, the Boulevard World project was completed in a record time of only 80 days. With SELA Company managing Boulevard World's design, build, and operation, Khatib & Alami experts have worked tirelessly to design the grading infrastructure and landscaping, deliver the traffic impact studies and technical support, and provide round-the-clock supervision.



HOW DID RIYADH SEASON'S BOULEVARD WORLD BREAK NEW GUINNESS WORLD RECORDS?

- The largest artificial lake in the world, with an area of 121,900 m²
- The tallest metal replica model of a fictional character in the world, with a height of 33.7 m.
- The world's largest LED light ball, with a diameter of 35 m.
- Merwas, dubbed the largest music production studio in the world, spanning 4023.83 m²

"We worked closely with 70 Design-Build contractors to bring the infrastructure and superstructure works from concept to completion. Modular construction, using pre-engineered steel structures and ready-to-install materials, has directly influenced the speed of construction which was delivered with high quality," he added. The Boulevard World

aims to take visitors on a journey across ten countries, allowing them to experience the joy of traveling from one country to another. One minute, you're in the Taj Mahal, and the next, in Venice. The United States, France, Greece, China, Spain, Japan, Morocco, and Mexico are also among the other countries represented. ■

K&A DESIGNS THE HUB OF ARTS IN KUWAIT

A cultural exchange space dedicated to preserving the value of art and engaging community.

Khatib & Alami (K&A) was commissioned by the Municipality of Kuwait to undertake the design of the Hub of Arts, an ambitious project that is set to preserving Kuwait's heritage and contributing to its socio-economic and cultural development.

The Hub's primary purpose is to have a tangible and positive impact on human development by stimulating a passion for the arts, a quest for knowledge, and community involvement. As a result, our experts designed

the project to accommodate a variety of recreational and cultural activities, positioning it as a communal and economic hub in Kuwait. The design also considered various sustainability features to achieve LEED Gold certification.

BUILDING A THRIVING ARTISTIC COMMUNITY

The Hub of Arts is a centralized cultural exchange space where people from all walks of life come together to share resources, learn new skills,

meet community needs, and create art. It allows artists and supporting organizations to collaborate in a creative and lively environment.

Following a thorough urban study to determine the urban and built environment context, the project's strategic positioning, accessibility, and linkages to neighboring areas, our design team has developed three alternatives with contrasting architectural approaches and program implementation. ▀



The result comprised an innovative, iconic architectural design that met LEED criteria, integrated various arts, education, and leisure-related services in a connected community space with ease of internal movement.

THE SPINE ACTS AS THE PROJECT'S BACKBONE

Setting the base for the Hub's design, K&A introduced several modern components to support innovation and learning objectives, enhancing its attractiveness and socio-economic role. Fadi Hindi, K&A Buildings Director, said: "We designed the Hub of Arts in Kuwait with a double vocational strategy.



evolution while the 3D sphere, which is considered as the principal attraction, keeps Kuwait's traditional identity remarkably visible. Designed like a huge pearl, it symbolizes the country's ancient economic pillar, balancing its bifold historical and natural origins. The developed alternative consists of a hybrid installation that combines program functions and highlights the links to its immediate surroundings, stitching the city into the building's private, semi-private, and public spaces.

Our designers envisioned the spine as the project's lungs, which connects its disparate components and houses a series of public landscaped spaces on various levels, bringing life,

nature, and communal space to the project's interior.

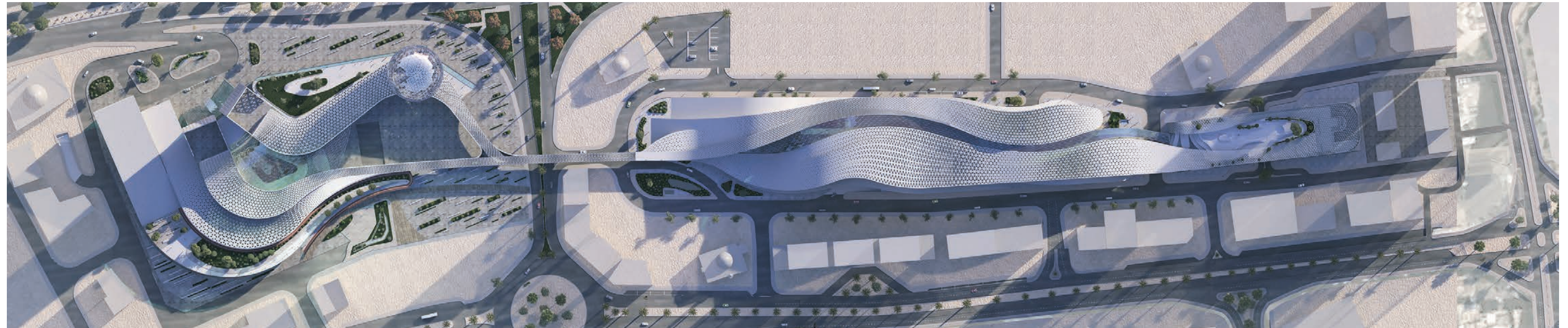
Furthermore, a series of recesses and protrusions that reflect the dynamic in the combination of functions breaks the linearity of the silhouette. The wavy volumes, which are separated by the spine, are joined together by a bridge, resulting in the curvy forms that end in the hotel towers. The porosity of the skin further emphasizes the project's fluidity and monumentality. Triangular cladding covers the facades and extends to the roof, where rays of sculpted sunlight enter and rotate through the varied triangular apertures. The interior space features several green piazzas located at different levels with the central spine extending to the hotel tower.

applications, such as Revit, Rhinoceros, and GrassHopper. Using computational approaches, these triangular motifs assist in controlling the temperature in the structure, allowing the parametric skin to be responsive and adapt smartly to its function by filtering and managing the amount of natural light entering."

The aim was to design a hub that reflects on Kuwait's long standing engagement for innovation and development.

"WE OPTED FOR A PARAMETRIC SKIN TO COVER THE PROJECT'S ENVELOPE."

Fadi Hindi,
Buildings Director



The first is to adapt and turn the project challenges into opportunities, while articulating its iconic architectural design.

The second is to link the different nodes of the complex with a comprehensive spine, bringing programmatic dynamism, interactive exchange spaces, and harmony between its components."

One of the most difficult challenges was creating a cohesive project on a fragmented site. To address this issue, our designers proposed developing a spine that connects the three separate

plots into one project, based on four main pillars:

- The Hub's cultural role in the historic urban fabric, in relation to inclusive and sustainable development.
- Cost efficiency and sustainability as vital elements, when designing a building for the future.
- The role of program and project flexibility in extending the lifespan of cultural structures, as well as their capacity to accommodate various operational spaces and perform specific functions based on user needs.

- Ease of implementation, when addressing the construction and development of each part of the project.

AN ARCHITECTURAL IDENTITY BETWEEN TRADITIONAL AND CONTEMPORARY

Inspired by Kuwait's ancient history and marine environment, the Hub's architectural design boasts a fluid, water-inspired organic, and dynamic structure. Its skyline, similar to a splashing wave, symbolizes the rise of modernity and



PARAMETRIC DESIGN IN SUSTAINABLE ARCHITECTURE

K&A designed the project to achieve LEED Gold sustainable goals.

The façade's parametric design, boosted by computer algorithms, has played a key role in regulating sustainable architecture variables, such as sun rays and thermal comfort.

Fadi Hindi explained: "We opted for a parametric skin to cover the project's envelope, combining multiple parametric modeling and rendering

As a result, the design team proposed innovative programs with several distinct aspects and functions, such as a 3D technology sphere with panoramic screens on its outside envelope and a technology hall and bleachers on the inside for animated projection, events, and other technology-related functions.

"The inspirational and innovative components of the Hub anchor the development of creativity, arts, leisure, and diversity, while implementing a positive, competitive, and sustainable imprint on communities." ■

LIGHT RAIL TRANSIT EMPOWERS EGYPT'S ECONOMY

Trailblazing project envisages establishing a more integrated and sustainable transportation system, connecting local communities, and stimulating economic development.

The National Authority for Tunnels commissioned Khatib & Alami to provide the design review and construction supervision services for a Light Rail Transit (LRT) in Cairo. Currently, the new transportation system serves as a development artery, connecting new urban communities to the New Administrative Capital. Spanning 110 km, the LRT serves 19 stations, including the two new extensions (phases 3 and 4), and has a daily ridership of 500,000

passengers, transporting more than 30,000 passengers per hour during peak times. By 2030, it will provide transportation for nine million people and reduce traffic on the Cairo-Ismailia motorway by around 30%.

Senior project manager of supervision, Hany Samir, said: "We are so proud to be working on this trailblazing project for the Egyptian National Authority for Tunnels. It is the first light rail network to connect the under-construction new administrative capital with Greater Cairo."

"The LRT will help optimize travel between and within towns and cities and give an impetus for the development of the Eastern economic corridor, opening the door for hundreds of private and public companies in the agricultural, industrial, and urban development sectors."

Aligned with the 2030 national agenda and the UN sustainable development goals, the LRT will further support the transition toward a more sustainable mobility system while reducing pollution and improving quality of life. ■



The LRT is a sustainable means of green mass transportation because it runs on **ELECTRICITY** rather than diesel.



The route will be **103.3 KM** long with **19 STATIONS** and is expected to carry **500,000** passengers per day.



The LRT's **22 TRAINS** are designed to travel at a speed of **120 KM/H**.



The LRT begins at the Adly Mansour interchange station in El-Salam City, the **LARGEST STATION** in the Middle East with an area of **1.1 MILLION M²**.



The trip duration from Adly Mansour to the New Administrative Capital will not exceed **45 MINUTES**.



The **LRT** will also intersect with the monorail at the Arts and Culture Centre station in the new capital, as well as Egypt's **FIRST** high-speed electric railway at an interchange station on the Cairo-Sokhna highway.



Adly Mansour station connects the **LRT**, Cairo Metro's third line, the Bus Rapid Transit (**BRT**) system, the Cairo-Suez railway line, and the SuperJet buses.



The LRT's headway duration will be **THREE TO FIVE MINUTES**.

K&A APPOINTED TO DESIGN BASRA RING ROAD

Since 2018, Khatib & Alami (K&A) has become the leading international consultant working in Iraq's southern city of Basra – a position that has been further reinforced with our appointment to prepare the design and tender documents for the high-profile Basra Ring Road project.

The 89 km circular route, which is expected to include ten road bridges crossing rivers & water channels, 8 pedestrian bridges and 16 interchange, is set to cut travel times and reduce congestion and pollution across Basra, helping to drive economic growth and investment.

IMPROVED TRADE LINKS

The free-flowing route around the new Ring Road will also provide safe, fast and reliable journey times to major national highways and Basra International Airport, which will further boost trade and enhance connections both inside Iraq and internationally. Dr. Najib Khatib, Chairman and CEO, said: "We are proud to have been chosen by Basra Governorate to deliver this important project, which is set to provide significant social, economic and environmental benefits for the city and its people". "K&A has more than 50 years' experience in planning, designing and

supervising world-class road, highway and expressway projects, and we look forward to drawing on the full breadth of our expertise to ensure the success of Basra Ring Road."

The project consists of several lanes of highway in each direction, separated by a central reservation that will in the future accommodate a metro line or other public transit system. In addition to service roads and landscaping, the project also includes a cycle path and walkways for pedestrians. One of the key engineering challenges is a steel cable suspension bridge over the Shatt al-Arab River.



Our Roads and Highways department is enjoying a busy period thanks to both ongoing work and a number of new projects.

In addition to Basra Ring Road, these include:

Improvement of Hessa Street, Dubai

Hessa Street (D61) is one of the major East-West Corridors that connects Sheikh Zayed Road (E11) to the west and Emirates Road (E611) to the East. The project covers the upgrading of the corridor extending between Sheikh Zayed Road (E11) and Al Khail Road (E44) to alleviate traffic congestion and ensure easy access to surrounding developments.

Garn Al Sabka Street, Dubai

The Interchange of Gharn Al Sabkha and Sh. Mohammed

Bin Zayed (MBZ) Road is to be improved to enable the free flow of traffic along MBZ Road and secure accessibility to nearby future developments and land uses.

Hatta, Dubai

The Project comprises the improvement of Dubai-Hatta Road (E44) between Jebel Ali Lehbab Road (E77) and the S149. It also includes the improvement of Jebel Ali-Lehbab Road (E77) and E44 from the first roundabout before E44 / E77.

Abdullah Bin Saud Axis Road, Riyadh

Our scope includes comprehensive analysis and studies to determine the current and future state of the traffic at both the city level and the local level, and to identify challenges and opportunities of solutions. Our team will prepare preliminary designs

for various options, and then detailed design and tender documentation for the chosen solution.

NEOM, Saudi Arabia

The design of temporary mountain roads along Sharma Valley to support the construction activities of various projects at the Kingdom of Saudi Arabia's NEOM megaproject.

Soudah Infrastructure Master Planning and Design, Saudi Arabia

As Lead Infrastructure Consultant, our team will support the development of Soudah, in the Asir region of south-west Saudi Arabia. The area is to become a luxury mountain destination with immersive cultural experiences, while making the most of the region's spectacular mountainous landscape.

REGENERATING BASRA

K&A has been playing an important role in the regeneration of Basra since 2018, when we were appointed by Basra Governorate to establish an implementation strategy to transform the region's water network. The strategy includes the delivery of 16 new large-scale projects, including water treatment and desalination plants with a total capacity of 1 million m³/day.

"OUR LOCAL KNOWLEDGE OF BASRA WILL BE HUGE BENEFICIAL IN ENABLING US TO DESIGN A PROJECT WHICH TRULY MEETS THE NEEDS OF THE CITY."

**Dr. Najib Khatib,,
Chairman and CEO**

Our water experts are also delivering the full water infrastructure design and construction supervision for the districts of Toubha and Nakheela, Al-Qornah and Al-Zubheir. The total project area is around

55 km², including 1,740 km of wet utilities networks. These vital projects will bring safe, clean drinking water to the people of Basra for the first time in 30 years.

In addition, K&A completed the design for a new land port in Safwan, Basra, at the border between the Republic of Iraq and the State of Kuwait. Subject to authority approvals, the project will enhance the passage of commercial goods and people by increasing capacity to around 1,000 vehicles per day, with the seamless separation of traffic between commercial goods and travelers.

"Basra is a city of deep economic, historic and cultural significance for Iraq, and we are honored to be assisting Basra Governorate in achieving its vision of restoration and resurgence," adds Dr. Najib. "Our local knowledge of Basra will be hugely beneficial in enabling us to design a project which truly meets the needs of the city." ■



PORT INFRASTRUCTURE | TANZANIA

DAR ES SALAAM OPENS ITS GATEWAY TO THE FUTURE WITH PORT TERMINAL DEVELOPMENT AND EXPANSION

Khatib & Alami (K&A) is supporting Tanzania Port Authority (TPA) to deliver world-class maritime logistics to help drive growth and prosperity across Eastern Central and Southern Africa.

Dar Es Salaam New Container Terminal will handle 2.5 million TEUs per year, a rise from 1.5 million TEUs per year previously, boosting maritime economic activities and placing Dar es Salaam as a hub for multi-model transportation for neighboring land-locked countries.



Following K&A's participation at the three-day workshop to develop the conceptual design

for the project, Chadi Sabra, Infrastructure Senior Manager, said of the ongoing Terminal Development and Expansion of the Dar es Salaam Port in Tanzania: "We're pleased to be providing our expertise in a number of ways to the construction of a container terminal between berths 12 and 15, which will promote container traffic in Dar es Salaam and establish the course for the nation's port industry."

Our experts, in partnership with Triton Consultants Cyprus LTD, are also designing new ferry and cargo terminals to cater to the rising demand for goods and passengers traveling between the mainland and the islands.

The project also includes the development of a new cruise ship terminal to enhance the tourism sector in Dar es Salaam, all while also considering TPA's requirements and adopting sustainable, innovative, and

green approaches, which are at the core of our design and practices.



Gloria Mushi, K&A Tanzania Country Manager, said: "We believe Dar es Salaam has tremendous potential for cruise ship liners to draw tourists visiting the city's attractions and islands. The port's strategic position and modern infrastructure will help improve the country's tourism operations and boost economic growth and sustainable development." ■

ENERGY & UTILITIES | SENEGAL

GIS POWERS ELECTRICITY IN SENEGAL

Khatib & Alami (K&A) is paving the way for a corporate Geographic Information Systems (GIS) implementation to support Senegal's economic transformation and national growth.

The National Electricity Company of Senegal (SENELEC) awarded K&A, in association with NRECA International, a new GIS consultancy project in Senegal to help the planning of electrification projects in the country - noting that the current national overall electricity access rate is 64%.

Funded by the Millennium Challenge Corporation (MCC) through MCA Senegal II, this transformational project will eventually support and modernize the electricity sector in the urban and rural areas which face high energy costs and limited access to electricity.

K&A will spearhead a comprehensive GIS deployment and implementation plan, including yearly operational support to SENELEC business users. The project spans 17 months and encompasses the preparation of tender documents for advanced equipment and additional software solutions.

Safaa Issa, Senior Manager - Energy & Utilities, said: "K&A has a long history of working with SENELEC. We are proud to support Senegal in this critical project that will contribute to power supply improvement in rural and urban areas by modeling the electricity network in the GIS system, identifying its proximity to populated

"THIS PROJECT WILL PROVIDE NUMEROUS BENEFITS TO SENEGAL BY ASSISTING OPTIMAL ELECTRIFICATION PROGRAMS TO ACHIEVE HIGHER EXPANSION RATES, WHICH WILL, IN TURN, IMPROVE QUALITY OF LIFE AND LIVELIHOOD."

Safaa Issa,
Senior Manager - Energy & Utilities

areas, and assessing their corresponding energy demand."

From a population of over 16 million, approximately 55 percent of Senegalese live in rural areas with an 8 percent electricity access rate. On the other hand, only 50 percent of urban residents have access to the national grid.

"This project will provide numerous benefits to Senegal by assisting optimal electrification programs to achieve higher expansion rates, which will, in turn, improve quality of life and livelihood, reduce poverty, foster economic opportunities, and reduce illiteracy. This is not an ordinary initiative, but another solid bridge towards our expansion in the sub-Saharan African market."

K&A is a leading geospatial system integrator and a digital services provider with over 500 successful projects and 34 years of experience in providing solutions and services, systems integration, operation support and enterprise implementations for public and private institutions, electricity, water, telecom, and energy providers. ■

THE NEW DELTA WASTEWATER TREATMENT PLANT TO BREAK NEW RECORDS

After completing the world's biggest water treatment plant, Egypt is about to smash its own Guinness World Record with a new facility that will repurpose an impressive 36% more water than the Bahr Al Baqar project.

K&A is once again providing its expertise as lead consultant for the New Delta Wastewater Treatment Plant on behalf of our client, the Egyptian Armed Forces. This remarkable project represents another significant water security milestone

"THE PROJECT WILL BRING SUBSTANTIAL SOCIO-ECONOMIC BENEFITS TO EGYPT'S NEW DELTA REGION"

Ashraf Ayoub,
Senior Manager - Supervision,
Egypt

in agricultural wastewater treatment across Africa and the world, with the capacity to treat 7.5 million m³ of wastewater per day.

SUPPORTING A SUSTAINABLE FUTURE

Like many countries, Egypt faces the combined challenges of rapid population growth, desertification, water stress, and pollution. However, nearly 96% of the entire land area is uninhabited. Most of the population occupies the Nile Valley and the Delta region, where the New Delta Wastewater Treatment Plant project will prove

transformational. This project will support the irrigation of over two million acres (8,000 km²) of agricultural land, and is part of the Egyptian government's plan to increase its agricultural area by over 30% in the next five years. The plant comprises 131 buildings and employs innovative technology that will enable it to benefit millions of people. "We are proud to be supporting Egypt's 2030 National Agenda and UN

Sustainable Development Goals in delivering this fast-track program," says Ashraf Ayoub, Senior Manager - Supervision, Egypt.

"New Delta Wastewater Treatment Plant will be the country's largest water reuse facility, combating shortages, improving supply, and restoring around 210,000 hectares of agricultural land." "The project will bring substantial

socio-economic benefits to Egypt's New Delta region by accommodating population growth, reducing strain, and creating millions of new job opportunities." ■



SUPPORTING A TRANSFORMATIONAL CENSUS IN NIGERIA

Khatib & Alami (K&A), in collaboration with Esri Global, and Jamitan Tech was appointed by the National Population Commission (NPC) to develop the geospatial infrastructure for the 2023 Nigerian National Housing and Population Census Pre-Enumeration project. ■

Nigeria is set to conduct its population and housing census for the first time after 17 years. The 2023 census will mark the beginning of a digital transformation as the entire country will be demarcated using cutting-edge Geographic Information System (GIS) technology and electronic data capture to elicit socioeconomic and demographic information.

Having Jamitan Tech as a prime contractor, K&A is working jointly with Esri Global to design the system architecture, setting up the Amazon Web Services (AWS) infrastructure and deployment.

"We are very excited to be supporting NPC in its mission to deliver the 2023 census, which will be Nigeria's first digital census. We are soliciting support from the country and fostering strong team collaboration, mobilizing talent, technology, and innovation in the execution of this very important project," said Vice President of Digital Services, Manal El Sayed.



Nigeria faced many challenges during the 2006 census. The population is estimated to be 222 million and will reach 400 million by 2050. Thus adequate planning, coupled with data-driven information, is paramount for sustainable growth as the government plans to improve education, nutrition, and

healthcare services and create job opportunities for youth who currently represents more than half of the country's population.

"With geospatial technology, Nigeria will combine maps with rich data sources and powerful analytic tools to better understand demographic and social-economic growth. It will also build accurate and actionable data that will guide in national development."



Our experts hosted the technical workshops at K&A's Cairo office in the presence of a Nigerian delegation from NPC and our partner, Jamitan Tech. The workshops focused on the project's kick-off and assessing the client's requirements.

DEMOGRAPHIC INFORMATION FOR NATIONAL TRANSFORMATION

The 2023 Census will revolutionize the way census data is collected. As part of delivering this, NPC commenced the Enumeration Areas Demarcation (EAD) across the country using mobile handheld devices, Geographic Information Systems (GIS), and satellite imageries to create digital census maps. Our team applied an automated quality assurance procedure to validate the correctness of the collected data and demarcated areas.

EAD A PRE-CENSUS MAPPING

Around 600K enumerators supported the overall Population Census Pre-Enumeration activities, leveraging the Esri Global ArcGIS Platform to provide the

"WE ARE VERY EXCITED TO BE SUPPORTING NPC IN ITS MISSION TO DELIVER THE 2023 CENSUS, WHICH WILL BE NIGERIA'S FIRST DIGITAL CENSUS."

Manal El Sayed,
Vice President of Digital Services

back-end services and database that can support these critical workflows. The EAs produced became the assignment map that determines the enumerator's workload during censuses and surveys.

"This makes it possible to locate the population to be enumerated and their dwelling units accurately and correctly access the total workload, ensure complete coverage, plan adequately for monitoring and supervision of field activities, and graphically display the final result for better understanding. Thus, the success of the 2023 national population and housing census enumeration hinges on the success of the EAD," explained Ahmad Radwan, Senior Manager- Delivery. "Our team provided a management application for the decision makers to monitor the progress of the data collection and provided validation tools to ensure the correctness of the collected data. The provided solutions supported NPC management to take corrective actions on time, which helped finalize data collection work on time."



The system's launch took place in a workshop on EAD distribution at the A-Class Park and Event Centre in Abuja, Nigeria, in the presence of the NPC Chairman, where K&A experts provided on-

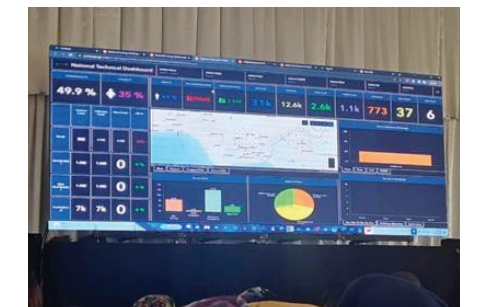
K&A'S DIGITAL SERVICES AND SCOPE

- Database Schematic Review and Design
- Data Assessment
- QA/QC Procedures
- System Architecture
- Data Transformation
- COTS Installation and Deployment
- Workflow(s) Implementation including Pre-Enumeration Automation Tools
- Census Map Service Design and Publishing
- Configuration of Dashboards
- On-the-job Training

the-job training for system administrators on operation and management.

A GREEN CENSUS

The counting exercise will cover all 774 local government areas of Africa's largest population. Unlike conventional censuses, it will be paperless, and fully supported by digital technology.



Bassem Halawi, Senior Manager of Digital Solutions, said: "GIS will offer unprecedented opportunities to innovate and transform the census operations, ensuring total coverage and providing a basis for checking the accuracy of the data obtained, while permitting an oversight to be spotted quickly. The digital census will be deployed for credible and reliable outcomes, allowing the government to correctly capture changes in the population, the age structure or movement of population to align with public policy and investment decisions." ■

THE VIEW: A HOSPITAL WITH A HOTEL TWIST

Khatib & Alami (K&A) delivered The View Hospital with a holistic design combining patient-centered care with clinical excellence.



K&A was the lead consultant for the interior design and engineering services of The View Hospital in Qatar. The 247-bed luxurious hospital is situated amongst the spectacular backdrop of Al Qutaifiya, overlooking the Doha skyline and a picturesque sea view.

Initially designed as a high-rise hotel apartment, the building was converted halfway during construction into a fully functional hospital where all types of healthcare-specific elements were fitted into the pattern of hotel rooms.

“We surpassed many challenges in completing the conversion as we needed to adapt the building’s concrete structure, the structural grid, and shear walls, especially since hospitals are highly serviced buildings that require customized patient care and medical equipment”, said Project Manager, Samer Aoun. “Clinical support and treatment spaces use a podium extension according to the most common hospital structural grid. Smart blocking and the stacking of departments ensure the correct clinical flows, horizontally and vertically, avoiding any cross-overs between public spaces and lift lobbies with services, lift cores, and restricted areas.”



THE VIEW HOSPITAL IS AN EXEMPLARY PROJECT THAT BOASTS FIVE-STAR PATIENT-CENTRIC CARE

The View Hospital boasts the best healthcare and hospitality design, such as hotel-like amenities and top-of-the-line finishes. Patients are accommodated in luxurious private rooms with ensuites and outpatient corridors are separated from consultation and examination rooms. The busiest floors are linked to the ground floor lobby via escalators,

creating a harmonious blend of interior function, comfort, and aesthetics.

The elegant use of accessories, texture, and finishes creates a well-balanced aesthetic and welcoming interior, bringing a great sense of opulence and calmness. Several components of this hospital emulate the feeling of being in an exclusive hospitality property - from the unique reception counter to the vast and high ceiling reception area, the aquariums strategically placed inside the hospital, and the high-end furniture and art

pieces that further accentuate the ambiance in the rooms, suites, and inpatient and outpatient clinics.

To create a healing environment for patients, K&A used natural materials like wood to embody warmth, light, and soothing hues to project a sense of assurance, blended with modern and flowing lines that add an aesthetically pleasing dimension to the hospital interior.

SHIFTING HOW HEALTH SYSTEMS ARE CATERED, AND SPACES ARE DESIGNED.

While emergency departments and day surgery centers accommodate patients in curtain cubicles or bed bays, at The View Hospital, they are accommodated in luxurious private rooms with ensuites.

Michel Khoury, Senior Manager-Interior Design, commented: “Care comes to the patient to avoid overcrowding, prolonged waiting times, and patient care delay. We tailored the design of the rooms to support the different users from maternity and pediatrics up to high-end royal suites spanning 400 m².”

The non-clinical spaces were designed to be durable in long-term maintenance and clinically compliant, with the look and feel of a five-star hotel. Services like gas outlets and electrical outlets were hidden under cabinets and only made visible when necessary.

“Instead of having outpatient corridors with rows of chairs, we created spacious, open-plan waiting spaces that were separated from the consultation and examination rooms. They are linked to form a continuous, interconnected public space enhanced by interior design features such as wavy walls, aquariums, coffee kiosks, and other amenities,” he added.

AN EDGE, NOT JUST IN TERMS OF MEDICAL EXPERTISE, BUT IN PATIENT EXPERIENCE.

With its full range of facilities, cutting-edge medical technology, size and volume, attention to detail, and patient experience, The View Hospital excels in every area of diagnosis, treatment, recovery, rehabilitation, and post-discharge care.

For instance, all modalities are covered for both outpatients and inpatients by the medical imaging department, which is completely linked with nuclear medicine and the interventional suite.

Furthermore, the operating suite, which consists of 10 operating rooms, is constructed using simple and elegant flow patterns that adhere to the most recent “sterile core”



“CARE COMES TO THE PATIENT TO AVOID OVERCROWDING, PROLONGED WAITING TIMES, AND PATIENT CARE DELAY. WE TAILORED THE DESIGN OF THE ROOMS TO SUPPORT THE DIFFERENT USERS”.

Michel Khoury,
Senior Manager - Interior Design

planning concepts. In order to allow for flexible usage of any operating room for any patient, the suite includes private pre-operative rooms for day surgery that are integrated back-to-back with inpatient surgery.

Alex Hanna, K&A's Qatar Vice President said: “The success factors of The View Hospital stem from the frequent ongoing workshops between end users, stakeholders, operators, consultants, and subcontractors. These productive sessions have



resulted in an innovative project of unique character and design”. Spanning approximately 95,000 m², the hospital is set to host nearly 23,000 inpatients and more than 300,000 outpatients.

“We are so proud to have delivered this iconic project in Qatar, which further strengthens K&A's position as a lead specialist in the industry, supporting healthcare providers and local communities.” ■



FEATURE | EARTHQUAKE-RESILIENT DESIGN

GUIDING THE CONSTRUCTION OF A RESILIENT CITY



Dr. Khaldoun Nasreddine
Director of Infrastructure
- Heavy Civil



Dr. Fouad Kasti
Structural Senior Project
Engineer

Dr. Khaldoun Nasreddine, Director of Infrastructure-Heavy Civil, and Dr. Fouad Kasti, Structural Senior Project Engineer, discuss how to build an earthquake-resilient design from a geotechnical and structural point of view.

Earthquakes are considered as one of the most common natural hazards. Their destructive effects are due to insufficient information on the seismic hazard mechanism and potential as well as a lack of real-time warnings, increased world population, and higher construction density. The impact of earthquakes derives from landslides, tsunamis, fires, and fault ruptures, which create violent ground shaking, resulting in property losses and personal injuries.

Over the past decades, numerous earthquakes have occurred in many countries worldwide, killing thousands of people and leaving significant damages and economic losses. Turkey's latest series of major earthquakes are concrete examples of seismic risks and implications.

Authorities, engineering firms, and bodies generally take action on various levels to mitigate the effects of earthquakes, such as the preparation of

action and training plans for the population to respond quickly and effectively in the event of an earthquake and implementing preventative measures, such as developing seismic hazards studies, design codes, and risk zoning maps that provide guidance for choosing the locations of the structures and designing them with appropriate seismic resistance.

It is therefore becoming increasingly important to look at how resilient new and existing constructions are to seismic threats.

An efficient methodology for assessing the risk of earthquakes starts with evaluating the seismic hazard for the areas of concern and linking them to the vulnerability of buildings, infrastructure, and facilities. Seismic hazard assessment studies are crucial tools that aid decision-making related to city and regional planning, building codes, and emergency preparedness in earthquake-prone areas.

Perhaps the most relevant example of this is in Saudi Arabia, where Khatib & Alami (K&A) geotechnical and geological experts assisted in the delivery of a seismic hazard assessment and the development of a risk-based

map for the Gulf of Aqaba (GOA), where part of the mega project NEOM is under construction. The study aims to improve the seismic resilience of this strategic area through extensive research, detailed site investigations, and advanced models.

The Gulf of Aqaba and its adjacent regions comprise the most seismically active areas of the Kingdom, with a record of earthquakes of magnitudes greater than 7.0. For instance, a major earthquake of 7.3 magnitude occurred in November 1995, emphasizing the seriousness of seismic hazards in the GOA region. The damage caused by the earthquake affected the sparsely and lightly populated coastal zones at that time, causing casualties, collapses, and severe defects in many structures. ■



UNDERSTANDING THE SEISMIC HAZARD IN THE REGION

A probabilistic seismic hazard assessment is a type of study that aims at estimating the likelihood of future earthquakes occurring in a particular area, along with their expected levels of ground shaking. The assessment considers statistical and probabilistic analyses of past earthquakes and geological data. K&A, in collaboration with the Saudi Geological Survey (SGS), generated an assessment approach in the GOA that involves collecting a significant amount of data about the geological conditions of the area (soil/rock strata) and its seismic history along with the identification of fault lines and the frequency and magnitude of past earthquakes.

The main elements of the study included:

- **Seismic Source** Characterization involves identifying potential sources of earthquakes in the area, such as fault lines or other tectonic features. The assessment determines the maximum possible earthquake magnitude and frequency from each source.

- **Understanding the Ground Motion** characteristics to estimate the expected level of ground shaking from each seismic source taking into account the distance from the center, soil type, and the earthquake magnitude and the importance of site effects on the aggravation of seismic risk. These effects included topography, basin, and liquefaction phenomena due to the amplified vibration levels caused by the surface geology.
- **Risk Assessment** combines the hazard assessment with all the information gathered in the area and develops a seismic hazard assessment map for the Gulf of Aqaba that can be fundamental for any codes and standards upgrades.

The results of the probabilistic seismic hazard assessment performed by K&A for the GOA can inform a wide range of decisions related to

earthquake risk management. For example, it helps to develop building tailored designs for specific zones or to improve the building codes. It can also identify areas at higher risk of earthquake damage and prioritize mitigation and preparedness efforts accordingly.

DESIGN OF RESILIENT BUILDINGS AGAINST EARTHQUAKES

Lessons from recent tragic earthquakes have all pointed to the growing necessity of adopting resilient structural system strategies in engineering design, particularly for structures located in high-risk earthquake-prone areas.

Building resilience strategy is based on proper structural redundancy, resistance, and recovery from a seismic hazard to achieve minimum damage, avoid injuries, and maintain optimum performance and functionality post-earthquake activity.

To achieve proper building resilient structural design, critical and accurate information on seismic activities and ground-soil properties is essential to enable accurate assessment and prediction of the behavior of the building subjected to such seismic activities. Based on these outcomes, engineers can increase resiliency by using the most up-to-date structural software tools to simulate the performance of the building while accurately representing the building-soil characteristics and the seismic activity to which it is susceptible.

Building resilient designs can be implemented using either conventional building elements, such as floors and walls designed so that the structure withstands earthquake forces,

or more special components, such as dampers and base isolators, which help the building experience reduced seismic forces because the earthquake forces and energy are essentially reduced and absorbed.

EARTHQUAKE-PROOF STRUCTURES

K&A has spearheaded numerous projects where seismicity was of concern, and thus special component concepts were applied.

Nowadays, earthquake-proof facilities such as hospitals, fire stations, emergency response centers, and nuclear power plants are being designed and constructed with the latest technological advances in structural and engineering design to remain in operation after large seismic activities. Such an objective is achieved using base isolation.

K&A's base isolation design for Haydarpasha Health Campus and Kartal Lutfi Kirdar Oncology Hospital in Turkey is a case in point. As the management and technical consultant for the hospital concept, schematic design, and review, we have opted for the base isolation to reduce expected damages to structural and architectural components and egress systems (such as elevators, stairs,

and doors) and allow post-earthquake re-occupancy and functional recovery.

Numerous international research projects has demonstrated the importance of evaluating the performance of structural systems fitted with or without base isolators. One of the most significant research projects addressing this issue was led by the University of California, San Diego Englekirk Structural Engineering Center, on a to-scale hospital model subjected to seismic shakings. This experiment has demonstrated that when the hospital is under significant stresses and deformations, especially post seismic activity, it sustains irreversible damage if not equipped with base isolators. In contrast, the hospital can withstand strong earthquake shakings if it has base isolators installed and is ready for immediate occupation and operation.

K&A's vast experience shows that designing robust buildings requires accurate representations of the buildings, the soil, and the seismic forces. Proper detailing is essential to improve the structural system resistance, absorption, and redundancy to prevent total and even local failures and improve performance against damage and injury. ■



NATIONAL HOUSING COMPANY PROJECTS TOWARDS A NEW DAWN



Khatib & Alami (K&A) was assigned by the Saudi National Housing Company (NHC) to undertake the master planning, infrastructure design, and supervision of several major mixed-use developments in the provinces of Riyadh, Jeddah, and Madina.

The project is being implemented as part of the Saudi Government program to attract investors and meet the growing housing needs in various regions of the Kingdom. Each site is being planned to produce innovative and sustainable mixed-use

communities with unique public realm experiences, and plots to support social facilities. All housing units' parcels and buildings' apartments will be built by local beneficiaries and developers.

“It has been ten years of arduous efforts and dedication helping the Ministry of Municipal and Rural Affairs and Housing (MOMRAH) and NHC in crucial initiatives that are meant to raise the standard of living in Saudi communities and promote economic development,” said Youssef Hajj, Project Director - City & Regional Planning.

“As the main consultant, we are delivering multidisciplinary services across the project’s lifecycle, Including Master Planning, Landscaping,



ABYAR ALI MASTER PLAN - NATIONAL GUARD		📍 Site Area: 3,416,921 m ²
🏠 Built-up Area: 2,060,620 m ²	👤 No. of Population: 32,990	
🏠 No. of Parcels: 5,182 villa parcels and 638 apartment units	👤 Scope: Master plan, landscape design, infrastructure, tender assistance, and supervision	
NASEEM ALTAIF		📍 Site Area: 865,302 m ²
🏠 Built-up Area: 582,872 m ²	👤 No. of Population: 11,303	
🏠 No. of Parcels: 1,059 villa parcels and 1,122 apartment units	👤 Scope: Master plan, infrastructure, and tender assistance	
RAILWAY, DAHIAT EL GHOROUR		📍 Site Area: 3,898,430 m ²
🏠 Built-up Area: 2,715,857 m ²	👤 No. of Population: 44,014	
🏠 No. of Parcels: 5,425 villa parcels and 2,728 apartment units	👤 Scope: Master plan, landscape design, infrastructure, tender assistance, and supervision	
OBHUR, ASDAF JEDDAH		📍 Site Area: 3,811,099 m ²
🏠 Built-up Area: 2,825,854 m ²	👤 No. of Population: 44,816	
🏠 No. of Parcels: 4,859 villa parcels and 3,616 apartment units	👤 Scope: Master plan, landscape design, infrastructure, tender assistance, and supervision	
QIRAN - NIRJIS - PHASES 3 & 4		📍 Site Area: 716,000 m ²
🏠 Built-up Area: 715,518 m ²	👤 No. of Population: 18,309	
🏠 No. of Parcels: 1,055 Villa parcels and 728 apartment units	👤 Scope: Master plan, landscape design, infrastructure, tender assistance, and supervision	

Transportation, Wet and Dry Utilities & Tendering Assistance.” The site, part of an overall National Residential Program, spans approximately 15 million m² and is distributed into five main sites in Riyadh, Jeddah, and Medina. This megaproject necessitated a close collaboration among K&A’s design centers and the project stakeholders to ensure the timely delivery of the design

and tender documents and expedite the work on site. The design and construction of these sites are currently underway and will reach a built-up area of 10 million m². Once complete, the developments will include 8,832 apartments, 17,580 townhouses, 56 community facilities, and 22 utility sites, along with their dedicated green spaces. ■

K&A AWARDED ESRI'S "STATE AND LOCAL GOVERNMENT SPECIALTY" DESIGNATION



Khatib & Alami (K&A) has earned the State and Local Government Specialty designation from the world's leading supplier of GIS software, Esri.

This new accolade recognizes K&A's long history of working with state and local governments as a leading geospatial systems integrator and digital services provider of GIS solutions, systems integration, and enterprise implementations.

"We are honored to be a recognized partner in the Esri State and Local Government Specialty program. This designation validates our three decades of partnership and long-term commitment to Esri

technology and represents the culmination of hard work and dedication in delivering value to our clients," said Manal Sayed, K&A's Vice President of Digital Services. The State and Local Government Specialty program helps Esri customers identify providers with proven expertise working with city, state, and local government clients.

"K&A has reached a new milestone by earning its fifth Esri Partner Network Specialty. We will continue to leverage the vast potential of ArcGIS to develop ready-to-use solutions and implementation services that help create a deeper understanding for our state and local government clients and enable data-driven decision-making."

Last year, K&A was pleased to have won recognition for exceptional work in GIS. We received the ArcGIS Adoption Award at the 2022 Esri Partner Conference and the Esri IMGIS Conference Partner Award for the Solution Alignment category at the 2022 Esri Infrastructure Management and GIS Conference. These awards further recognize K&A's success in supporting the GIS community and being a valuable partner in the Esri Partner Network (EPN). In addition to the State and Local Government Specialty, K&A holds the ArcGIS System Ready, Indoor GIS, Utility Network Management Specialties and ArcGIS Marketplace Provider from Esri. ■

GLORIA MUSHI NAMED AMONG THE TOP 50 WOMEN IN MANAGEMENT AFRICA 2023



Women in Management Africa (WIMA) 2023 has recognized Gloria Mushi, Khatib & Alami Tanzania Country Manager, among the Top 50 women who have distinguished themselves as leaders through entrepreneurial enthusiasm and ingenuity.

Gloria took over the operations of the Tanzania branch in 2018 and has overseen the office ever since. She has played a significant role in expanding the company in Tanzania, both in

terms of staff and business. The WIMA honors the achievements made by African women and highlights their crucial role in the continent's development and progress.

This recognition is a testament to Gloria's exceptional leadership skills. Her dedication and hard work have been instrumental in guiding the company's successful operations in Tanzania. ■

MANAL SAYED CELEBRATED AS ESRI AEC GIS HERO

Manal Sayed, Vice President of Digital Services at Khatib & Alami (K&A), was named Esri Architecture, Engineering, and Construction (AEC) GIS Hero.

For 30 years, Manal has worked with GIS implementation and geosmart solutions management. She leads the K&A Digital Services sector, realizing her vision of blending GIS technology into K&A's various services and business processes and empowering K&A's engineering consultancy and digital services. Manal has gained respect from her AEC

industry colleagues, who see her as a problem solver and an example that inspires others to imagine how GIS can help them do their work better.

Under her leadership, K&A has offered innovative solutions to clients by integrating GIS technology into their projects, resulting in improved efficiency and cost savings. Moreover, her role was instrumental in helping K&A become the first Esri Platinum Partner in the MENA region in 2014, positioning the company as an industry leader in the field. K&A has been a

gold partner in the Esri Partner Network (EPN) since 2010. ■



K&A TO PROVIDE CONSULTANCY SERVICES FOR PRESTIGIOUS DAMAC LAGOONS MASTER COMMUNITY DEVELOPMENT IN DUBAI



Khatib & Alami (K&A) was appointed as the lead consultant for DAMAC Lagoons, a master community development project by Damac Properties in Dubai.

Our scope of work includes conducting the infrastructure and landscaping master planning and design for the 460-hectare project and supervising the infrastructure and landscape for two of the nine clusters of the development.

Mohamed A. Ibrahim, Dubai-based Project Manager said: "We are honored to participate in this project and contribute to the community's development,

working alongside other top consulting firms, especially AE7, who are conducting the urban master planning of the project."

DAMAC Lagoons is DAMAC Properties' third master community development, offering residents vacation living alongside the thriving DAMAC Hills community. This project is part of DAMAC's award-winning residential, commercial, and leisure development portfolio. "We understand the importance of delivering high-quality projects, while adhering to all necessary regulations and specifications, and are committed to completing our work on time and exceeding DAMAC Properties and clients' expectations". ■



KHATIB & ALAMI PARTICIPATES IN THE FIRST ESRI USER CONFERENCE IN THE KSA

As a proud sponsor, Khatib & Alami (K&A) attended the first Esri User Conference in the Kingdom of Saudi Arabia (KSA). The conference focused on how geographic information systems (GIS) technology improves decision-making and drives transformative change across industries. The flagship event, organized by Esri, brought together government officials, business executives, experts in GIS, and industry professionals, providing a dynamic platform to exchange knowledge, foster collaboration, and explore the vast potential of GIS technology.

Mohamad Sharara, K&A Director of KSA Business Development, said: "Attending the first Esri User Conference in the KSA further cements our commitment towards driving technological advancements



and knowledge sharing and establishing a thriving GIS community that will collectively contribute to the Kingdom's growth." As an Esri platinum partner and leading GIS system integrator and service provider, K&A remains committed to empowering organizations to realize the full potential of geospatial intelligence in

various industries, including local government, emergency management, water, and telecom. "We will continue to play a key role in supporting the development of GIS and spatial technology across the region and look forward to continued collaboration with our comprehensive suite of digital services." ■

JOINING UAE'S EFFORTS TO DECARBONIZE THE CEMENT AND CONCRETE SECTOR



As a significant participant in the sustainable development of the building and construction sector, Khatib & Alami (K&A) took part in the recent Cement and Concrete Workshop hosted by the UAE Ministry of Climate Change and Environment.

The Ministry organized the Cement and Concrete Decarbonization Workshop in anticipation of COP28 to address the factors causing carbon emissions, particularly embodied emissions related to the production, transportation, and construction of building materials. These embodied emissions account for 10% of

the UAE's overall CO2 emissions. With over 100 participants, the workshop brought together experts from various supply chain sectors, fostering collaboration to establish a net-zero roadmap. The objective is to achieve net-zero emissions by 2050, aligning with the UAE's climate commitments and its contribution to limiting global warming to 1.5 degrees Celsius. Commenting on our participation in the Cement and Concrete Workshop, Zaki Marashli, Engineering Services Principal, said: "I am honored to represent K&A at this important event, supporting the Ministry's

collective goal of reducing carbon emissions in the cement and concrete sector. Through collaboration and innovative solutions, we are confident to pave the way for a sustainable future and support the UAE's commitment to combat climate change."

The workshop concluded with a group discussion to identify practical solutions to reduce the embodied CO2 in buildings and infrastructure and develop a roadmap for decarbonizing the cement and concrete industries, which will be unveiled at COP28 later this year. ■

REAPING ANOTHER SUCCESS IN DIGITAL TWIN

Khatib & Alami (K&A) has won the Digital Twin Project of the Year Award at the Construction Technology Awards 2023 for its Digital Twin Reality Model project in Oman.



Our large-scale digital twin project involved capturing and modeling 250 km² of challenging topography in Muscat, within a very tight timeframe, to improve national security and improve preparedness for climate-related disasters.

Project Manager, Rouba Zantout, said: "We created a highly accurate and detailed 3D model of the terrain by merging two technologies, Esri's ArcGIS and Bentley Systems' ContextCapture, which was critical for developing a geo-enabled reality model and the project's overall success. With unmanned aerial vehicles (UAVs), we succeeded to capture 330,000 images and

construct a 3D reality model of the area, which included 43,000 fully textured buildings, in just 90 days."

The Construction Technology Awards, hosted by Ventures Connect, were part of the Construction Technology ConFex and Property Technology ConFEX, where our experts also moderated panels, led tracks, and provided expertise in panel discussions. "We are thrilled to have won this accolade for such an amazing effort. After being recognized in Reality Modeling at Bentley Systems' Year in Infrastructure, this is the project's second triumph." ■

BUILDING SUSTAINABLE INFRASTRUCTURE: CONSTRUCTION WEEK'S KSA INFRASTRUCTURE SUMMIT 2023

Khatib & Alami (K&A) participated in the Construction Week KSA Infrastructure Summit 2023, along with other industry leaders, to discuss how they can help realize the Saudi vision. The summit provided a discussion forum, including the fireside chat of Dr. Maher Kahil, our Senior Director/Associate Riyadh Office Head, and Julio De la Rosa, Acciona's Director of Water Solutions.

Their discussion focused on "Creating Sustainable Utilities Networks," highlighting the importance of upgrading facilities and undertaking new projects within sustainable utility networks. The escalating challenge of water scarcity was a key theme, emphasizing the urgent need to launch water and desalination projects in the Kingdom and promoting collaboration among government bodies, private sector entities, and local communities to create stable and prosperous societies.



Dr. Maher Kahil and Julio De la Rosa emphasized the importance of sustainability in infrastructure development, stating that adopting sustainable practices is not just an environmental obligation, but also a strategic imperative for the long-term success and resilience of the nation's infrastructure.

Dr. Kahil provided insightful perspectives on how K&A contributes to the Saudi vision. He explained how our focus on sustainable utility networks drives our efforts to integrate innovative technologies,

resource-efficient solutions, and environmentally responsible practices. This commitment aligns with the Saudi vision's broader goals of building a thriving, sustainable nation as a beacon of progress on the global stage.

The discussion highlighted the importance of an all-encompassing approach in which visionary leadership, innovation, and collective action play important roles in reducing environmental impact and ensuring resilient and adaptable infrastructure in the Kingdom. ■

HARNESSING THE POWER OF DIGITAL TWINS: K&A AT THE 2ND ANNUAL DIGITAL TWIN SUMMIT

Khatib & Alami's experts participated in the 2nd Annual Digital Twin Summit, 2023 to raise awareness of digital twins and bring new solutions, technologies, and applications for smart city and infrastructure projects.

During the summit, exciting developments in energy transformation were discussed, focusing on the potential of digital twin technology. Walid Abou Chacra, K&A's Senior Manager of Digital Energy & Utilities, presented an insightful session titled "Digital Transformation: The Ultimate Smart Grid." He discussed the profound impact of the energy transition on traditional grid operations, emphasizing the critical need for digital tools and the integration of digitalization within the utilities' framework. He stressed the

importance of modernization efforts in enhancing grid availability, flexibility, resilience, and operational efficiency. He also addressed the emerging challenges of grid stability, electricity supply security, and achieving sustainable net-zero goals in the face of increased electrification.

The concept of the "network digital twin," which represents the natural evolution from a smart grid to what he referred to as the smart grid 2.0, was one of the key highlights of Abou Chacra's talk. "This innovative approach enables utilities to build a digital replica of the physical network, allowing real-time emulation and analysis of the grid's performance. Utilities can gain invaluable insights and make informed decisions to optimize network operations, monitor, and manage their

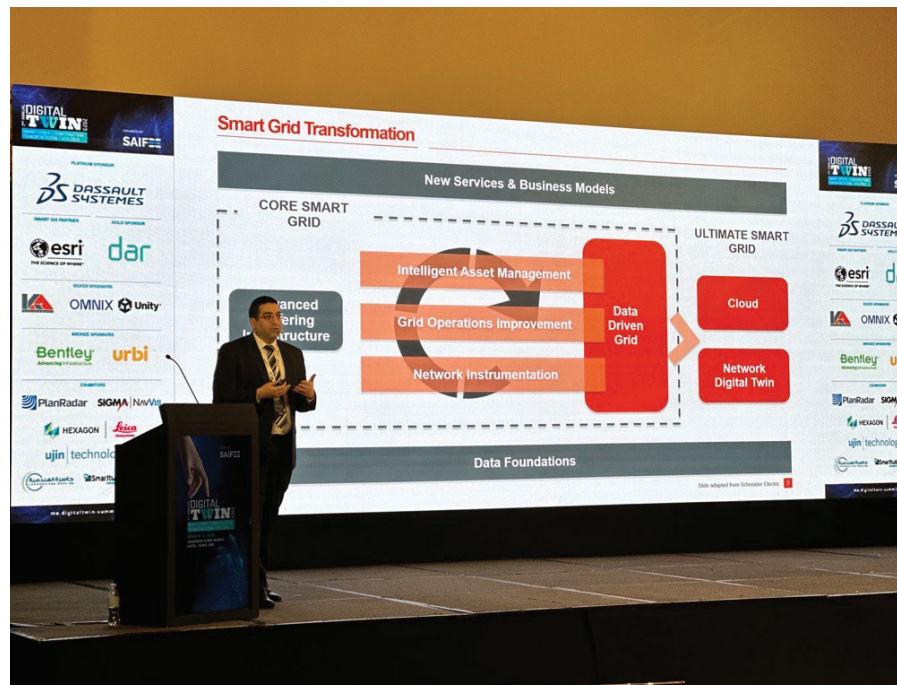


networks and assets by integrating historical and current data with forecasting and predictive capabilities," he explained.

Abou Chacra also showcased some of K&A's network digital twin implementations across the MENA+ region, highlighting how these successful endeavors have provided clients with enhanced capabilities and more efficient network operations and strategic decision-making.

Commenting on our work, Abou Chacra said: "Digital twin has emerged as a powerful tool that extends beyond the energy sector with applications that span various industries, such as transportation, healthcare, and manufacturing, to name a few. We are already leveraging digital twin technology in these industries and look forward to additional innovative applications in the near future."

The ME Digital Twin Summit provided participants a platform to share their knowledge and insights on digital twin technology in the energy sector, discuss its unprecedented benefits in energy production, transmission, and distribution, and explore opportunities for cooperation and innovation. ■



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