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TATWEER
Middle East and Africa

2021
Highlights

We are proud to say that while 2021 might have slowed us down, it certainly didn't stop us. We completed many prestigious projects in Innovations and Smart Solutions, Infrastructure and Landscaping around the UAE and Middle East. Also, we welcomed a high number of new colleagues. Tatweer took a solid step in enhancing its research and development capabilities by establishing a fully equipped Innovation Center as a space for all in-house development of modern products and solutions. In addition, we held a successful Operations and Traffic Management Challenges Forum.

Here are a few highlights from the **2021 Year in Review**

150+ Talent Acquisition

We draw our strength from the right set of human capital; in 2021 Tatweer family is augmented with 150+ talented and skilled professionals

28+ Projects

Proudly announcing that we have 28 awarded projects which commenced in 2021

Innovation Center

Tatweer took a solid step in enhancing the research and development capabilities by establishing our Innovation Center focusing on the emerging technology

8 New Clients

We are excited to start work with 8 new clients in 2021, and delighted to have 20+ existing clients who remain committed to Tatweer through renewing and extending their project with us

2 Additional Offices

In line with our sustainable growth strategy, We've Opened 2 more offices, one located at the same building as our head office and the second in Mussafah area

Innovations and **Smart Solutions**

Smart Patrols for Ajman Police

Building on our successful achievements in traffic enforcement business, we are proudly announcing the commencement of smart patrols project with Ajman Police department. The patrols adopt the latest innovative technologies and provide an integrated solution customized to assist and enhance traffic law enforcement and crime prevention efforts. The system is integrated with top-notch Automatic Number Plate Recognition cameras (ANPR), seatbelt violation and distracted driver detection, 360 degrees surveillance, facial recognition, speed detection, mobile app, and web application.

Smart Parking Solution

Tatweer is building a smart parking solution in Ajman Emirate for Ajman Municipality and Planning Department. The project includes both hardware and software with ANPR-enabled intelligent parking technology with the aim to digitize, automate, and improve paid parking across the emirate. The system is a complete end-to-end solution that braces a network of sensors with a powerful and intuitive web-based platform.

The benefits of Smart Parking System include: - Decreased Management Costs, Enhanced User Experience, Integrated Payments, Real-Time Data and Trend Insight Our smart parking solution gives municipalities the opportunity to better manage parking facilities and enables drivers to quickly find the best spot available which will save time and effort.

Smart Driving Solution (New Components and Features)

Smart Driving Test System (SDTS) is a system designed to replace the Human examiner in evaluating driver's license Applicants while taking the Driver's License Test. The system is based on sophisticated hardware and software components that are fully integrated, including monitoring and evaluating the applicants to automate the driver's test process. as part of our continuous development and enhancements for the Smart Driving Solution Tatweer developed a Smart Parking Test System (SPTS), Which utilizes machine learning and computer vision analysis to evaluate the performance of those looking to get their driver's license in Parking, Reverse and Bridge tests. The SPTS assesses the applicant's overall performance and displays any mistakes during the examination period. STPS provides complete automation for the testing process with minimum human intervention to ensure transparency, credibility, integrity, and accuracy.

TEMPERATURE
MOISTURE
PRESSURE
HEALTH
CONNECTIVITY

IoT Solutions for Irrigation Systems

Tatweer has designed a smart Irrigation solution adopting the latest technologies to upgrade conventional irrigation methods. Towards achieving the smart city objectives. The solution aims to upgrade the irrigation network in existing Public Parks. Which are currently equipped with a manual/ semi-automated Irrigation network. The smart Irrigation new system collects relevant data including temperature, humidity, carbon dioxide and salinity. The data is collected by LoRaWAN® network gateway and transmitted to the data monitoring (IoT) platform for analysis and accurate decision making. The system results in an improved planting environment and reduction in power/ water consumption leading to a smart and sustainable irrigation scheme.

Smart City Design/Build Project for Storm Water Network

Tatweer to upgrade the traditional Stormwater Monitoring System Supporting the smart city initiative of Abu Dhabi Municipality in selected locations (Manholes & Waterfalls) in Abu Dhabi Island. The project aims to measure the water quality, water flow and the water level at the outfalls and representative manholes utilize the smart city applications to upgrade the existing storm water network through the following activities:

- Measuring water quality at selected outfalls and manholes
- Measuring discharges flow at selected outfalls and manholes
- Measuring water level at selected manholes

Tatweer Innovation Center Establishment

Change is the only constant in life, and technology tends to evolve at a rate often faster than one can ensure and maintain. Tatweer has taken solid steps in enhancing its research and development capabilities by establishing a fully equipped Innovation Center as a space for all in-house development of modern products and solutions. The center is operated by Senior Research Scientists, Embedded Engineering Specialists, Artificial Intelligence Experts, Robotics Engineers, and Software Specialists. Bringing together a large and diverse community of skilled professionals to spark innovation and collaboration and provide high-quality solutions with full functionalities in Tatweer's core fields of interest. The center's research fields include Applied Artificial Intelligence, Smart Policing Solutions, Smart Mobility Solutions, and Smart City Solutions.

Selected Projects from **Landscaping**

Landscape Works for AL-Shahama Municipality Entrance Median

Tatweer has completed the Landscape Design and construction supervision for Al-Shahama Municipality Entrance Median. Tatweer continues the beautification and improvement of the landscape aesthetics throughout Abu Dhabi City by creating a welcoming community for the end-users using native plants, perennial trees, seasonal flowers, and decorative gravels integrated with the creative architectural shapes.

Landscape Works for Abu Dhabi Corniche

Tatweer has successfully completed the detailed landscape design for the boat sculpture located at the heart of Abu Dhabi City opposite ADIA on Corniche Road. The design proposal sought an innovative and practical landscape intervention, which will transfer the boat location to an aesthetically attractive spot. The design concept uses the traditional and historical Dhow Boat to reflect the history of the UAE with its present. Landscape elements will include a variety of groundcovers, decorative gravel, and decorative lighting elements.

Landscape Works for Last Exit in Al Khatim

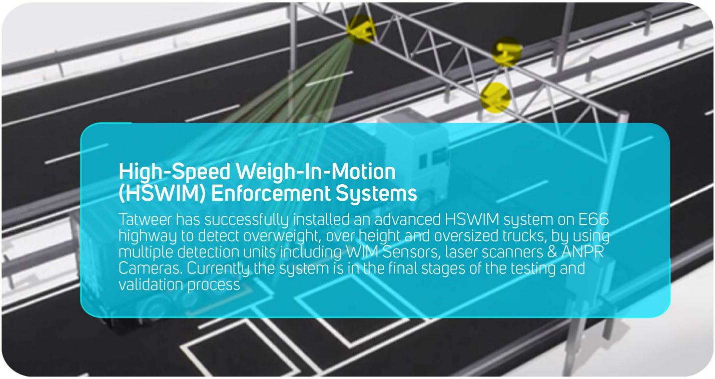
Tatweer has successfully completed the Design and Construction Supervision of the Last Exist project in the Al Khatim area under the miscellaneous project in Abu Dhabi Mainland.

The scope of works included several attractions such as 10 mobile food truck spaces along with a large parking lot, children's playgrounds, green areas. In addition to roads, storm drainage, electrical and street lighting works. The design adds an aesthetically attractive spot for families to enjoy the outdoor activities.

Landscape works for Highways in Mainland

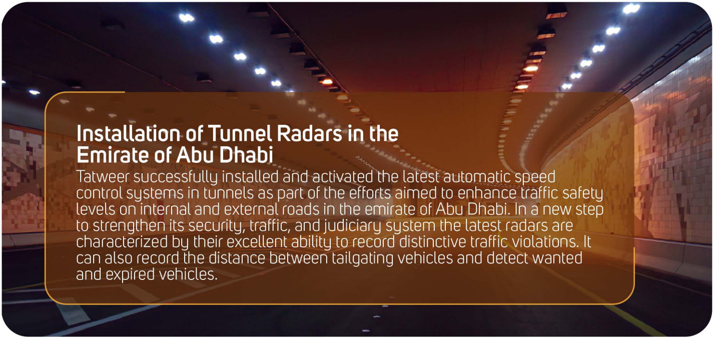
Tatweer has successfully completed the landscape design and construction of the Al Houbara roundabout in Abu Dhabi. The 2,928 square meters roundabout includes six sculptured falcons and 27 houbaras surrounded by a mixture of hardscape, softscape, and lighting centered a beautifying water feature. The design reflects the UAE's wildlife. The falcon is the national bird of UAE and is a symbol of force and courage, recognizing the importance of falconry in Arab tradition and culture. While the houbara bird is essential to the art of falconry that is so intrinsic to Arabic culture.

Selected **Projects**



High-Speed Weigh-In-Motion (HSWIM) Enforcement Systems

Tatweer has successfully installed an advanced HSWIM system on E66 highway to detect overweight, over height and oversized trucks, by using multiple detection units including WIM Sensors, laser scanners & ANPR Cameras. Currently the system is in the final stages of the testing and validation process



Installation of Tunnel Radars in the Emirate of Abu Dhabi

Tatweer successfully installed and activated the latest automatic speed control systems in tunnels as part of the efforts aimed to enhance traffic safety levels on internal and external roads in the emirate of Abu Dhabi. In a new step to strengthen its security, traffic, and judiciary system the latest radars are characterized by their excellent ability to record distinctive traffic violations. It can also record the distance between tailgating vehicles and detect wanted and expired vehicles.

Installation of Smart Radar Systems in the City of Al Ain

Tatweer recently commenced installing smart radar systems in the city of Al Ain to support the Abu Dhabi Police's foremost road safety aims to strengthen its security and traffic system and impose more restrictions to reduce red-light running accidents. The newly installed radars can detect various traffic violations, including failure to adhere to the mandatory lane, sudden swerving, over speeding, crossing a red light, and violating the yellow box. Additionally, the radars can identify vehicles wanted by the authorities and vehicles with expired registrations by tracking and reading vehicle license plates on all lanes. Al Ain's latest smart radars will be integrated with the local traffic signal controller unit. In cases of violation, the radars will alert the control room to extend the red signal duration in aims to prevent conflicting traffic and enhance traffic safety without the risk of collisions.

Smart Street Lighting System Installation

Tatweer successfully installed mock-ups for the smart street lighting system in Abu Dhabi. NOOR Abu Dhabi is the first street lighting public, private partnership project in the UAE that will perform as a reliable asset for many years if procured correctly. The project is expected to save approximately 900 million kW over the contract period of 12 years, which is almost 81% of the existing energy consumed for the street lighting network. Tatweer will achieve that through the retrofit of over 43000 LED luminaires and the implementation of an IoT platform to manage the smart street lighting system across the emirate. Tatweer will continue to conduct the lighting field measurements needed to validate the lighting design criteria and ensure compliance with the project targets.

Management, Operation and Maintenance for Variable Message Signs (VMS) in Abu Dhabi Emirate

As part of this project, Tatweer is responsible for providing ITC with maintenance service for variable message signs systems on the roadways including all software and central management systems in Abu Dhabi, Reem & Al Mariah Islands. The provision of services covers the equipment in Traffic Management Centers (TMC - Abu Dhabi & Reem Island), associated systems, and equipment & facilities installed in the field. Tatweer is also responsible for providing ITC with the configuration and licensing works for existing ITC devices with Telegra ITS Platform (TOPXVIEW) that will be installed on the ITC Data Center Servers.

Tatweer Project team is currently maintaining the field devices and central system on a 24/7 basis by following the below activities:

- Monitoring the system component operation from central workstation of AD VMS project in AD TMC
- Logging of all maintenance activities and issuing maintenance reports
- Maintaining critical spare parts inventory
- Performing corrective and reactive maintenance activities
- Performing quarterly planned preventive maintenance

Management, Operation and Maintenance Services for Traffic Management Centre (TMC) Abu Dhabi

The Abu Dhabi Traffic Management Centre (TMC) was established in the year 1988/89 and has been upgraded regularly to incorporate the latest advances in technology and traffic engineering. The basic function and objective of the Abu Dhabi Traffic Management Centre (TMC) is to manage the traffic flow conditions efficiently and safely throughout Abu Dhabi by adopting a proactive approach in traffic management. Tatweer's scope is to provide Traffic System Operation and Engineering services through trained, qualified, and certified technical resources.

The main objective of this project is to provide efficient Traffic Operation and Engineering Services for Abu Dhabi TMC which include but are not limited to:

- Real-time Traffic System Operation Services for TMC
- Real-time Traffic System Operation for the field equipment/ infrastructure
- Event Management including event planning, Implementation, and Post event analysis
- Preparation of Standard Operating Procedures (SOPs) for Traffic Management
- Necessary coordination with various TMC activities that are impacted by TSO
- Provision of staffing and associated resources
- Dispatching Module (routes & tasks to drivers)
- Manage Roadway Warning Systems
- Traffic data collection, analysis, and validation
- Signal timing optimization on junctions at corridor and network level

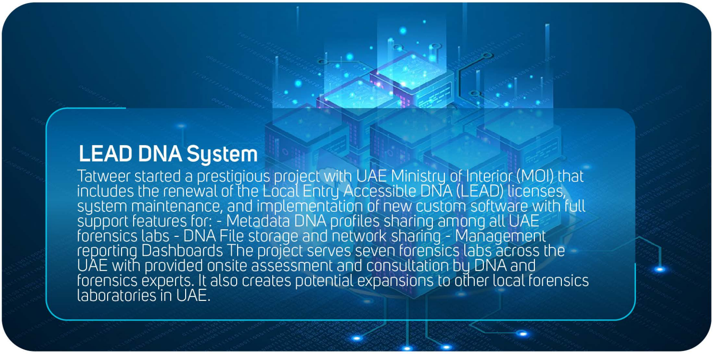
Tatweer is awarded its first Traffic Management Project in the Republic of Egypt

Traffic Management refers to the combination of measures that serve to preserve traffic capacity and improve the security, safety, and reliability of the overall road transport system.

Tatweer has commenced its work on Supply & Supervision of Traffic Management which will be tailored for Egypt's roads and transportation system. The process of the project will be based on international best practices and research applicable methodologies. The scope of this work is to Design, Supply, Supervision, Testing, Commissioning, and maintenance for Traffic Signal system & Violation system in Strategic Command for 62 intersections.

Our team will be responsible to provide the following:

- Provision of Warranty & Support for 3 years
- Provision of design drawings for 62 intersections
- Supply and implementation of Traffic Signal System
- Supply and implementation of Traffic Violation System (Red light violation & Distracted Driver Violations)



LEAD DNA System

Tatweer started a prestigious project with UAE Ministry of Interior (MOI) that includes the renewal of the Local Entry Accessible DNA (LEAD) licenses, system maintenance, and implementation of new custom software with full support features for: - Metadata DNA profiles sharing among all UAE forensics labs - DNA File storage and network sharing - Management reporting Dashboards The project serves seven forensics labs across the UAE with provided onsite assessment and consultation by DNA and forensics experts. It also creates potential expansions to other local forensics laboratories in UAE.

We Successfully Achieved Projects in **Transportation, Infrastructure and Engineering Services**

Design of **50 sectors and 50 segments of roads** in Abu Dhabi Island under the project **"Studies and Engineering Works Improvement for Traffic Safety",**

The scope of work includes

Completed **441 tasks** under **"ADM Miscellaneous projects".**

The scope of work is the design of parking, service roads, highways, accesses, streetlighting & stormwater.

Design for **"Traffic Safety Improvements in Al Dhafra Region Cities"**

Completed **41 Tasks** under the project **"Rehabilitation of Assets at Al Shahama Municipality".**

The scope of work includes; roads & parking landscape, jogging tracks, street lighting, storm water and irrigation.

improvements of; road geometry, signage & marking, street lighting and stormwater.

The scope of services aims to enhance traffic safety at various intersections in Al Dhafra Region.

Design of **160 "Free right turns"**

Company **Events**

Tatweer's Operations and Traffic Management Challenges Forum

Tatweer successfully launched the Operations and Traffic Management Challenges Forum chaired by Tatweer's CEO, Dr. Atef M. Garib, and key members from the Traffic and Transportation Department and Smart System Implementation Department. The forum's objective is to focus on identifying and tackling the emerging traffic operations and safety issues and challenges in the emirate of Abu Dhabi and generate suggestions for solutions. The forum will provide an outlet for leadership and analytical discourse. The forum aims to identify the traffic operations and safety issues and challenges in Abu Dhabi with the necessary supporting quantification of various indicators such as the number of incidents, traffic congestion locations, incident management, etc. Identifying the issues and challenges will be followed by suggesting tactical and operational strategies to address possible countermeasures and solutions and utilizing the latest methods and indicators based on international best practices where available.