



7TH SRC'26

SUSTAINABILITY AND RESILIENCE CONFERENCE

DIGITAL INNOVATION FOR SUSTAINABLE AND RESILIENT FUTURES

17-18 JUNE 2026 - ONLINE CONFERENCE



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INTRODUCTION

As the world faces complex and evolving challenges in achieving sustainability and resilience, digital innovation is emerging as a transformative driver of positive change. The University of Bahrain is proud to host the 7th International Conference on Sustainability and Resilience, under the theme 'Digital Innovation for Sustainable and Resilient Futures'. This theme reflects the growing role of cutting-edge technologies—such as artificial intelligence, Internet of Things (IoT), blockchain, remote sensing, and digital twins—in reshaping the way societies adapt, recover, and thrive in the face of environmental, economic, and social pressures.

This year's conference builds upon the success of its predecessors and offers a dynamic platform for researchers, practitioners, policy makers, and industry leaders to exchange innovative ideas and best practices. Through a multidisciplinary approach, the conference will spotlight digital solutions that enhance resilience in infrastructure, energy, environment, health, and governance. Participants will have the opportunity to explore breakthroughs, address challenges, and contribute to the global dialogue on building resilient systems for the future.



TRACKS



Track 1: AI and Machine Learning for Climate Adaptation and Sustainability

- Deep learning for climate modeling and forecasting
- Predictive analytics for natural disaster risk mitigation
- AI-driven ecosystem services assessment
- Machine learning in carbon footprint analysis
- Autonomous environmental protection systems



Track 2: IoT, GIS, and Remote Sensing for Environmental Monitoring

- Wireless sensor networks for air and water quality monitoring
- GIS integration with real-time IoT data streams
- Remote sensing for land-use, vegetation, and biodiversity
- Satellite-based heat island and coastal surveillance
- Edge computing for environmental anomaly detection



Track 3: Blockchain and Digital Finance in Green Economies

- Blockchain for carbon credits and renewable energy certificates
- Smart contracts for transparent sustainable supply chains
- Green tokenization and decentralized climate finance
- Digital identity systems for traceable environmental impact
- Distributed ledger technologies for ESG compliance

TRACKS



Track 4: Digital Twins and Data-Driven Decision Making in Urban Resilience

- City-scale digital twins for planning and emergency management
- BIM integration with urban sensor networks
- Real-time simulation and forecasting tools
- Urban data lakes and resilience dashboards
- Human-centered design for AI-powered urban platforms



Track 5: Smart Grid Technologies and Renewable Energy Integration

- AI-based demand response optimization
- IoT applications in grid-edge devices
- Blockchain-enabled peer-to-peer energy trading
- Microgrid resilience and energy storage management
- Interoperability standards (e.g., IEEE 2030.5)



Track 6: Cybersecurity in Sustainable Infrastructure

- Security protocols for smart grids, water networks, and IoT
- Threat modeling in digital infrastructure
- Zero-trust architecture in smart urban systems
- Privacy-by-design in city-scale data management
- AI for intrusion detection and anomaly prediction



Track 7: Digital Innovations in Water, Waste, and Circular Economy

- AI and IoT for smart waste management
- Digital twins for water distribution and leakage analytics
- Decision-support systems for industrial symbiosis
- Predictive analytics for circular material flows



In the presence of
H.E. Dr. Mohamed bin Mubarak Juma
Minister of Education and Chairman of the
Board of Trustees of the University of Bahrain
Kingdom of Bahrain

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Dr. Ezzat Khan



Dr. Fatema Alsebaie



Dr. Ghadeer Ismail

Keynote Speaker

Ms. Dana Hamzah

**Assistant Undersecretary for Sustainable Development
Ministry of Sustainable Development**



Dana Hamzah is the Assistant Undersecretary for Sustainable Development at the Ministry of Sustainable Development in the Kingdom of Bahrain. Prior to that she was the Advisor to the Executive Director for the Arab States and the Maldives at the International Monetary Fund, Washington, DC. She previously served in several positions in Bahrain including the Head of Economic Research and Superintendent of International Relations at the Central Bank of Bahrain. She started her career as a Risk Analyst at Khaleeji Commercial Bank, Bahrain. She holds an MSC in Finance and Economic Policy from SOAS, the University of London and a BA in Industrial Economics with Insurance from the University of Nottingham, UK.

Mr. Eugen Negutu

Group SVP Information & Digital Technology, Bapco Energies



Eugen Negutu is Group Senior Vice President of Information and Digital Technology at Bapco Energies, where he leads digital innovation, IT and cybersecurity across the Group's Upstream, Midstream, Downstream, Retail, and Joint Venture operations. With over 25 years of international leadership experience spanning Shell, MOL Group, and Bapco, he specialises in aligning digital transformation with strategic sustainability and operational resilience in the energy sector. He holds a Master's degree in Business from the Academy of Economic Studies of Bucharest and a Master's in Industrial Robots and Automated Manufacturing Systems from the National University of Science and Technology POLITEHNICA Bucharest.

Keynote Speaker

Mr. Mohamed Khadem Alaali

Chief of Strategy and Sustainability, BBK Bank



Mohamed Khadem Alaali serves as Group Chief Strategy and Transformation Officer at BBK. With 19 years of experience in strategic planning, sustainability integration, and organisational transformation, he has led major initiatives focused on ESG alignment and long-term value creation. He holds a Master of Science in Business Administration from the University of Illinois – Urbana Champaign and joined BBK in 2024 to drive the bank's sustainability vision and strategic direction.

Prof. Dr. Giuseppe Catenazzo

Research Fellow & Lecturer, Glion Institute of Higher Education



Giuseppe Catenazzo is a Research & Innovation Center member and a Visiting Lecturer at Glion Institute of Higher Education, Switzerland. Previously, he served as the Head of Research, Dean of Academics, and Lecturer at Swiss business schools and as an Assistant Professor in Marketing at an FT-listed business school in France. Giuseppe is currently doing a PostDoc in Portugal, and studied earlier in Switzerland (PhD in Management), France (Masters' in Management and Business Research), the United Kingdom (PgCert in Applied Environmental Economics) and Italy (Bachelor's in Economics and Management). He is also a Certified Member of the Market Research Society (CMRS) and a Fellow of the Chartered Institute of Marketing (FCIM) in the United Kingdom. An Italian and Swiss citizen, Dr Catenazzo is an editor of international research books. His research on quality perceptions, service recovery, and complaining behaviour has been published in Production Planning and Control, the International Journal of Quality and Reliability Management, and the Journal of Consumer Satisfaction, Dissatisfaction & Complaining Behavior.

Conference Program

DAY 1, 17 JUNE 2026

Time *	Program	Link
10:00	Welcome Note	
10:10	Welcoming Speech Delivered by His Excellency the the President of the University of Bahrain	
10:15	Keynote Speaker Delivered by His Excellency the Minister of Education and Chairman of the Board of Trustees of the University of Bahrain	
10:20	Conference Opening Video	
10:30	Keynote Speaker 1: Ms. Dana Hamzah Assistant Undersecretary for Sustainable Development at the Ministry of Sustainable Development in Bahrain	
11:00	Q & A for Keynotespeaker 1	
11:10	Keynote Speaker 2: Mr. Eugen Negutu Group SVP Information & Digital Technology, Bapco Energies. <i>Title of the Speech:</i> From Efficiency to Resilience: Digital Pathways to a Sustainable Future	
11:40	Q & A for Keynotespeaker 2	
12:00	Prayer Break	
12:30- 14:30	Parallel Sessions A1-A5	


Conference Program

DAY 2, 18 JUNE 2026

Time *	Program	Link
10:00	Welcome Note	
10:10	Keynote Speaker 3: Mr. Mohamed Khadem Alaali Chief of Strategy and Sustainability, BBK Bank <i>Title of the Speech:</i> Lessons Learned for Industry: Strategy-led ESG Integration in Banking — and What's Next	
10:40	Q & A for Keynotespeaker 3	
10:50	Keynote Speaker 4: Prof. Dr. Giuseppe Catenazzo Research Fellow & Lecturer, Glion Institute of Higher Education <i>Title of the Speech:</i> A snapshot into Service Recovery: Introduction, challenges & an empirical study	
11:20	Q & A for Keynote speaker 4	
11:30	Prayer Break	
12:30- 14:30	Parallel Sessions B1-B4	




SESSION A1
WEDNESDAY 17/06/2026, TIME 12:30 -14:00
(BAHRAIN TIME GMT+3)

Session A1 Track 1 - AI and Machine Learning for Climate Adaptation and Sustainability Moderators: Dr. Naglaa Fathy El Dessouky, Dr. Riaz Muhammad			
No.	Sessions Titles	Participants	Link
1	AI-Driven Object Detection and Segmentation for Sustainable and Resilient Robot Applications in Smart Environments	Said G Khan	
2	Computer Vision-Based Detection and Morphological Characterization of Microplastics in the Pampanga River	Mark Gilmore T. Arceo; Ervin John R. Cabrera; Krizle Feyh G. Santos; Mary Anne M. Sahagun	
3	Explainable Multimodal Temporal Modelling of Digital Leadership Effects on Remote Workforce Well-Being	S imraN; Ramandeep Kaur; Palki Sharma; Arunima Mishra; Manvinder Singh Tandon	
4	Forecasting Retail Demand Using Deep Learning: A Comparative Analysis of LSTM, Prophet, and Hybrid Models	Rupinder Kaur; Deepa Null; Lalit Singla; Manan; Chandani Chandani	
5	Machine Learning Augmented Interpretation of Core Compressive Strength in Air Entrained Concretes	Md Arifuzzaman; U Gazder	

SESSION A2
WEDNESDAY 17/06/2026, TIME 12:30 -14:00
(BAHRAIN TIME GMT+3)

Session A2
Track 3- Blockchain and Digital Finance in Green Economies
Moderators:
Dr. Fatema Assebaie, Dr. Ghadeer Ismail

No.	Sessions Titles	Participants	Link
1	Artificial Intelligence and Machine Learning Applications in Construction Bidding: A Systematic Review	Ahmad Mazen Alkhateeb; Wesam Alaloul; Khalid Mhmoud Alzubi; Diya Ikhmaes	
2	Decoding Green Business Models Adoption Using Explainable Neural Structural Modeling	Lalit Singla; Honoriam Samson; Pooja Prakash Srivastava; Anju B. Nandrajog; Manan	
3	Digital Innovation in Financial Resilience: An Explainable Neural System for Sustainable Free Cash Flow Forecasting	MinwirAl-Shammari; Husain Al Mubarak	
4	Digital Leadership in Remote Work Environments: Effects on Productivity, Job Satisfaction, and Burnout Patterns	Ramandeep Kaur; Palki Sharma; Arunima Mishra; Manvinder Singh Tandon; Sargam Mehta	
5	Digital Transformation and Green Marketing Orientation as Marketing Capabilities: Evidence From Developing Economies	Karim Ben Yahia; Ansa Savad Salim	
6	Smart Contracts for Sustainable Supply Chain Transparency in Cross-Border E-Commerce	Khoa Bui	


SESSION A3
WEDNESDAY 17/06/2026, TIME 12:30 -14:00
(BAHRAIN TIME GMT+3)

Session A3

Track 4- Digital Twins and Data-Driven Decision Making in Urban Resilience

Moderators:

Dr. Basma Al Najar, Dr. Fay Alkhalifa

No.	Sessions Titles	Participants	Link
1	A Nature-Based Blue Green Placemaking Framework for Flood-Resilient GCC Cities: Insights from Riyadh and Dubai	Nazish Abid; Somi Sareen; Mazharul Haque; Islam Hamdi Elghonaimy; May Khalfan; Faynana Alawadi	
2	Artificial Intelligence as a Catalyst for Sustainable Poverty Eradication: Advancing SDG-1 in the Era of Digital Transformation	Vineet Chouhan; Raj Bahadur Sharma; Dr Manoj; Shubham Goswami	
3	CIM for Digital Twin Readiness in Bahrain: Assessing Challenges and Opportunities for Sustainable and Resilient Urban Development	Abdulaziz EmadObaid; Najla Allani	
4	Digital Twin of a Liquefied Natural Gas Import Terminal for Resilient Urban Energy Supply	Saeed Serwan Abdulsattar	
5	From Descriptive to Decision-Ready: Spatial Visitor Pressure Mapping for Sustainable Tourism in Bahrain	Zahra Radhi A.Salman; Minwir Al-Shammari	
6	Tech-Based Enhanced Project Delivery: AI-Driven Design Review And Automated Quantity Surveying In Large-Scale Developments	Riaz Muhammad; Ibrahim S. Alsallum	


SESSION A4
WEDNESDAY 17/06/2026, TIME 12:30 -14:00
(BAHRAIN TIME GMT+3)

Session A4

Track 5- Smart Grid Technologies and Renewable Energy Integration


Moderators:

Dr. Rajamohamed Sumsudeen, Dr. Maamar Taleb

No.	Sessions Titles	Participants	Link
1	Intelligent Load Frequency Controllers For Integrated Power Systems To Optimize The Energy Cost	Riaz Muhammad; Ayoub A Alkhalifah	
2	Techno-Economic Feasibility Of a 32.1 Kwp Residential On-Grid Photovoltaic System In Bahrain With Smart-Grid Integration Considerations	Hussain Jawad Al Showaikh; Raja Mohamed M Sumsudeen	
3	An Alternate Scheme of a Grid Tied PV System	MaamarTaleb; Naser Fakhar	

SESSION A5
WEDNESDAY 17/06/2026, TIME 12:30 -14:00
(BAHRAIN TIME GMT+3)


Session A5
Track 6- Cybersecurity in Sustainable Infrastructure
Moderators:
Dr. Hayat Abdulla, Dr Majeed Jasim

No.	Sessions Titles	Participants	Link
1	AI-Enhanced Firewall for Identifying Hardware Trojans in Digital Circuits: A Real-Time Defense System	Anthoniraj Selvaraj; Sayeekumar M; Poongodi C; Fowjiya S; Saikat Gochhait; Zafrul Allam	
2	Bridging the Trust Gap in AI Driven Cybersecurity System: A Layered Based Framework Integrating Explainability and Human Collaboration	Ali Mohsin; Mahmood Sabt; Jasim Al-safran; Jafla Al-Ammari	
3	Energy-Efficient Phishing Detection for Secure Drone Ecosystems Using Lightweight Supervised Learning	Hanan Al Mubarak	
4	Resilient Privacy Preservation in 5G Core Networks through Dynamic VPN Orchestration	Anthoniraj Selvaraj; Swaminathan B; Saikat Gochhait; Zafrul Allam; Anand Rajendiran	

Session A, Wednesday 17/06/2026, Time 12:30 -14:00
(Bahrain time GMT+3)

SESSION B1
THURSDAY 18/06/2026, TIME 12:30-14:30
(BAHRAIN TIME GMT+3)


Session B1
Track 1- AI and Machine Learning for Climate Adaptation and Sustainability
Moderators:
Dr. Abdulla Alqaddoumi, Dr. Fay Alkhalifa

No.	Sessions Titles	Participants	Link
1	Intrusion Detection Graph Neural Networks: How Dynamicgraph Secure (DGS) Can Use GNNS To Mitigate Threats In Real Time Global Networks	Anthoniraj Selvaraj; Satheesh N; Zafrul Allam; Saikat Gochhait; Anand Rajendiran	
2	Machine Learning for Sustainable Road Infrastructure: Predicting the Impact of Plastic Waste on Asphalt Performance	MD Arifuzzaman	
3	Climate Policy Uncertainty in Asset Pricing: Evidence from a Nonlinear SVR Approach	Khoa Bui; Tran Trong Huynh	
4	Modeling Stock Returns under Energy, Exchange Rates, and Climate Uncertainties: A GARCH-SVR Approach	Tran Trong Huynh; Khoa Bui	
5	Evaluating the Business Impact of Robotic Process Automation on Operational Efficiency and Cost Optimization: A Data-Driven Framework	Lalit Singla; Meenakshi Rani; Varinder Singh; Manan; Ambuj Agrawal	

SESSION B2
THURSDAY 18/06/2026, TIME 12:30-14:30
(BAHRAIN TIME GMT+3)

Session B2 Track 2- IoT, GIS, and Remote Sensing for Environmental Monitoring Moderators: Dr. Wafa Al-Madani, Dr. Basma Al Najar			
No.	Sessions Titles	Participants	Link
1	A GIS-Based Assessment Of Campus-Scale Urban Heat Island Effects Using Satellite-Derived Land Surface Temperature	Mary Anne M. Sahagun	
2	A Novel Deep Learning Pipeline for Early Disease Detection Towards Automated Crop Protection	M. Arul Pugazhendhi; A Jagadesan; Ananth kumar Tamilarasan; Zafrul Allam; Saikat Gochhait	
3	Ecological Connectivity for Sustainable Urban Planning in Arid: a Gis-Based Analytical Framework for Bahrain	Wanas Waheed Janahi; Wafa Hasan Al-Madani	
4	Extreme Anomalous Perpendicular Diffusion of Energetic Protons in Parker Solar Probe Turbulence: A Validation of Classical Langevin Stochastic Models	Elisa Samuel Johnson	
5	IOT-Enabled Water-Sensitive Design In Smart Cities: A Comparative Study With Implications For India	Anubha; Anamika Jiwane	
6	Smart Construction: Using 3D Printing and Sensors to Build Self-Repairing Transportation Infrastructure	Mohammad Irfan; Siddhant Singh; Saikat Gochhait; Zafrul Allam	

SESSION B3
THURSDAY 18/06/2026, TIME 12:30-14:30
(BAHRAIN TIME GMT+3)

Session B3 Track 4- Digital Twins and Data-Driven Decision Making in Urban Resilience Moderators: Dr. Riaz Muhammad, Dr. Zainab Mohammed Redha			
No.	Sessions Titles	Participants	Link
1	AI-agentic Design Digital Twins for Sustainable Healthcare Facility Planning	Mohammad Tahir; Adiba Shafique; Nazish Abid	
2	Risk-Quantified Threat Modelling and Zero-Trust Hardening for Smart Urban Infrastructure	Saleem Ahmed Hezam Sallam Al-Azazi; Aawag Mohsen Alawag; Mahmoud Jahjough; Ahmed Suliman B Ali; Abdullah Baarimah; Abdulhameed Mohamed Irhouma	
3	Development of an AI-Powered Pavement Distress Detection System for Cracks using Computer Vision	Ahmed Suliman B Ali; Muhammad Syabil Haiqal Bin Azmi; Aawag Mohsen Alawag; Allam Musbah Al Allam; Shaban Ismael Albrka Ali; Nidal Abdulrahim Dahman; Mahmoud Jahjough	
4	BIM-Aware City Digital Twin for Flood Emergency Planning and Infrastructure Resilience	Saleem Ahmed Hezam Sallam Al-Azazi; Aawag Mohsen Alawag; Ahmed Suliman B Ali; Mahmoud Jahjough; Abdullah Baarimah	
5	Automated Integration and Publishing of Heterogeneous Geospatial Data Using Open-Source OGC Services	Yan Watequlis Syaifudin; Sherlita Ratna Dewi Agustin; Amar Alpabet Fuaduzakiah; Triana Fatmawati; Pramana Yoga Saputra; Imam Fahamsyah; Miko Yusrizal Fahreza; Dimas Putra Anhar Wirjo Atmodjo; Richa Purbinawati Ningrum	
6	Human-Centered Design in AI-Powered Urban Platforms: A Qualitative Study of User Experience and Governance	Khoa Bui	
7	Can Public Open Spaces be Regenerative? A Framework for Regenerative Urban Design in Hot-Climate Cities	Nazish Abid; Sagarika Nayak; Adiba Shafique; Ratna Ghosh; Osama Omar	

*Bahrain time GMT+3

SESSION B4
THURSDAY 18/06/2026, TIME 12:30-14:30
(BAHRAIN TIME GMT+3)

Session B4

Track 7- Digital Innovations in Water, Waste, and Circular Economy

Moderators:

Dr. Ezzat Khan, Dr. Majeed Jasim

No.	Sessions Titles	Participants	Link
1	AI-Enabled Logistics Capability as a Strategic Signal in Outsourcing Intention: A Study on the Next Generation of Businessmen	Truong Hong Vo Tuan Kiet	
2	Design of a Power-Assist Device (PAD) for Manual Wheelchairs -Add-Ons for a Sustainable Drive System-	Mohammed Darwish; Qasim Hasan; Ahmed Abdulsalam; Abbas Khamis; Salwa Baserrah	
3	From ESG Disclosure to Firm Value: A Marketing-Driven Integrative Review of Brand, Governance, and Digital Enablers	Karim Ben Yahia; Soleman Mozammel	

Session B, Thursday 18/06/2026, Time 12:30-14:30
(Bahrain time GMT+3)