Ministry of Industry and Advanced Technology and EDGE Launch ‘Pioneers 4.0’ Hackathon Series to Advance Industry 4.0 Development and Solve Critical Industrial Challenges



The Ministry of Industry and Advanced Technology (MoIAT) and EDGE Group PJSC (‘EDGE’ or ‘the Group’) have completed the first ‘Pioneers 4.0’ Hackathon series, as part of a series of initiatives to accelerate digital transformation. This follows the memorandum of understanding (MoU) signed by the two parties in August 2022, which aims to expand the offerings of EDGE’s Learning & Innovation Factory to the UAE’s industrial ecosystem, and to collaborate on the establishment of an Industry 4.0 Enablement Centre.

The ‘Pioneers 4.0’ Hackathon series will host two challenges per year. Each challenge will have a unique problem statement that addresses industrial pain points to encourage digital transformation and operational excellence in various factories setups, and to enable participants to better predict and prepare for the industry’s needs and future requirements.

The inaugural challenge of ‘Pioneers 4.0’ took place from 21-22 November 2022 at the EDGE Learning & Innovation Factory in Abu Dhabi in partnership with Microsoft as a Technical Partner. It enabled 15 students from some of the UAE’s leading universities, including the American University of Sharjah, Higher College of Technology, Khalifa University, Mohammed Bin Zayed University of Artificial Intelligence (MBZUAI), New York University Abu Dhabi, Zayed University and the University of Manchester, to collaborate in teams and to propose an innovative solution for the chosen problem statement.

The challenge required participants to leverage data from sensors and manufacturing execution systems to develop a solution using artificial intelligence and machine learning technologies to enhance predictive maintenance. It aimed to enhance maintenance threefold: firstly, to predict machine outages and unplanned downtimes; secondly, to predict energy consumption and anomalies in sensors during a manufacturing process; and thirdly, to analyse manufacturing data of the production line during production cycles, and to assess the quality of the manufacturing process with the current available data.

On the second day, 22 November, participating students pitched their solution to a jury of subject matter experts from MoIAT, EDGE, and Microsoft – in a bid to be crowned winners of the challenge.

Zhaksylyk Kazykenov, Aidana Nurakhmetova, and Samar Fares from MBZUAI, and Shaikha Al Athmani from the University of Manchester, won the first Hackathon challenge for their unique business case and their 'out-of-the-box' thinking.

The 'Pioneers 4.0' Hackathon is aligned with the UAE's Industry 4.0 programme (I4.0), which aims to promote the adoption of advanced technologies in the industrial sector through various enablers and incentives. The Champions 4.0 Network, which is a group of leading national and international companies including the likes of EDGE and Microsoft, is a key pillar of I4.0. Under the network, companies explore collaborations and exchanges that lead to the acceleration of digital transformations and the adoption of 4IR solutions.

Tariq Al Hashmi, Head of Technology Development and Adoption at MoIAT, said: "Through initiatives such as the Champions 4.0 Network, the Ministry is committed to bringing partners together to support the digitalisation and competitiveness of the UAE's industrial sector. This Hackathon is a prime example of how leading national companies can work together with global corporations – and academic institutions – using the UAE's industrial ecosystem as a platform to support not only one another's objectives, but also the upskilling of national talent. We congratulate the winners of the first Pioneers 4.0 cohort and look forward to witnessing the longer-term impact of the initiative."

The 'Pioneers 4.0' Hackathon series aims to bridge the gap between the university studies and the industrial ecosystem, creating an opportunity for Bachelor, Master and PhD students to put theoretical knowledge into practice, and to contribute in solving some of the nowadays industry's pressing challenges.

Mohittin Milen Kourtev, Head of EDGE Learning & Innovation Factory, EDGE, added: "The Pioneers 4.0 Hackathon series is a key Industry 4.0 initiative that will promote the adoption of Industry 4.0 technologies and encourage digital transformation in operations. In collaboration with MoIAT, EDGE is striving to bring together some of the nation's brightest minds to solve current and future challenges within the industry, and help shape the future with smart and practical solutions."

EDGE Learning & Innovation Factory combines theory, technology and practice under one roof to drive improvements and inspire an innovative approach to encourage digital transformation and modernisation of operations. It provides trainees with experiential, gamified, and actionable learnings in line with the industry's future requirements.

Members of the Champions 4.0 Network include EDGE, Microsoft, ADNOC, Honeywell, Unilever, Schneider Electric, Emirates Global Aluminium (EGA), Cisco, Siemens, Aveva, SAP, Etisalat, IBM, Huawei, Strata, PTC, and Ericsson. By supporting companies to integrate 4IR

technologies into their operations, the network enhances the UAE’s overall industrial competitiveness, driving down costs, increasing productivity and efficiency, enhancing quality, improving safety, and creating new jobs.