

CASE STUDY



Dubai Technology Park Upgrades to AI-enabled Building Services

CHALLENGE

Dubai Silicon Oasis (DSO) is a technology park strategically located in the city of Dubai and committed to smart and environment-friendly initiatives. As a technology hub for the region, it is expected to show leadership in how technology can be leveraged to reduce operational costs, increase revenues and meet all stakeholder expectations, including the comfort and convenience demands of DSO residents and visitors. Since 2009, DSO has been actively engaged in sustainability projects designed to help the whole region meet performance goals outlined in Dubai Integrated Energy Strategy 2030 and the Dubai Clean Energy Strategy 2050. In 2016, the DSO Authority (DSOA) set its sights on solving the following issues with the existing building management and control situation:

- Each building had separate building management systems.
- Major buildings in the technology park required a full-time building operator and smaller buildings required regular operator visits.
- Systems were not monitored on a real-time basis, and equipment malfunctions were not analyzed in the aggregate to recognize patterns.
- Lack of systems and data to do predictive maintenance, As a result, problems with building equipment were not revealed until a failure occurred, causing occupant discomfort and inconvenience.
- Energy utilization was not monitored on a real-time basis.
- Lengthy inspection times for water-tank level-monitoring
- Manual operation was required by many individual pieces of equipment and certain systems.

SOLUTION

The DSOA Operations & Facility team with the help of an outside controls consulting team, including experts in Niagara Framework®, launched a project to bring DSO buildings into a single, integrated building management system (iBMS). In August 2020, DSOA announced in a press statement that it not only had successfully deployed an iBMS, but that the solution had evolved to incorporate artificial intelligence capabilities that are delivering further energy savings and other value through a cycle of data collection, data analysis, remote monitoring, and remote control. At this point, the system connects almost 60,000 points of control from buildings and plants including the DSOA headquarters, six office towers, a shopping centre, the operations and facilities centre, light industrial units, two residential complexes, the Al Waha Mosque, and Dubai Digital Park project. Among the water works managed there are multiple reverse-osmosis systems, and several dewatering and storm water plants. Niagara Framework is used to integrate all the digital data streams available at the equipment-level across a local-area network. Data is aggregated centrally and analyzed with algorithms designed to recognize and react to patterns.

“...Going forward, building management systems will be incorporated within the centralized system into the planning of all DSOA-owned facilities. In addition, any private developer in DSO will have the flexibility to integrate their building management system into our iBMS.”

Khalil Odeh Shalan
Senior Vice President of
Operations and Facilities
DSOA



FAST FACTS

Project Type: Smart City

Client: Dubai Silicon Oasis Authority (DSOA)

Project Dates: 2016-2020

Key Technologies: Niagara Framework, AI-enabled Analytics

Project Area: 7.2 million square meters

Number of Niagara-Certified Building Engineers: 5

Number of Control Points: 60,000

Number of Buildings Managed: 40

Annual Energy Savings: 36%

RESULTS

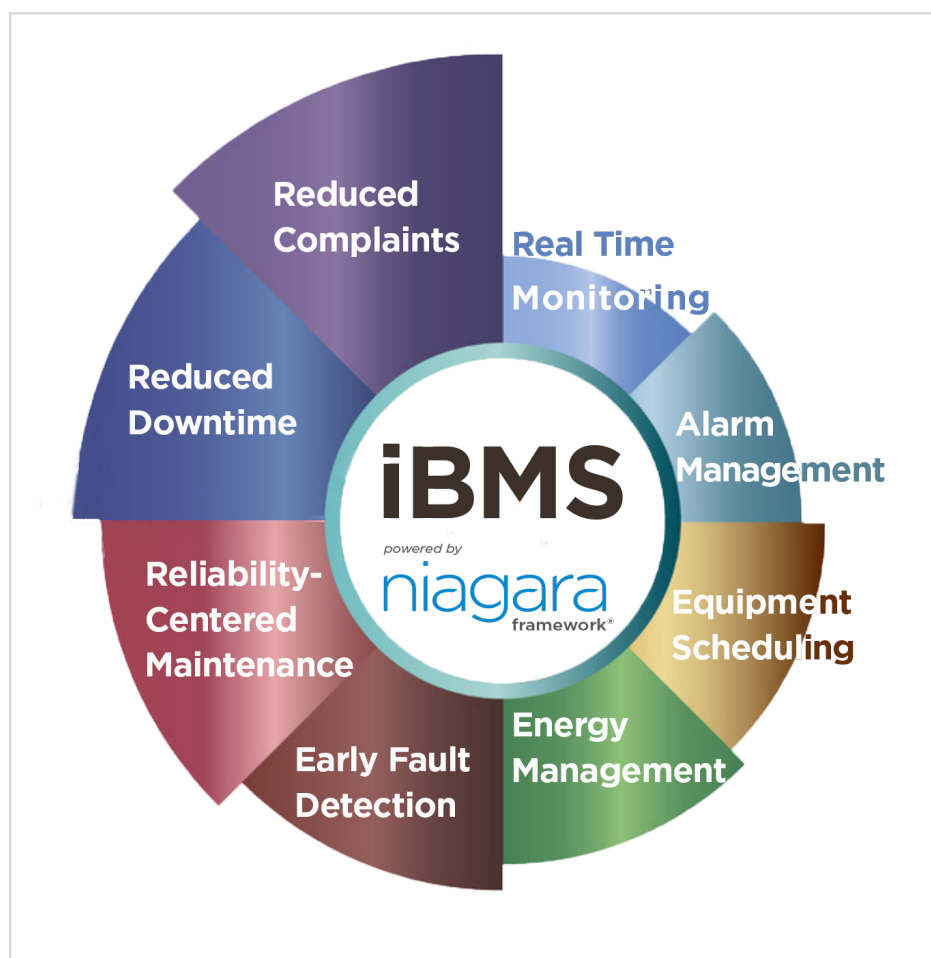
The benefits of the new system include a significant reduction in energy saving totaling 36% per year. The number of operators required to manage the 40 buildings has been reduced from 110 to 5. With access to a worldwide network of training resources, all five engineers are now Niagara Certified with a growing skill set in data science. DSOA has also gained valuable flexibility and a more open path to future growth in that Niagara Framework integrates a range of devices, regardless of manufacturer or communication protocol. In terms of operator productivity and the ability to participate in automated demand response (ADR), the DSOA facilities management team can now monitor electricity usage in real-time across the 40 buildings from a centralized control room. They have greater ability to make appropriate adjustments and send alerts during high-consumption instances. Also, given Niagara Framework's cloud connectivity options, they can now capture and store more historical data on premise and in the cloud to feed analytics tools. This is helping DSOA's facilities team to drive toward continual energy reduction and comfort performance improvements.

DUBAI SILICON OASIS

Launched in 2005, DSO was established with an objective to facilitate and promote modern technology-based industries in the emirate of Dubai and to make DSO one of the world's leading centers of advanced electronic innovation, design and development. DSO's urban master-planned community spans 7.2 million square meters and has been carefully divided into five main sections including:



- Industrial ◆
- Commercial ◆
- Education ◆
- Living & Residences ◆
- Public Facilities ◆
- Dubai Digital Park (DDP) is a smart city project at Dubai Silicon Oasis that opened in 2020. ◆



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