

DIGITAL AND AI INNOVATION

As a key part of the innovation culture at ACWA Power and our accelerating energy transition journey, we embed digital technologies in our daily activities, using cloud computing, cyber security, edge computing, IoT,

data platforms, AI, machine learning, EPC construction collaboration frameworks, bidding tools, asset performance capacities, advanced operations, mobile workforce management, and geospatial capabilities.

We apply these resources to meet the needs of our teams and make their work streams easier, quicker and more productive.

4,000+
digital users

6,500+
OT assets managed

1,000+
servers installed

50+
applications managed by ACWA Power and NOMAC

The catalysts for our digital transformation journey

ACWA Power’s dynamic business process across its develop, invest, operate and optimise cycle demands strategic solutions to adapt with the pace of our business growth and fast changing business environment. The strategic solutions encompassed three key objectives:

Establishment of a digital foundation

In a complex environment involving different business and organisational verticals, it has been important to break silos, foster collaboration and enhance adaptability. This required a comprehensive data-driven digital foundation set-up across the organisation nurtured the development of Big Rock solutions or vertical solutions which foster a collaborative environment and enable rapid adaptability.

Operational efficiency optimisation

Ensuring operational efficiencies is paramount to our business, and key to this is the adoption of tailored collaboration solutions and an agile-oriented work methodology. By embracing innovative approaches, we sought to streamline business processes, improve daily activities, and cultivate a culture of continuous development, enabling us to adapt swiftly to changing circumstances.

Technology optimisation

Ensuring business continuity and supporting ongoing maintenance of our current solutions and platforms were vital. This involved controlled investments and optimisation of our existing technological infrastructure through architectural optimisation, sharing and reutilisation of capabilities, and fostering synergies across business units and geographies.

Recognising the above, ACWA is investing heavily in an ambitious digital transformation five-year programme that is expected to generate significant value for the Company in the long-term.

Our transformative journey

Our actions are guided by four basic principles that are central to our strategic approach:

Business transformation

So far in our journey, we have successfully implemented over 350 quick wins using an agile approach. We are advancing our technology capabilities to meet and exceed these goals as we align with the increasing opportunities at ACWA Power.

Early adoption stages

Knowing that we have reached a level of maturity that is comparable to the highest industry standards, we are driven to aim even higher.

Foundations for success

Our commitment to being ‘born digital’ for upcoming industrial plants, with off-the-shelf solutions, a robust architecture and a platform framework, enables us to deliver exceptional value. It allows us to scale up rapidly in an agile manner.

Collaboration

Our strategy is centred on collaboration. It increases output, simplifies integration with our partners, and creates a collaborative work environment.

To attain the digital transformation objectives described above, we embraced a bi-modal strategy in our journey. This involved developing Big Rock solutions on one front and integrating them into our business operations with practical real-world applications on the other.

Big Rock solutions

Our priority was to ensure the implementation of Big Rocks solutions – the core initiatives pivotal to kickstarting digital transformation, including the data platform and IoT platform.

Data platforms

The Data platform is a central ecosystem that automatically collects, transforms and harmonises a large amount of fast and slow data from several sources to be delivered to users or applications. This platform is designed to enable seamless integration, analysis, and visualisation of data creating a single point of access for data, reducing the risk of KPI discrepancies, and breaking silos. Promoting data-driven decision-making, enhancing operational effectiveness, and revealing insightful information are its primary objectives. The Data platform fosters a culture of data-driven innovation, bringing company strategies in line with actionable insights, and establishing an integrated data infrastructure.

Some key benefits of the Data platform include:

- **Unified access and data consistency:** guaranteeing a single point of access, the platform eliminates data discrepancies across domains. This approach allows for seamless cross-domain insights, fostering a cohesive understanding of organisational data.
- **AI-Driven predictive insights:** using sophisticated AI capabilities, the platform is exceptional at forecasting patterns and decoding intricate details inside information. It offers practical insights that support well-informed decision-making.
- **Efficient navigation of KPIs:** facilitating quick and easy navigation of Key Performance Indicators (KPIs), users can access detailed information, along with contact details for data owners, streamlining communication and collaboration.
- **Interactive data visualisation:** transforming raw data into meaningful information, the platform offers interactive dashboards for data visualisation. This dynamic visual representation enhances comprehension and aids stakeholders in gaining valuable insights.

Internet of Things (IoT) platform

The IoT platform serves as a top-edge sensor technology enabler, providing real-time data and unlocking opportunities for proactive issue prevention. At the heart of our digital transformation strategy, this platform facilitates the integration of diverse technologies, fostering a connected ecosystem. The overarching objective is to drive operational efficiency and contribute significantly to our broader digital transformation goals.

Some key benefits of the IoT platform include:

- **Efficiency increased:** real-time insights derived from the IoT platform streamline operations, empowering informed decision-making. Notably, improvements in membrane performance and optimised chemical consumption enhance overall process efficiency.
- **Cost Reduction:** the implementation of an Edge IoT/MPC-driven predictive maintenance strategy leads to a substantial decrease in unplanned maintenance costs. This proactive approach minimises the need for costly emergency repairs.
- **Safety reinvention:** The platform contributes to a remarkable safety record, particularly evident in NOMAC's achievements. The integration of smart 3rd Eye Health and Safety monitoring has resulted in fewer risk incidents and an elevated safety standard.
- **Innovation uplift:** real-time insights provided by the IoT platform serve as the bedrock of innovation at NOMAC. The organisation leverages this data to develop novel processes and products, positioning itself as an industry leader.

Use case of our transformational journey

We facilitated digital transformation by integrating Big Rock solutions across our business units (business development, portfolio management and O&M) and enabling functions (people, finance, legal, procurement and others), demonstrated through such as applications like Model Predictive Control (MPC), 3rd Eye and Legal Smart AI.

3rd Eye

The 3rd Eye harnesses the power of AI and real-time data analytics to optimise safety protocols, streamline operations, and deliver actionable insights. Its primary goal is to provide an all-encompassing view of critical processes and environments, contributing to enhanced safety measures and operational efficiency. The 3rd eye infrastructure also opens up a number of possible future use cases, from vehicles speed-tacking to AI driven drone inspections. 3rd eye has been implemented at five sites in the Kingdom and Uzbekistan and will be rolled out to more sites in our portfolio.



Legal smart AI

Using straightforward language, Legal smart AI, our generative AI, helps the legal team search and locate clauses, simplifies future contracts, and extracts valuable insights for potential legal considerations, to make contract management easier and quicker.

ACWA Power belongs to a small group of innovators – only 15% of organisations have yet harnessed the power of data analytics to integrate AI into their processes (Gartner CIO Community Survey).

Our AI initiatives in 2023 exceeded our target and we incorporated AI in nine processes, including Legal Smart AI, a product similarity algorithm, the 3rd Eye, Digital Worker and Advanced pattern recognition (IoT). ACWA Power is one of only 15% of worldwide companies which have integrated generative AI into their processes.

Results of our journey

- Business lines are more productive and efficient, ensuring business continuity and improved reliability of supply (RoS).
- Partners experience smoother integration into our value chain by using a network that connects people, shareholders, partners, start-ups, and communities.
- Our collaborative workspace yields valuable data insights for all stakeholders.
- Our platform model is effectively reducing operational costs.
- Our platform operating model creates value through our framework capacities.

The successful results of our digital journey provide a robust basis for us to become industry thought leaders in spearheading the energy transition.

As we aspire to be a thought leader in our industry, we will continue to drive the adoption of digital initiatives through a blend of visionary leadership and bottom-up change agents, while remaining steadfast in our commitment to embed collaboration and innovation in every aspect of our organisation.



'Best Data Analytics and Best Digital Twin' award
at the Customer Experience Live Awards 2023.



'Best Digital Transformation of the Year' award
at the Entrepreneur Middle East Tech Innovation Awards 2023.

