

Under the patronage of **HRH Prince Khalid Al-Faisal**
Advisor to the Custodian of the Two Holy Mosques
& Governor of Makkah Region



المؤتمر الدولي الثاني والعشرون لإدارة الأصول والمرافق والصيانة
The 22nd International Asset, Facility & Maintenance
Management Conference

Digitization.. Excellence.. Sustainability

Under the theme: Sustainable Operational Excellence
for Digitalization of Assets, Facility, and Maintenance

CONFERENCE GUIDEBOOK

26-28 January 2025

Ritz-Carlton Hotel in Jeddah, Saudi Arabia

AN INITIATIVE BY

OMAINTEC
المجلس العربي لإدارة الأصول والمرافق والصيانة
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إسمارات
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efnms



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Bundesverband



IEEE
Western Saudi Arabia Section

Conference Overview

In a rapidly advancing technological world undergoing digital transformation, the significance of efficient asset management, improving facility management, and integrating strategies rooted in artificial intelligence and digital transformation maintenance is underscored. As we shift from the International Operation and Maintenance Conference to the International Asset, Facility, and Maintenance Management Conference, our ongoing expedition delves into novel dimensions within this pivotal sector, illuminating the indispensable roles of adaptation, innovation, and expertise amidst this ever-evolving terrain.

The twenty-second Edition of our conference stands as a testament to pioneering leadership in digital transformation and the utilization of artificial intelligence's potential in the realms of asset management, facilities management, and maintenance practices. Through the embracement of cutting-edge technologies and the pursuit of innovative pathways, we aim to pave the way toward a future where operational excellence and sustainable practices reign supreme.

Amidst revolutionary technological changes such as digitization, sustainability imperatives, and clustering within the dynamic fabric of the modern industry, this conference stands as a beacon of knowledge, a nucleus for collaboration, and a convergence of ideologies, uniting industry frontrunners, experts, and visionaries to partake in dialogues, learning initiatives, and strategic blueprints for a future hallmarked by efficiency, sustainability, and distinction. Join us on this transformative odyssey where ideas flourish, illuminations abound, and routes to triumph in asset management, facilities oversight, and maintenance are revealed.

Conference Topics & Tracks



**Asset Management and
Maintenance Systems**



**Buildings and Facility
Management**




**Electrical
Systems**



**Roads and
Transportation
Systems**



**Communication
Systems, Smart
Maintenance and
Cybersecurity**



**Water
Systems**



**Education
and Training**

A person wearing a dark jacket is shown in profile, looking down at a glowing, circular interface. The interface consists of several concentric rings of light in shades of blue and purple. The background is dark and features faint, glowing wireframe structures that resemble a city or architectural model.

Day 01

26 January 2025

3 PARALLEL WORKSHOPS

09:00 – 10:00

1st Workshop (Room 1)

**How Digitalization Could Change Control Systems
in Metro and Railways System**

2nd Workshop (Room 2)

**Predicting Failures of Buildings, Roads and Bridges
Utilising Artificial Intelligence and Machine Learning**

3rd Workshop (Room 3)

Fundamental of LCC Digitization

Day 01: Sunday 26 January 2025

1st Workshop:
Predicting Failures of Buildings, Roads and Bridges
Utilising Artificial Intelligence and Machine Learning

Room 1
09:00 – 10:00



Eng. Simone Bernasconi

Senior Adviso
Sahara GCC
United Arab Emirates

Biography:

Prof. Mufid Samarai is a senior consultant at Sahara Consultancy and the Jahzin Program, sponsored by Sharjah Holding, and an advisory board member of the Civil Engineering Department at the University of Sharjah. He has served as a professor, dean, and research director at universities in Iraq, Jordan, and the UAE. He also worked as a consultant at the National Center for Construction Labs and Deputy Minister of Housing in Iraq. Prof. Samarai earned his Ph.D. from University College London and has led the rehabilitation of over 100 facilities in Iraq, Jordan, and the UAE. With over 230 publications, two books, and four patents, his research focuses on quality control, non-destructive testing, concrete durability, and sustainability.

Who Should Attend:

Persons active in any form of maintenance and operations, not only limited to metro, railways or mobility systems. Engineers or manager of technical departments. It is also an opportunity for senior manager to get insights on the topic.

Workshop Contents & Objectives

- Personal introduction.
- General introduction to the control systems world.
- Yesterday and today's systems.
- Introduction to control systems (CBCT, ETCS)
- Applicable Regulations and Standards: national and international.
- Learning from Aviation: a short comparison (TCAS, ATC, ATM).
- Tomorrow's systems: a look to the future.
- Active exercises and discussion in groups.

Note: timings can be adapted to suit a 1h30 minute workshop.

The workshop will:

- Showcase new/emerging technologies and possibilities to control.
- Show pro (+) and cons (-) of the selected technologies.
- "Transport" the participants into the next gen control system.
- Discuss opinions, analyze cases and present case studies.

Day 01: Sunday 26 January 2025

3rd Workshop:
Predicting Failures of Buildings, Roads and Bridges
Utilising Artificial Intelligence and Machine

Room 2
09:00 – 10:00



Prof. Mufid Samarai

Senior Advisor

Sahara GCC
United Arab Emirates

Biography:

Prof. Mufid Samarai is a senior consultant at Sahara Consultancy and the Jahzin Program, sponsored by Sharjah Holding, and an advisory board member of the Civil Engineering Department at the University of Sharjah. He has served as a professor, dean, and research director at universities in Iraq, Jordan, and the UAE. He also worked as a consultant at the National Center for Construction Labs and Deputy Minister of Housing in Iraq. Prof. Samarai earned his Ph.D. from University College London and has led the rehabilitation of over 100 facilities in Iraq, Jordan, and the UAE. With over 230 publications, two books, and four patents, his research focuses on quality control, non-destructive testing, concrete durability, and sustainability.

Day 01: Sunday 26 January 2025

3rd Workshop: Fundamental of LCC Digitization

Room 3
09:00 – 10:00



Dr. Isam Kabbani

Owner & CEO

Al Kabbani Engineering Consulting Office
Saudi Arabia

Biography:

Accomplished and proven leader in Engineering, Construction Management, Operation and Maintenance, Member of many engineering councils, including:

Member of the National Project Support Program Council and Vice Chairman of the Executive Committee for Facilities Management, community deputy Chairman of value management organization in KSA and Owner of Engineering and Project Management Consultancy office.

Professional Experience:

Thirty years of professional experience at General Directorate of Military Works in Ministry of Defense & Aviation, Managed many a Major projects.

Publications:

Participated in numerous scientific conferences and forums and has published many scientific papers.

Authored two books:

- Economics of facilities (Life Cycle Costs)
- Legalization and standardization of Operation & Maintenance

Workshop Contents & Objectives

- Importance of LCC
- Main Life cycle Costs Drivers
- Fundamentals of capturing and digitizing LCC
- LCC Economics
- LCC Methodology and importances

The workshop will:

Demonstrate importance of LCC and the need to capture main cost drivers in a systematic way in order to digitize it to improve outcome reliability.

Who Should Attend:

ALL Engineers in the field of F.M or PM

Day 01: Sunday 26 January 2025

3 PARALLEL WORKSHOPS

10:30 – 11:30

4th Workshop (Room 1)

How to Have a Successful Career Path in The Facility and Asset Management Industry

5th Workshop (Room 2)

Digital Twin Relays and Test Sets Enables Virtual Relay Testing

6th Workshop (Room 3)

Real-Time IoT (Internet of Things) Monitoring in Medical Equipment

Day 01: Sunday 26 January 2025

4th Workshop: How to Have a Successful Career Path in The Facility and Asset Management Industry

Room 1
10:30 – 11:30



Eng. Ali AlSuwaidi

Vice President
MEFMA
United Arab Emirates

Biography:

Eng. Ali AlSuwaidi is one of the influential leaders of the facilities management and asset management industry in the Middle East. He has been in the industry since the nascent stages and has been tasked with a range of prestigious, mission-critical, high-profile assignments. His valuable volunteering contributed to the growth of the industry in the Middle East and especially GCC countries.

Eng. Ali is one of the FM subject matter experts worldwide and a visionary speaker participating in facility management workshops, conferences, and seminars. Amongst many other important tasks, Ali was the first operation head for the tallest tower in the world, Burj Khalifa.

In addition to being one of the key founders of MEFMA and a prominent figure in the Middle East, he also has a great impact and huge influence globally by being the Vice Chairman in the Global FM Association (GFM) since January 2021 and previously as a board of director since January 2013, along with having a valuable impact as well on various entities in which he held key positions.

Eng. Ali holds MBA from American University of Sharjah and B.S in Electrical Engineering from Toledo, Ohio-USA. He also holds Mini MBA certificate of leadership from INSEAD, and he is a graduate from Dubai Government leadership program in coordination with The Wharton school of Business, USA. Ali Holds international diploma on health, safety and environment management from British Safety council.

Workshop Contents & Objectives

- Introduction to Facility and Asset Management
- The Role of Industry Training
- Professional Certifications and Education
- Applying Training Knowledge in the Workplace
- Essential Success Factors in the Facility Management Industry
- Building Leadership Skills and What does it take to Excel

Who Should Attend:

- Aspiring Facility and Asset Managers
- Current Facility Managers and Team Leaders
- Technical and Operations Staff
- HR, Training & Development teams
- Students

Day 01: Sunday 26 January 2025

5th Workshop: Digital Twin Relays and Test Sets Enables Virtual Relay Testing

Room 2
10:30 – 11:30

Workshop Contents & Objectives

The impact of inverter-based generation and upscaling of the electrical grid, require new protection schemes and functions to ensure stable and safe operation. Adequate protection is ensured by relay testing methods that trigger one or more protection schemes and to perform this up to now, physical devices and on-site presence has been necessary, making the process time-consuming and costly. Digital Twin technology now provides a more efficient way to simulate and test protection systems.

This workshop presents a closed-loop virtual relay-testing method using Digital Twin technology where both the digital twin relay and digital twin test equipment operate in a virtual environment, enabling two-way, synchronized feedback between the relay's outputs and the test system's virtual inputs. This synchronization and the high-fidelity simulation that the digital twins provide ensures that simulated time aligns with real-world time conditions, even if the virtual testing speed varies.

This feedback loop enables a thorough evaluation of the relay's behaviour under different fault conditions that reflect real-world scenarios. Engineers can remotely replay, simulate and analyse complex faults without equipment and being on-site, which reduce setup time, resource use, and costs while improving testing accuracy. At a later stage, a subset of the test cases that are designed and validated with the digital twins, can be reused in commissioning and maintenance to ensure properly working hardware and connections as well as confirm that the verified settings are used which reduce commissioning uncertainties and time. The workshop includes test cases demonstrating the current capabilities of Digital Twin technology. The immediate benefits will be discussed, like improved testing efficiency and reliability, with faster tests and more precise relay validation compared to traditional methods. Also indicating that more complex use cases will be achievable as the technology continues to evolve. This virtual platform also supports training requirements, and remote diagnostics, which reduce operational costs.

By utilizing Digital Twin technology, this study highlights the potential to enhance and streamline relay protection testing, driving the development of reliable, cost-effective power grids. The integration of Digital Twins with closed-loop testing sets a new industry standard, offering a future-proof solution for evolving power system protection needs and accelerate grid modernisation.

Day 01: Sunday 26 January 2025



Eng. Ali Husain

**Sales Application Engineer
Protection Segment Leader**
Megger Middle East
Bahrain

Biography:

Graduated with honors in Electrical Engineering from the University of Bahrain in 2017. He began his career at Omicron Middle East as an Application Engineer, specializing in protection testing, providing sales support, training, and technical assistance from 2017 to 2019. Following this, Ali joined Megger Middle East as a Sales and Application Engineer, focusing on the power protection segment. In this role, he has been responsible for technical support, training, and sales related to circuit breaker, relay, and instrument transformer testing.



Eng. Andrea Bonetti

Senior Specialist
Power System Protection
and IEC 61850 Applications
Megger Sweden
Sweden

Biography:

Master science electrotechnical engineer from Sapienza University of Rome, Italy with the following work experience:

- 18 years of experience as HV power system protection specialist at HV relay protection manufacturer Hitachi Energy Grid Automation Products (former ABB) in Västerås, Sweden, with IEC 61850 and conventional applications;
- 9 years at Megger in Stockholm, as product manager and technical specialist for relay test equipment and IEC 61850 test set and tools;
- 5 years as consultant in power system protection and IEC 61850 applications.

Andrea:

- holds a patent in the area of IEC 61850 testing tools and algorithms;
- is chair of IEC TC 95 "Measuring relays and protection equipment", member of TC 95/MT 4 and TC 95/WG 2, IEC committees for standardization of protection functions and IEC 61850 application for protection;
- has received the IEC 1906 Award in 2013;
- is guest lecturer at KTH (Royal Institute of Technology, Stockholm) for IEC 61850 for Substation Automation applications, since 2008;
- teacher for IEC 61850 for protection and control applications for the private Swedish University Lernia (Yrkeshögskola) years 2021/2022.

Day 01: Sunday 26 January 2025



Eng. Niclas Wetterstrand

Global Industry Director for Utilities
Megger Sweden
Sweden

Biography:

Niclas has in his whole carrier been working with electrical test equipment for the power sector. He started with Megger Sweden (formerly PROGRAMMA) in 1992 and have been in various roles such as Production Management, Quality, Commercial Marketing, Strategic Marketing, Product Management and Sales. Niclas is currently a Global Industry Director for protection at Megger group and is responsible for the strategic planning and business development of Megger test equipment within relay protection, circuit breaker, instrument transformer and primary testing. Niclas is a Cigré member and is a frequent speaker at international conferences.



Eng. Cedric Harispuru

Product Manager
Senior Key Expert
Siemens
Germany

Biography:

After his graduation from Centrale Supélec and the University of Darmstadt, Cédric Harispuru joined Siemens AG in 2006. He is Product Lifecycle Manager and Senior Key Expert for Engineering Tools in the energy automation. He is responsible for SIPROTEC DigitalTwin, SIPROTEC Tools and IEC 61850 engineering. He is member of IEC TC57 WG10.

Day 01: Sunday 26 January 2025

6th Workshop: Real-Time IoT (Internet of Things) Monitoring in Medical Equipment

Room 2
10:30 – 11:30

Workshop Contents:

- **Perceived Benefits of IoT-Based Real-Time Monitoring** IoT technology offers substantial benefits for healthcare facilities, including increased equipment uptime, improved patient safety, and data-driven decision-making. This section of the workshop will focus on identifying and assessing the perceived advantages of implementing IoT-based real-time monitoring systems. Participants will engage in discussions on how predictive maintenance, better resource allocation, and enhanced equipment reliability can transform patient care and operational efficiency in healthcare settings. Case studies will demonstrate the positive impacts of IoT adoption in hospitals and clinics.
- **Challenges in IoT Integration** While IoT presents numerous benefits, healthcare organizations face significant challenges when integrating these systems into existing medical infrastructure. These challenges include high initial costs, compatibility issues, lack of skilled personnel, and resistance to change. This section will provide a detailed analysis of these obstacles, drawing from real-world examples of healthcare facilities that have encountered these issues. Participants will explore potential solutions to overcome these barriers, such as training programs for staff, cost-benefit analyses, and phased implementation strategies.
- **Impact on Operational Efficiency and Maintenance Costs** One of the key advantages of IoT-enabled devices is their ability to improve operational efficiency and reduce maintenance costs through real-time monitoring and predictive analytics. This segment will evaluate how IoT systems can optimize equipment performance, decrease downtime, and streamline maintenance processes. Participants will review data from studies showing the cost savings and efficiency gains experienced by healthcare organizations using IoT technology, and discuss the role of data analytics in achieving these outcomes.
- **Perceptions and Attitudes of Healthcare Professionals** The successful adoption of IoT technology in healthcare depends not only on technical feasibility but also on the perceptions and attitudes of healthcare professionals. This part of the workshop will assess how healthcare workers view IoT-based monitoring systems, their level of awareness, and their willingness to embrace these technologies. By understanding the human element in IoT adoption, participants will be better equipped to address resistance and foster a positive culture around technological innovation in their own organizations.
- **Data Security and Privacy Concerns** One of the most significant barriers to IoT adoption in healthcare is the concern over data privacy and security. This session will explore how healthcare facilities manage the large volumes of sensitive data generated by IoT devices and the challenges they face in protecting this information from breaches, unauthorized access, and cyberattacks. Participants will review current data protection regulations, such as GDPR and HIPAA, and examine strategies for mitigating security risks, such as encryption, access control, and network monitoring. The session will also address how these concerns impact the adoption rates of IoT technologies, and

Who Should Attend:

This workshop is ideal for healthcare administrators, medical equipment managers, IT professionals in healthcare, and decision-makers interested in leveraging IoT technology to improve healthcare delivery and operational performance.

By addressing the full scope of benefits, challenges, perceptions, and security concerns, this workshop will equip participants with the knowledge needed to make informed decisions about the implementation and management of IoT systems in healthcare.

Day 01: Sunday 26 January 2025



Eng. Jihan Aleid

Operation Assistant Manager
Wajdlife Trading Co.
Saudi Arabia

Biography:

As an engineer, I manage the scope, time, cost, quality, and communication of various contract works, ensuring adherence to quality standards and occupational health and safety regulations. I also develop the project execution plan, review the project quality plan, and work closely with the client to meet their expectations and feedback.

I have a master's degree in bioengineering from KFUPM and a bachelor's degree in biomedical engineering from KFU. I am currently pursuing an MBA degree from KFU to enhance my skills in business administration and management. I am passionate about using technology to improve healthcare outcomes and making a positive impact on people's lives through innovative technology solutions. I have experience in troubleshooting, preventive and corrective. I have also obtained multiple certifications in PMP, BLS, OSHA, infection control, and COSHH risk assessment.

Workshop Objectives:

- To identify and assess the perceived benefits of IoT-based real-time monitoring systems.
- To understand the challenges in integrating IoT technology in medical equipment.
- To evaluate the impact of IoT integration on the operational efficiency and maintenance costs.
- To assess the perceptions and attitudes of healthcare professionals towards IoT-based monitoring systems.

By the end of this workshop, participants will:

- Understand the perceived benefits and operational advantages of IoT-based real-time monitoring systems in healthcare.
- Recognize the key challenges in integrating IoT into existing healthcare infrastructures and explore practical solutions.
- Analyze how IoT technology enhances operational efficiency and reduces maintenance costs for medical equipment.
- Assess the attitudes and perceptions of healthcare professionals toward IoT adoption, identifying areas for improvement in training and awareness.
- Explore the critical data privacy and security concerns related to IoT and learn strategies to mitigate these risks while fostering trust and promoting adoption in healthcare facilities.

Day 01: Sunday 26 January 2025

Panel Discussion:
International Experiences and Expertise in Maintenance
(Experiences from China)

🕒 13:15 – 14:15 📍 Hall A

Main Topic:

Experiences and Practices in Digitizing Operations and Maintenance Procedures in China (The Guest Country)



Moderator:

Dr. Alan Wilson

Director
Carmichael Smith Ltd.
United Kingdom



Prof. Baowen Li

Chairman
Huamou Consulting
Technology (shenzhen)
Co. Ltd
China



Prof. Baoqiang Xu

Associate Professor
School of Mechanical
and Electrical Engineering
Guangzhou University
China



Eng. Yuchang Zhang

Independent Advisor
of R&D Program
Beijing Centraltech
Co. Ltd.
China



Eng. Colin Ning

Head of International
Business Development
Yado Monitoring Technology
Co. Ltd.
China

Day 01: Sunday 26 January 2025



Moderator:

Dr. Alan Wilson

Director
Carmichael Smith Ltd.

Biography:

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Day 01: Sunday 26 January 2025



Prof. Baowen Li

Chairman

Huamou Consulting Technology (shenzhen) Co. Ltd

China

Biography:

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Day 01: Sunday 26 January 2025



Prof. Baoqiang Xu

Associate Professor
School of Mechanical and Electrical Engineering
Guangzhou University
China

Biography:

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Day 01: Sunday 26 January 2025



Eng. Yuchang Zhang

Independent Advisor of R&D Program
Beijing Centraltech Co. Ltd.
China

Biography:

PhD candidate, SEAS, Harvard University
Independent advisor for the R&D program, CENTRALTECH

Graduated summa cum laude from Worcester Polytechnic Institute in 2019 with a B.S. in Electrical Engineering. Research focused on developing integrated circuits for neuro signal detection, received the 3rd place best paper award at MIT URTC in 2019.

PhD studies in Electrical Engineering at Harvard University in 2020 and is currently a PhD candidate in professor Donhee Ham's research group.
Currently, Research focused on Allegro Microsystems as a mixed-signal IC designer for automotive products.



Eng. Colin Ning

Head of International Business Development
Yado Monitoring Technology Co. Ltd.
China

Biography:

Expert in energy harvesting and switchgear condition monitoring applications, contributor to the PetroChina Guangdong Petrochemical Refinery Complex, a \$10 billion greenfield project, overseeing electrical equipment condition monitoring for enhanced operational reliability.

Specializes in driving innovative solutions for predictive maintenance and energy harvesting in industrial applications, with a focus on global market expansion and technology deployment.

Day 01: Sunday 26 January 2025

3 PARALLEL WORKSHOPS

15:00 – 16:00

7th Workshop (Room 1)

Digital Infrastructure Mapping

8th Workshop (Room 2)

Sustainable Predictive Maintenance Applications for Assets and Facilities

9th Workshop (Room 3)

Using Digital Technology in Medical Devices within the Standards of Facility Management and Safety FMS in Healthcare

Day 01: Sunday 26 January 2025

7th Workshop: Digital Infrastructure Mapping

Room 1
15:00 – 16:00

Workshop Contents & Objectives

This hands-on workshop will delve into the intricacies of digital infrastructure mapping, an essential tool for managing and optimizing the lifecycle of physical assets in today's digitally transformed environment. Leveraging the powerful capabilities of the InfraMappa platform, participants will explore how cutting-edge technology and Infrastructure Mapping as a Service (IMaaS) can revolutionize asset and facility management. The workshop will cover several phases of the asset lifecycle, including real-time visualization of underground, surface, and overhead infrastructure, and the use of digital twins to facilitate better decision-making, risk mitigation, and maintenance coordination.

Participants will gain practical insights into using **InfraMappa** to improve operational efficiency, reduce risks, optimize resource allocation, and enhance sustainability practices in managing facilities and infrastructure. Through case studies, demonstrations, and interactive exercises, the session will showcase the software's ability to provide precise location intelligence, proactive asset management, and streamlined maintenance operations, resulting in improved budgeting, forecasting, and emergency preparedness.

Key learning outcomes:

- Showcase new/emerging technologies and possibilities to control.
- Show pro (+) and cons (-) of the selected technologies.
- "Transport" the participants into the next gen control system.
- Discuss opinions, analyze cases and present case studies.

Who Should Attend:

This workshop is designed for asset managers, facility managers, infrastructure planners, maintenance professionals, city planners, and engineers who are responsible for the oversight, maintenance, and digitalization of infrastructure and facilities. It is also suitable for decision-makers and consultants involved in construction, real estate, and industrial projects, as well as government officials responsible for urban planning and smart city initiatives. Participants should have an interest in utilizing innovative digital tools for improving operational excellence and sustainability in asset management.

Day 01: Sunday 26 January 2025



Ms. Katherine Pfeil

Head of Sales
Inframappa
United States

Biography:

Katherine has cultivated an outstanding career in the technology sector, earning recognition for her expertise in delivering innovative solutions and building lasting client partnerships. She currently serves as Vice President of Sales at InfraMappa, a software platform that revolutionizes infrastructure management through advanced digital mapping. InfraMappa enables users to map and manage infrastructure assets, such as utilities, by creating comprehensive, interactive digital maps.

Katherine's extensive experience in technology sales and business development has established her as a trusted leader. A recognized expert in solution design, she collaborates with clients to craft strategies that address complex challenges and align with their goals. Passionate about leveraging technology for growth, Katherine's leadership and dedication to data-driven solutions drive innovation and deliver exceptional value.

Day 01: Sunday 26 January 2025

8th Workshop:
Sustainable Predictive Maintenance Applications for
Assets and Facilities

Room 2
15:00 – 16:00



Prof. Hossam Elborombaly

X-head Of Architecture Department
Ain Shams University
Egypt

Biography:

إستاذ ورئيس قسم الهندسة المعمارية - كلية الهندسة - جامعة عين شمس (سابقاً).
الفائز بجائزة الفارس العربي كواحد من أكثر الشخصيات العربية البارزة التي حققت نجاحات عالمية - من اتحاد المستثمرين العرب
في مصر - (2020).
حاصل على جائزة المهندس المعماري المتميز في مصر - من غرفة التجارة الكندية بالتنسيق مع سمات فيجن مصر (2020).
حائز على الجائزة البرونزية لأفضل مشروع معماري في العالم لعام (2019) عن مشروع (تطوير ساحة السيدة عائشة) من
مؤسسة المجتمع (Livecom.Ability) في روما - إيطاليا.
حاصل على الجائزة العربية للصيانة المتميزة - مهندس العام لسنة 2017 من المعهد العربي للتشغيل والصيانة في بيروت من
رئيس الجمهورية (2017).
عضو مجلس الأمناء بالمجلس العربي للتشغيل والصيانة (OMAINTEC).
إستشاري المؤسسة الدولية للصيانة (IMA) بـ (لوجانو) سويسرا.
محاضر لبرامج الصيانة بجامعة مصر وجامعات و وزارات الدول العربية.
رئيس اللجنة النوعية لوضع أسس ومعايير الترميم والصيانة وإعادة التوظيف للمباني التراثية.
رئيس لجنة الكود المصري للتشغيل والصيانة للمباني العامة والتراثية بوزارة الإسكان.
رئيس لجنة الكود العربي الموحد للتشغيل والصيانة للمباني العامة والتراثية بجامعة الدول العربية.
مقرر لجنة إدارة الصيانة والمرافق بجمعية المهندسين المصرية.
حصل على الجائزة الثانية لأفضل تصميم عن مسجد الوردان في الإسكندرية (1981).
حاصل على الجائزة الرابعة لإعادة تخطيط حي المرسى أبو العباس بالإسكندرية (1982).
إستشاري للعديد من شركات المقاولات المتخصصة في مجال الصيانة والتشغيل.

Who Should Attend:

All Engineers Who Are Intersted In This Feild

Workshop Contents & Objectives

- إدارة أعمال التشغيل والصيانة ومتطلبات الأمن والسلامة
- قواعد الصيانة للأعمال المعمارية وتفصيلها في المباني العامة
- قواعد الصيانة لتفاصيل المعمارية والزخرفية في المباني التراثية
- قواعد الصيانة والتشغيل للأعمال الإنشائية
- قواعد التشغيل والصيانة لأنظمة تغذية المياه والصرف الصحي وقياس الأداء
- قواعد التشغيل والصيانة وقياس الأداء للأعمال الكهربائية
- قواعد التشغيل والصيانة وقياس الأداء للأعمال الميكانيكية

Day 01: Sunday 26 January 2025

9th Workshop: Using Digital Technology in Medical Devices within the Standards of Facility Management and Safety FMS in Healthcare

Room 3
15:00 – 16:00

Workshop Contents & Objectives

GENERAL LEARNING OBJECTIVES:

Introduce the participants to the Medical Equipment standards part of Facility Management and Safety FMS standards according to National and International Hospital Accreditation. Also introduce them to the different mechanisms and procedures needed to manage effectively the contribution of medical equipment to contemporary healthcare systems. This program will cover recommended practices for medical equipment management including Medical Equipment Plan, Policy & Procedure, Medical Equipment Inventory & tagging system, Preventive Maintaining Program, Medical Equipment Recall System.

In the second part of the workshop, we will present how to comply to the roles and regulations highlighted in the first section by introducing the latest technology to remain competitive.

Service managers need to know how digitization will affect and improve asset & facility management process to identify trends and patterns of assets behavior.

In the past, the main objective of the engineering department was to carry out repairs when the asset was not in operation. Today, asset & facility management influences all aspects, efficiency, risk, safety, environment, energy, costs, quality and customer satisfaction.

The technical team generate a large amount of information that exceed the capacity of human analysis. For that an adequate assets & facility digitized management system must take into account the life cycle of each physical asset in all its phases, this is why it is necessary to combine technical and financial indicators with the use of latest technology that present and help to control and analyze the following criteria's by implementing business intelligent dashboard.

- Max, Min and average DT
- CM, PM performance
- MEL, Man power load
- MTBF, MTTR
- Maintenance – V – Equipment cost
- User Errors
- Incidents Related to Equipment
- Misused, Missing
- DT- V – TP
- Due PM failure
- No. of failure per asset, and many more...

Who Should Attend:

Biomedical and clinical Engineering Managers, Supervisors, Engineers and Technicians, Biomedical Technologist, Medical Equipment Specialist, Quality Management Managers, Hospital safety Officers, Facility Management and Safety coordinators, Clinical Managers, Nurses, Administrative and Technical Managers/Directors, others interested like Hospital Directors, Owners, Hospital Designers.

Day 01: Sunday 26 January 2025



Dr. Ibrahim Andijani

Consultant Biomedical Engineer and Director of Facility Safety Department
Prince Sultan Military Medical City
Saudi Arabia

Biography:

Dr. Ibrahim Andijani is Consultant Biomedical Engineer and Director of Facility Safety Department at Prince Sultan Military Medical City PSMMC and Head of Biomedical Engineering (Previously). His experience in overseeing the Facility Safety Programs technically and administratively to provide safe, functional, and supportive facilities for patients, families, staff, and visitors. Also, in managing a Department of 42 Bioengineering staff and over 20,000 items of medical equipment. His responsibilities include chairmanship and membership on several professional boards and committees, and he has several professional affiliations.



Eng. Fayad Daraghmeh

General Manager
Steady Solutions
Jordan

Biography:

Eng. Fayad Daraghmeh B.Sc., CE is a registered professional engineer with extensive experience in the medical device industry as well as biomedical engineering research and consultation. He had a distinguished 40 years' career with regional and international corporations. Fayad is currently the general manager of Steady Solutions, a company providing technical services and software solutions to various industries. He authored numerous papers in clinical engineering topics resulting from his extensive engineering experience and has 5 copyrights in total solutions software programs dedicated to Operation & Maintenance, ERP and HIS used by many sites and various industries in the region.

A futuristic cityscape at night, viewed from a high angle. The buildings are illuminated with various lights, and the sky is dark. A large, glowing circular graphic is centered on the image, composed of several concentric rings of light in shades of blue and purple. The text "Day 02" is written in a large, bold, cyan font, and "27 January 2025" is written in a smaller, white font below it.

Day 02

27 January 2025

Day 02: Monday 27 January 2025

2 PARALLEL SESSIONS

Session 01:
**Innovating Asset Management: Embracing Digital Solutions
for Enhanced Performance**

Hall A
09:00 - 10:15



Keynote Speaker:

Dr. Eng. Franco Santini
Former President of Aiman
Former Chairman of EU CEN
MAINTENANCE 319
Italy



Chairman:

Eng. Mohammed Abu Afifah
Board Member, Arab Asset
Facility and Maintenance
Management Council
(OMAINTEC)
CEO, Conceliar
Jordan



**Prof. Adolfo Crespo
Marquez**

Professor
Universidad De Sevilla
Spain



Eng. Fayad Daraghmeh

General Manager
Steady Solutions
Jordan



Eng. Abdul-basit Sheikh

Project Manager
City Cool
Saudi Arabia



Eng. Yazeed Al-Owaid

Programs Director
Saudi Aramco
Saudi Arabia

Day 02: Monday 27 January 2025



Keynote Speaker:

A New Age: Maintenance for Sustainability

Dr. Eng. Franco Santini

Former President of Aiman

Former Chairman of EU CEN MAINTENANCE 319

Italy

Biography:

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Abstract:

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Day 02: Monday 27 January 2025



Chairman:

Eng. Mohammed Abu Afifah

Board Member, Arab Asset
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CEO, Conceliar
Jordan

Biography:

Eng. Fayad Daraghmeh B.Sc., CE is a registered professional engineer with extensive experience in the medical device industry as well as biomedical engineering research and consultation. He had a distinguished 40 years' career with regional and international corporations. Fayad is currently the general manager of Steady Solutions, a company providing technical services and software solutions to various industries.

He authored numerous papers in clinical engineering topics resulting from his extensive engineering experience and has 5 copyrights in total solutions software programs dedicated to Operation & Maintenance, ERP and HIS used by many sites and various industries in the region.

Abstract:

Maintenance teams worldwide are looking for digital solutions to improve efficiency, cost and safety ratings. You can't effectively improve your teams' with only stacks of paper. The solution is to get the software that best fits you. But how to get the right CMMS for your team? We'll cover how to effectively choose and how to showcase real results for your business. CMMS in general, is a software-based solution designed to help organizations efficiently manage and maintain their equipment, assets, services and facilities by automating and optimizing maintenance processes, streamlines procedures, eliminates paper stacks, enhances team communication, and supports managerial decision-making.

There are many reasons to adopt CMMS to make your team work more efficiently together. These days, the primary motivating factors for most companies are to:

Reduce Downtime:

Many operational managers are now under pressure to maintain intense production schedules and reduce asset downtime. The responsibility of managing thousands of assets is increasingly looking toward digital management solutions.

Eliminate Indirect Costs:

Indirect maintenance costs are hidden in the form of reduced asset lifecycles, high energy costs, lost production, late deliveries, inefficient equipment scheduling, and various wasted resources. And direct maintenance costs appear in the form of labor, materials, contracts, and overhead expenses. Good CMMS services solve these by making proactive maintenance a realistic, achievable, and stress-free goal.

Increase Transparency and Accountability:

Another benefit for many organizational leaders using CMMS is increased transparency, emphasizes the areas where departments are already excelling and the areas that need improvement. With CMMS reporting features, leaders can quickly determine, for example, policy compliance by team, which asset cause the most problems, and where there is overspending. Monitor and tracking asset health in an organized manner allows management to fine-tune their strategies toward reducing downtime, cutting costs, and increasing asset longevity.

Unfortunately, many CMMS software providers don't consistently deliver these results, and companies don't always meet their goals. To get the right CMMS go for the one that offer full solutions.

Day 02: Monday 27 January 2025



Asset Digitalization Model and Asset Health Management

Prof. Adolfo Crespo Marquez

Professor

Universidad De Sevilla

Spain

Biography:

Adolfo Crespo Márquez is currently Full Professor at the School of Engineering of the University of Seville, and recently Head of the Department of Industrial Management. He holds a Ph.D. with Honors in Industrial Engineering from this same University.

He is included in the Stanford University's list of world top-scientists in 2022 (doi: 10.17632/btchxktzyw.5) and he received the Spanish Maintenance Award from the Spanish Maintenance Association (AEM) in 2020. Prof. Crespo is the author of 8 books and Editor of 5 books with Springer, Aenor, IGI Global and INGEMAN, about maintenance, warranty, supply chain and assets management.

Professor Crespo is Fellow and Director of ISEAM (International Society of Engineering Assets Management), Editor-in-Chief of the Springer Book Series Engineering and Asset Management Review. He also leads the SIM (Sistemas Inteligentes de Mantenimiento) research group related to maintenance and dependability management and has extensively participated in many engineering and consulting projects for different companies.

Abstract:

Despite advancements in technologies like digital twins, asset digitization remains a significant challenge. The core issue lies in accurately and comprehensively determining how assets adapt to the management of complex systems introduced by digitization.

This gap in understanding and executing asset digitization affects the organization of asset-related information. Digital assets are vital components within an interconnected digital ecosystem, not just mere pieces of equipment. Without a clear comprehension of how these assets integrate and function within this digital framework, our decision-making and management capabilities are impaired. This leads to operational inefficiencies, increased costs, and a decline in service quality and infrastructure reliability.

This article aims to tackle this challenge by focusing on asset digitization. It provides a practical example of advancing this field through the integration of various models. This involves defining and categorizing assets based on established standards, assessing asset criticality, and merging IoT-based monitoring models with the Asset Health Index (AHI) model. This integration provides a comprehensive view of asset digitization, addressing different levels of complex asset system management. It facilitates better connections between real-time monitoring and a deeper, long-term understanding of asset conditions and performance. The resulting synergy improves the effectiveness of asset digitization strategies, particularly in critical areas like infrastructure management.

The article presents a concrete example: the digitization of a bridge. This case study demonstrates how these practices positively impact asset management and maintenance during digital transformation, enhancing the safety, efficiency, and reliability of our digital infrastructures.

Day 02: Monday 27 January 2025



Are You Planning for Assets & Facility Management Digitization? Go for Full Solutions

Eng. Fayad Daraghmeh

General Manager
Steady Solutions
Jordan

Biography:

Eng. Fayad Daraghmeh B.Sc., CE is a registered professional engineer with extensive experience in the medical device industry as well as biomedical engineering research and consultation. He had a distinguished 40 years' career with regional and international corporations. Fayad is currently the general manager of Steady Solutions, a company providing technical services and software solutions to various industries.

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Day 02: Monday 27 January 2025



Digitization in Facilities and Maintenance Operations: Modern Trends, Benefits, and Implementation Challenges

Eng. Abdul-basit Sheikh

Project Manager
City Cool
Saudi Arabia

Biography:

With over 12 years of extensive experience in Project Management, Plant, and Facilities Engineering Management, I am a seasoned professional dedicated to delivering exceptional outcomes. Holding certifications as a Project Management Professional (PMP)® and Certified Maintenance & Reliability Professional (CMRP)®, I specialize in leading cross-functional teams and ensuring the highest standards of quality and excellence.

My expertise spans Operations & Maintenance Management across various industries, including District Cooling, Mixed-use High-rise buildings, Data Centers, and Food Processing & Manufacturing. I excel in managing plant and Facilities operations while adhering to regulatory standards, to optimize system performance and ensure continuous operational availability.

I have a proven track record of overseeing diverse projects with proficiency in project planning, budgeting, and execution to drive successful outcomes. Furthermore, I am skilled in enhancing operational processes through continuous improvement methodologies such as Six Sigma and 5S strategies.

My leadership extends to Maintenance Engineering operations with a focus on Facilities and Utilities systems, where I prioritize operational availability and uptime. As a strong leader and team player, I motivate teams to achieve peak performance while aligning with organizational goals.

I have had the privilege of presenting research papers at the 20th & 21st International Operations & Maintenance Conference, contributing to maintenance education and performance metrics discussions.

Abstract:

The integration of digital technologies into facilities and maintenance operations has transformed traditional processes, leveraging advancements such as the Internet of Things (IoT), data analytics, and mobile applications. This paper explores modern trends in digitization, the benefits of digitalization for facilities management (FM) and maintenance, and the challenges faced during implementation. Through a detailed review of case studies and scholarly research, this paper highlights how digitalization improves efficiency, reduces operational costs, and enhances predictive maintenance capabilities, ultimately offering long-term operational and strategic advantages. Furthermore, challenges such as high costs, cybersecurity, and personnel training are addressed, underscoring the need for robust transition strategies to ensure effective implementation.

Day 02: Monday 27 January 2025



Fostering Innovation through Leveraging Disruptive Technologies

Eng. Yazeed Al-Owaid

Programs Director
Saudi Aramco
Saudi Arabia

Biography:

Yazeed Al-Owaid is Programs Director with over 14 years of expertise in leading large-scale projects in innovation management, operational excellence, and strategic planning. Armed with a Bachelor's degree in Applied Electrical Engineering and prestigious certifications like PMP and ISO 56002:2019 Lead Auditor, he has successfully driven over \$50 million in value creation through optimization and technology deployment. His leadership has consistently delivered transformative results, from enhancing operational efficiency to fostering a culture of continuous improvement.

Abstract:

Innovation and technology programs are among the top priority for the success of any industry around the globe. Combining these programs addresses the key gaps that are found on the current practices where a culture of innovation, eco-system and sustainability is captivated by leveraging disruptive technologies including but not limited to generative AI, digital twin, VR Etc. The impact of utilizing a top to bottom approach in running a business has created a barrier in the workforce to adopt new technologies or brainstorm innovative ideas. Even with the engagement form management, leadership, allocating resources, rewards and metrics, yet, it is challenging to experience the change of culture, achieve what innovation program are designed for to gain a competitive edge. Thus, a comprehensive program was established where technology and innovation are presented in one platform. This platform is designed to showcase innovative ideas, technology projects and on-going virtual campaigns across the organization.

To improve and streamline innovative ideas, guiding principles, procedures and the recommended best practices in a concise description were provided and delivered with the help of generative AI that is impeded within the innovation and technology platform. The generative AI is a one example of combining innovation and technology to gain insight based on the organization accumulated experience which were formulated into best practices and procedures along with other suggestions received by the users directly. The ultimate goal of this program is an autonomous and structured approach to refine innovative idea management processes and make it more efficient and valuable. Key metrics were developed as a starting point and are adopted to achieve a set of goals in a value adding system to constantly improve the innovation culture with the focus on quality, scalability and impact on the organization.

Part of the key metrics are the participation rate, idea review rate, approval rate, implementation rate and innovation realized value. These metrics were the starting point to measure the effectiveness of the innovation program. However, when combined with technology deployment, more metrics are added including: technology realized value, approved technology utilization, development of technology roadmap and others. As a result, this unique innovative and technology program has paved the way toward creating the culture of innovation. In addition, it proved its credibility through a comprehensive platform equipped with the necessary tools to effectively evaluate and process innovative ideas and technologies. Moreover, it provided a dynamic guideline for improving the idea evaluation process and enhancing the implementations of innovative ideas and technology deployment companywide.

Day 02: Monday 27 January 2025

Session 01 Electrical Track:
Operational Challenges, Resilience and Grid Security

Hall B
09:00 - 10:15



Chairman:

Eng. Waleed Alsaadi
Board Member
Arab Asset, Facility and
Maintenance Management
Council (OMAINTEC)
CEO, National Grid
Saudi Arabia



Amro Mohamed
Regional Cybersecurity
Sales Manager
MEA Region, Omicron
Electronics Middle East
Bahrain



Eng. Ahmad Abdullatif
Project Manager
Advanced Communication
and Electronics Systems Co.
Saudi Arabia



Eng. Mostafa Ahmed
Transmission Engineer
Saudi Electricity Company
Saudi Arabia



Eng. Ahmed Alawami
Division Manager
Saudi Electricity Company
Saudi Arabia

Day 02: Monday 27 January 2025



Chairman:

Eng. Waleed Alsaadi

Board Member

Arab Asset, Facility and Maintenance Management Council (OMAINTEC)

CEO, National Grid

Saudi Arabia

Biography:

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Day 02: Monday 27 January 2025



Exposing Hidden Flaws in the Power Grid: Lessons learned from IDS Deployments in Over 100 Energy Facilities

Amro Mohamed

Regional Cybersecurity
Sales Manager
MEA Region, Omicron Electronics Middle East
Bahrain

Biography:

Cybersecurity Sales Manager, MEA RegionOMICRON Electronics Middle East
Professional Background:

- Joined OMICRON in 2021, focusing on cybersecurity initiatives
- Over 18 years of experience in the IT sector
- More than 12 years in cybersecurity implementation, consulting, and governance

Certifications:

- Certified ISA/IEC 62443 Cybersecurity Fundamentals Specialist
- ISACA Certification for Information Security Managers (CISM#1841498)

Experience:

Held technical, managerial, and leadership roles in government and corporate entities, ISPs, and MSSPs

Education:

Bachelor's degree in Computer Science from Sikkim Manipal University (SMU), India

Current Education:

Pursuing an MBA in Artificial Intelligence at Cumbria University

Abstract:

This paper analyzes security issues in over 100 global energy facilities, identifying the top five most significant network security risks and operational issues, such as configuration errors and network failures. Using Intrusion Detection Systems (IDS), the study highlights pervasive security threats and offers insights into secure PAC system implementations.

Day 02: Monday 27 January 2025



Fault Management in HVDC Transmission Lines

Eng. Ahmad Abdullatif

Project Manager
Advanced Communication and Electronics Systems Co.
Saudi Arabia

Biography:

Ahmad Abdullatif graduated in 2017 with a Bachelor of Engineering (Hons) in Electrical & Electronics Engineering from UCSI University, the top-ranked private university in Malaysia that year. During his academic journey, he contributed to a research paper on High Voltage Direct Current (HVDC) Transmission systems, focusing on various types and topologies, as well as performing an in-depth analysis of faults on transmission lines and the resulting impact on system stability.

Ahmad has accumulated over seven years of professional experience in Saudi Arabia, with a specialized focus on operation and maintenance in critical facility management. Throughout his career, he has demonstrated his expertise in managing complex engineering systems and ensuring their smooth operation in high-stakes environments. His project management skills are backed by his PMP certification, enabling him to lead teams effectively and ensure successful project outcomes.

Abstract:

HVDC transmission systems provide a more economical alternative to HVAC transmission systems for long distance, and bulk power delivery. A bipolar HVDC lines uses only two insulated sets of conductors rather than three. This will lead to smaller line towers which will lead to reducing the construction cost by approximation of 30%, also this will help to reduce the Right-Of-Way (ROW) which in some cases will be a major cost for the transmission system. HVDC transmission system allows delivering more power over fewer lines with narrower ROW. Hence, reducing ROW will help the environment by reducing the areas used in transmission, especially in environmentally sensitive areas. Since there is no induction or alternating electro-magnetic field in the DC cables, this will help to share ROW with other utilities without any impact. Recently the industry is going for HVDC to transmit bulk energy with less losses and more controllable system, therefore a proposed method to control any fault occurring to that system is investigated.

Day 02: Monday 27 January 2025



Partial Discharge Diagnostic of High Voltage Power Cables with Associated Accessories and the Human Experience for Installation

Eng. Mostafa Ahmed

Transmission Engineer
Saudi Electricity Company
Saudi Arabia

Biography:

Mostafa Mokhtar Hassanein Ahmed,

- Holding a master degree in Partial Discharge Diagnosis for High Voltage Power Cables and Their Accessories,
- Ph.D. HV Electrical Eng. I am Currently a Student for Ph.D in High Voltag Electrical Engineer, Al-Azher University

Published three Research Papers:

- Advances in Electrical Engineering Systems (AEES) Vol. 1, No. 4, 2012, ISSN 2167-633X Copyright c World Science Publisher, United States.
- B1_205_2014 - Cigre 2014,
- 4th Saudi User Meeting -OMICRON electronics 2021-(7 . 9 June 2021)
- GCC POWER 2023-Cigre 2023, (13 . 15 Nov. 2023)
- GCC POWER 2024-Cigre 2024, (11 . 13 Nov. 2024)
- 16 Year of experience in High Voltage Power field

1-Company: Saudi Electricity Company (SEC) Transmission Engineer 16/2/2014 until Now

2-Company: Egyptian Electricity Holding Company (EEHC) Testing Engineer at Extra High Voltage Research Center (PEHVRC)

November 25, 2008 until 15/2/2014.

Abstract:

Partial discharge (PD) measurement methods are most important and preferred in testing of underground high voltage cables and they have received much attention in recent years. Apparent charge, partial discharge inception voltage as well as number and distribution of PD pulses are most important quantities for the determination of the insulation quality. Identification with certain PD patterns and localization of PD are most important aspects. Different ways to suppress external noise is applied to detect signals with high sensitivity also in difficult on-site conditions. Partial discharge detection method can be classified into two techniques, conventional and un-conventional. Conventional PD detection is a standardized method for PD measurement as described in IEC 60270. This method based on measurement of apparent charge displacement q in the leads of the sample. This charge is usually expressed in pico-Coulombs (pC). Un-conventional PD measurement is based on detection of high frequency PD activities. In this paper an overview covering best practices for PD measuring using conventional and un-conventional methods is presented and predictive diagnostic programs to cable system is applied and the Human Experience Level for installation (Joints & Terminations) of the Power Cables. It contains also the results of many measurements carried out on XLPE cable system.

Day 02: Monday 27 January 2025



Short Circuit Faults Prediction Using Machine Learning in Large-Scale Power System

Eng. Ahmed Alawami

Division Manager
Saudi Electricity Company
Saudi Arabia

Biography:

Eng. Ahmed Alawami is a division manager at Saudi Electricity Company (SEC) with sixteen years of experience working in Saudi Electricity Company (SEC). He is specialized in analyzing/studying in SEC network and responsible for implementing the suitable operation methods to ensure a reliable and secured power supply through the network. Exploring the worldwide implemented technologies that have more potential to evolve and strength the distribution system for the OT & IT. Also, Lead the initiation and planning of a project and ensure technical feasibility, continuously evaluating projects to ensure they are meeting company standards, adhering to budgets, and meeting deadlines and accurately documenting the project's creation, development, and execution as well as documenting the project's scope, budget, and justification. Also, machine learning implementer in power system improvement like load forecasting, faults prediction etc, design machine learning systems, Research and implement appropriate ML algorithms and tools, develop machine learning applications according to requirements, select appropriate datasets and data representation methods, run machine learning tests and experiments and Perform statistical analysis and fine-tuning using test results. He have written and published multiple technical papers that address real use cases in SEC organizations

Abstract:

Transmission system's safety and protection are the primary concerns and challenging tasks to ensure the power system's stability and reliability for seamless functioning and avoidance of any significant discrepancies. Faults in power transmission lines can occur for many different reasons. Once protective relays detect a fault, they must clear the fault in a timely manner. Even though there are many reasons for the occurrence of faults, tasks to find fault location and types (as a post-fault analysis) are still major concerns. By reducing the time of post-fault analysis, the faulted system can be maintained faster by reducing the restoration time, and this could reduce the failure costs.

Fault techniques have been categorized according to several different criteria and aspects, namely model-based approaches, knowledge-based methods, and data driven approaches, when judgments are made based on the analysis and interpretation of numerical data rather than on observation or personal experience. A data-driven strategy ensures that ideas and solutions are backed by verifiable facts rather than assumptions and personal experience.

Machine learning methods to describe the fault analysis, particularly the applications of decision trees, support vector machines, and k-nearest neighbors (k-NN), have been proposed to classify the faults. They showed that computational complexity to process the high-dimensional data and reduction techniques to reconstruct the data are required.

However, the data reduction brings a risk of loss of information by lowering the dimensions, and the accuracy of the results is compromised. Therefore, in this paper, it is going to be discussed and shown that how machine learning and deep learning algorithms could be used to detect and predict the short circuit faults to improve the power syst resiliency of the power transmission system.

Day 02: Monday 27 January 2025

Session 02:
Innovative Solutions for Smart Facility Management

Hall A
10:25 – 11:25



Chairman:

Eng. Ali Alsuwaidi
Board Member
Arab Asset, Facility and
Maintenance Management
Council (OMAINTEC)
Vice President, MEFMA
United Arab Emirates



Dr. Abdelkarim Rezk
General Manager Operation &
Maintenance Sector
AlMajal Alarabi
Group Company
Saudi Arabia



Eng. Rami Alsodi
Senior Researcher
Department of
Public Works
United Arab Emirates



Eng. Azhar Alqaissi
Consultant Engineer
Visiting Professor at Several
Colleges and Institutes in
Engineering Fields
Oman



Eng. Mohamed Siddig
Facility Manager
Alrasikhat Real-estate
Investment Company
Saudi Arabia

Day 02: Monday 27 January 2025



Chairman:

Eng. Ali Alsuwaidi

Board Member

Arab Asset, Facility and Maintenance Management Council (OMAINTEC)

Vice President, MEFMA

United Arab Emirates

Biography:

Eng. Ali AlSuwaidi is one of the influential leaders of the facilities management and asset management industry in the Middle East. He has been in the industry since the nascent stages and has been tasked with a range of prestigious, mission-critical, high-profile assignments. His valuable volunteering contributed to the growth of the industry in the Middle East and especially GCC countries.

Eng. Ali is one of the FM subject matter experts worldwide and a visionary speaker participating in facility management workshops, conferences, and seminars. Amongst many other important tasks, Ali was the first operation head for the tallest tower in the world, Burj Khalifa.

In addition to being one of the key founders of MEFMA and a prominent figure in the Middle East, he also has a great impact and huge influence globally by being the Vice Chairman in the Global FM Association (GFM) since January 2021 and previously as a board of director since January 2013, along with having a valuable impact as well on various entities in which he held key positions.

Eng. Ali holds MBA from American University of Sharjah and B.S in Electrical Engineering from Toledo, Ohio-USA. He also holds Mini MBA certificate of leadership from INSEAD, and he is a graduate from Dubai Government leadership program in coordination with The Wharton school of Business, USA. Ali Holds international diploma on health, safety and environment management from British Safety council.

Day 02: Monday 27 January 2025



Buildings and Facilities Management Digital Asset Management

Dr. Abdelkarim Rezk

General Manager Operation & Maintenance Sector
AlMajal Alarabi
Group Company
Saudi Arabia

Biography:

ثلاثون عاماً من العمل المتواصل في مجال الصيانة والتشغيل وخدمات المرافق وإدارة المشروعات، دورات مختلفة في إدارة المشاريع والقيادة والإدارة التنفيذية العمل في عدة مواقع مختلفة تنفيذية وإدارية، مدير مكتب مستشار وزير الصحة، مدير تنفيذي لشركة صيانة طبية، مدير دراسات جدوى، استشارات مالية وبنكية أشغل حالياً منصب مدير عام قطاع الصيانة والتشغيل في مجموعة المجال العربي.

Abstract:

رقمنة الأصول والمرافق هو مطلب ضروري للاستمرارية والاستدامة وتحقيق استمرار النمو والمنافسة وهو يقيس أيضاً القدرة على خلق الفرص الجديدة في طرق التشغيل، والرقمنة تعني تبني التكنولوجيا الحديثة لتحويل العمليات التقليدية إلى عمليات مؤتمتة وذكية تدير كل جانب من جوانب المرافق والأصول بطريقة أكثر فعالية ودقة، وإدارة المرافق هي أفضل المجالات التي تتيح لنا فرصة لاستخدام الرقمنة وفي نفس الوقت هو المجال الأوفر حظاً في الاستفادة من الرقمنة في تحسين الكفاءة التشغيلية وتقليل التكاليف وتعزيز الأداء العام.

خطوط عريضة

- الإدارة الرقمية ليست مجرد تحسين تقني ولكنها تحول جذري في إدارة المرافق والأصول.
- رقمنة الأصول تحقق سرعة قابلية البيانات للتشغيل والاستدامة وتعزز الحماية المطلوبة لها.
- رقمنة الأصول تساهم في تعزيز القدرة التنبؤية وتسهل عمليات الصيانة الاستباقية من خلال التنبؤ بسلوك الأصول وأدائها.
- رقمنة الأصول تطلق لها قدرة مختلفة تمكنها من التكامل مع الأنظمة الأخرى والتكيف مع التطور التكنولوجي.
- رقمنة الأصول تحدث فارقاً في التكاليف وتحسن الجودة في الأداء وتعزز العائد على الاستثمار وتؤكد الاستدامة.

Day 02: Monday 27 January 2025



Artificial Intelligence and Machine Learning: The Future of Concrete Technology and Maintenance

Eng. Rami Alsodi

Senior Researcher
Department of Public Works
United Arab Emirates

Biography:

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Abstract:

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Morbi sit amet tellus ut justo pellentesque blandit in vel magna. Duis eu odio sit amet eros ornare pharetra. Nunc porttitor ut mi eget hendrerit. Suspendisse potenti. Sed ut nisl eu massa bibendum consequat eu at nulla. Pellentesque suscipit tincidunt condimentum. Fusce hendrerit augue risus, sit amet eleifend urna eleifend in. Nunc varius dui sit amet risus mattis luctus. Quisque eros turpis, bibendum at suscipit sed, vehicula a nisl. Integer ultricies libero eget ante molestie placerat. Cras rhoncus et risus nec pharetra. In vel felis quis sapien rhoncus tempus. Donec auctor nunc vitae libero dictum auctor.

Day 02: Monday 27 January 2025



Risk Management, Asset Digitization & Operational Excellence in Organization & Companies

Eng. Azhar Alqaissi

Consultant Engineer

Visiting Professor at Several Colleges and Institutes in Engineering Fields
Oman

Biography:

تتمتع بخبرة تزيد عن 25 عامًا في عدة مجالات هندسية .
التحصيل العلمي

شهادة بكالوريوس هندسة مدنية / جامعة بغداد
شهادة (دبلوم عال) في إدارة المشاريع (المملكة المتحدة)

ماجستير إدارة الأعمال (المملكة المتحدة) MBA شهادة
شهادات تدريبية من دول أوروبية

شهادة (إدارة المشاريع الاحترافية) (PMP) UK.

من البورد الاوروبي (مدرب دولي معتمد). (T.O.T) شهادة
زميلة جمعية المهندسين المدنيين البريطانية. (FICE) شهادة
الخبرة المهنية

المدير العام لمشاريع النقل والاتصالات/ العراق.

اشرف على دراسات استشارية مثل (تصميم شبكة سكة حديد وتصميم مترو بغداد)
(الاشرف على شركة بلجيكية قامت بتنفيذ مبنى متعدد الطوابق بالهيكل الحديدية)

مدير مفوض لشركة للاستشارات الهندسية

خبير مشاريع سكك حديدية شبكة دول مجلس التعاون الخليجي / سلطنة عمان
محاضرة في المعاهد لأقامة دورات تدريبية في المجالات الهندسية

Day 02: Monday 27 January 2025

Abstract:

تتمثل إدارة المخاطر بأنها عملية تنظيمية وأستراتيجية تهدف الى تحديد وتقييم المخاطر المحتملة والتي يمكن ان تؤثر على أهداف المنظمة وأدائها وتهدف هذه الاستراتيجية الى تقليل الأثر السلبي للمخاطر وزيادة فوائد الفرص الجيدة من خلال الرقمنة ودور تكنولوجيا المعلومات في تحسين أداء التدقيق الداخلي والخارجي لمعرفة المخاطر المتوقعة والغير متوقعة والكوارث المفاجئة، والتقليل من الجهد والتكاليف الاضافية للتخفيف منها . ومن خلال تسليط الضوء على دور وأهمية إستخدام تكنولوجيا المعلومات والرقمنة في التتبع مما يزيد من كفاءة تحسين الأداء في عملية البحث وإيجاد الحلول المبكرة لمواجهة تحديات المخاطر وحسب نوع التحدي، وتتضمن إدارة المخاطر العمليات التي تتمثل أهدافها في تقليل تأثيرها على المؤسسات والمشاريع القائمة أو التي تحت التنفيذ أو في مراحل التشغيل والصيانة.

وتشمل : تخطيط إدارة المخاطر، تحديد المخاطر، التحليل النوعي للمخاطر، التحليل الكمي للمخاطر، تحليل الأستجابة للمخاطر ، مراقبة وضبط المخاطر والسيطرة عليها وكل هذه تتم عن طريق الرقمنة والذكاء الاصطناعي لأجل الوصول الى التنبؤ بحدوث الاخطار ودرجتها وإستكشاف الحلول الكفيلة لمعالجتها وإختيار نوع المعالجة لأن تهديد يؤثر على الأصول والمراقق وتم تسميتها (الصيانة التنبؤية) ، وهنالك مخاطر غير متوقعة ومفاجئة قد تكون ناتج عن عيب واحد أو عدة عيوب وقد تكون أحداث خارجية أو داخلية تحدث فجأة ويمكن أن تسبب ضررا للأشخاص أو الأصول أو البيئة ويمكن تجنب ذلك من خلال خطط عمل وإجراءات تصحيحية أو وقائية ، كما أن تجنب المخاطر أو تقليل تأثيرها يهدف لمنع الهدر بالموارد أو حصول الأخطاء أو إعادة الاعمال وخاصة خلال مراحل التشغيل والصيانة وذلك لتحقيق إستدامة الأصول وبدون كلف إضافية وتعمل على حماية الشركات والمؤسسات كما أن عمليات الرقمنة لها دوراً أساسياً في التوثيق وإيجاد بدائل الحلول للتحسين المستمر في إدارة المخاطر وتعزيز التشغيل المستدام للأصول والأعمال.

والرقمنة في الادارة هي صيغة رقمية لتحويل البيانات والمعلومات الى تنسيق يمكن تخزينه ومعالجته ومشاركته بإستخدام التكنولوجيا الرقمية و تشمل تحويل المستندات الورقية الى ملفات الكترونية وإستخدام قواعد البيانات وأنظمة المعلومات لتنظيم البيانات وتوظيف التكنولوجيا السحابية والحوسبة اللامركزية لتخزين ومشاركة البيانات عبر النت و أن الرقمنة تحسن من كفاءة العمليات وتقلل الأخطاء وتوفر الوقت ويمكن التعاون والتواصل بشكل يساهم في تطوير التجارة الالكترونية والتحليلات الضخمة والابتكار التكنولوجي في مختلف المجالات وخاصة في تجنب وقوع المخاطر.

يستكشف رونسيمان العالم في مجال الخوارزميات والتحديات والتحولات المحتملة والتي قد تواجهها المجتمعات في عصر زيادة الاعتماد على الخوارزميات والذكاء الاصطناعي ويشير إلى نظام افتراضي للمنظمات حيث تكون عمليات صنع القرار و اعتماد آلية متكاملة لمواجهة الأزمات والاطار المفاجئة.

ونظرا لزيادة مخاطر التهديدات السيبرانية والقرصنة وسرقة البيانات والاختراقات الالكترونية يتطلب الأمر إستراتيجيات متقدمة لحماية الأصول الرقمية وصيانتها بشكل مستمر وتدريب الكوادر وفق التقنيات الحديثة لأعداد البرامج لمواجهةها والتصدى لها والحفاظ على التشغيل المستدام ودون الهدر بالموارد والتكاليف والوقت . إن الوعي بمفهوم إدارة المخاطر من أهم الممارسات التي تساعد على تحقيق الأهداف، والاستجابة للأحداث التي تواجه المنظمات والمؤسسات لتحقيق الاستدامة في التشغيل والكفاءة في الإنتاجية ومن ثم ضرورة توثيق كافة المعلومات بأسلوب الرقمنة والتحول الرقمي

Day 02: Monday 27 January 2025



Utilization of Artificial Intelligence in Monitoring Key Performance Indicators for Facility Management Performance

Eng. Mohamed Siddig

Facility Manager

Alrasikhat Real-estate Investment Company

Saudi Arabia

Biography:

LinkedIn Top Facility Management (FM) Voice - Results-oriented professional with extensive experience in managing multimillion-dollar real estate portfolios, leading large teams, and delivering top-tier facility services across wide range of properties. Proven ability to efficiently manage hard and soft services, develop strategic facility management plans, and optimize resource allocation for facilities of varying sizes and complexities. Demonstrated expertise in overseeing complex projects, providing competitive bidding support, and innovating operation strategies by integrating available resources with cutting-edge technologies. Adept at fostering sustainability solutions, resulting in significant energy savings and cost reductions. Strategic leader with strong grasp of asset management, equipped with excellent communication and interpersonal skills to forge strong relationships with a, tenants, and team members. Committed to delivering excellence in all endeavors, maintaining keen eye for detail, and continuously improving operations to drive business growth and profitability.

Abstract:

نتطرق في هذه الورقة الى مفاهيم مؤشرات الأداء الرئيسية ودورها في قياس أداء إدارة المرافق، والنقاط الحرجة التي تؤثر على مدخلات مؤشرات الأداء الرئيسية، ومن ثم نقوم بالتعريف على أنظمة التعرف على السلوك وارتباطها بالذكاء الاصطناعي لتطبيق البيانات التي جمعها من التعرف على السلوك.

وخلصنا إلى أن هنالك فرصاً عديدة بالإمكان الاستفادة منها لقياس أداء إدارة المرافق باستخدام أنظمة التعرف على السلوك والذكاء الاصطناعي. مثل: التعرف على سلوك المعدات والتعرف على سلوك مرتادي المرافق والتعرف على سلوك مقدمي خدمة إدارة المرافق.

ويتضح أن هنالك إمكانية لزيادة إنتاجية الموظفين تصل إلى 40% باستخدام تطبيقات الذكاء الاصطناعي مثل أنظمة التعرف على السلوك.

Day 02: Monday 27 January 2025

Session 02 Electrical Track:
Grid Modernization and Sustainability

Hall B
10:25 – 11:25



Chairman:

Eng. Essam Alwafi

Head of Technical
Studies Division
GCC Lab
Saudi Arabia



Eng. Mohammed Al-Haj

Facility Engineer
Sulaiman Alrajhi University
Saudi Arabia



Eng. Salem Alshahrani

Lead Electrical Engineer
KEMYA
Saudi Arabia



Dr. Ahmed Kabeel

Lecturer
Electronics and
Communication Dept
Delta University
Egypt



Eng. Nehal Alyamani

Renewable Energy Engineer
Member of IEEE-WSA
Affiliated Researcher
Effat University
Saudi Arabia

Day 02: Monday 27 January 2025



Chairman:

Eng. Essam Alwafi

Head of Technical Studies Division
GCC Lab
Saudi Arabia

Biography:

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Abstract:

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Day 02: Monday 27 January 2025



Optimization and Performance Evaluation of a Hybrid Solar Power System for University Campuses: A Case Study with Environmental and Economic Impacts

Eng. Mohammed Al-Haj

Facility Engineer
Sulaiman Alrajhi University
Saudi Arabia

Biography:

Electrical Engineer in Facilities Management at Sulaiman Al-Rajhi University, with an interest in energy systems and the integration of renewable energy sources. Focused on developing smart and sustainable solutions to enhance facility efficiency and extend operational lifespans, with a particular emphasis on advanced maintenance technologies. Actively involved in research projects that explore the impact of renewable energy on infrastructure resilience and operational cost reduction. Mohammed is committed to contributing to the community through volunteer activities, participating in initiatives aimed at raising awareness about clean energy, and promoting sustainable energy use. He has participated in several scientific conferences and seminars in the energy field, enhancing his knowledge and facilitating the exchange of expertise with other professionals. He strives to develop the field and sector continuously.

Abstract:

This study investigates the design and performance analysis of a hybrid solar power system to meet the energy demands of Sulaiman Al-Rajhi University. Utilizing HOMER software, the system's configuration was optimized for technical and economic feasibility. The results indicate that the solar panels can produce 425,427 kWh annually, covering 45.7% of the university's energy needs. This reduces annual carbon emissions by approximately 232,163.64 kg CO₂ and achieves annual savings of 76,372.39 SAR, with a payback period of 14.56 years. This research highlights the significant environmental and economic benefits of integrating solar energy in university infrastructures.

Day 02: Monday 27 January 2025



Frequency Regulation Coordinated Framework: Hybrid Battery Energy Storage System and Supercapacitor

Eng. Salem Alshahrani

Lead Electrical Engineer

KEMYA

Saudi Arabia

Biography:

Salem Alshahrani is a lead electrical engineer in the Asset Engineering Department at KEMYA in Jubail, Saudi Arabia since 2022. Salem holds two Master's Degrees: Engineering Management and Electrical Engineering from KFUPM. Salem's research interests include power system reliability, RE integration into power systems, relay protective systems, and power system stability. Salem has led many EPC projects including substation erection, and motor start-ups

Abstract:

Integrating renewable energy (RE) resources introduces several challenges to the conventional network, one of which is the degraded system inertial response. Frequency regulation (FR) works on stabilizing the system frequency by reducing the mismatch between generation and demand. Apart from conventional FR methods, storage systems can be utilized for such a purpose.

A hybrid storage system supported by a wind power source comprising a battery energy storage system (BESS) and a supercapacitor (SC) is considered in this study. The hybrid system aims to balance the given network's real frequency data. The corresponding capacity of both the BESS and the SC are optimized using nonlinear programming along with the set of constraints. The power density and energy density characteristics of both storage units are optimized in terms of their capacities.

Day 02: Monday 27 January 2025



Solar Panel Optimization Based on Graphene-Silicon-Droplet Integration

Dr. Ahmed Kabeel

Lecturer
Electronics and Communication Dept
Delta University
Egypt

Biography:

Ahmed received a BSc degree in electronics and communication engineering from higher institute of engineering and technology in new Damietta, Egypt in 2012 and received his M.Sc. in 2015 from Mansoura university and Ph.D. in 2019 from AL Menia university, His M.Sc. dedicated to UWBA design for ground penetrating radar for environmental exploration, the Ph.D. is devoted to introduce a new spectrum sensing algorithm based on antenna array for cognitive radio application also has introduce an enhancement using beamforming algorithm,

Abstract:

Solar panels play a vital role in renewable energy systems by converting sunlight into electricity. However, traditional panels have faced limitations in efficiency and cost-effectiveness, hindering widespread adoption. Recent advancements have focused on improving solar panel technologies, including the integration of perovskite-graphene, perovskite-silicon, and droplet materials. Perovskite solar cells have garnered attention due to their strong light-absorption properties and ease of fabrication, offering potential efficiency enhancements. Combining graphene and silicon in perovskite layers introduces benefits, such as improved panel efficiency through enhanced charge transport. Graphene's exceptional conductivity and durability further bolster performance. Additionally, the innovative concept of raindrop energy harvesting capitalizes on falling raindrops' kinetic energy to generate bursts of electrical charge, expanding sustainable energy capture possibilities, especially in regions with ample rainfall. This review comprehensively explores hybrid perovskite-silicon and perovskite-graphene solar panels, coupled with raindrop energy harvesting, elucidating principles, challenges, and potential applications. By evaluating research findings and technological advancements, this approach offers insight into the evolution of solar energy systems, addressing growing energy demands and the urgency for renewable sources.

Day 02: Monday 27 January 2025



Superconducting Magnetic Energy Storage (SMES) Energy Applications

Eng. Nehal Alyamani

Renewable Energy Engineer

Member of IEEE-WSA

Affiliated Researcher

Effat University

Saudi Arabia

Biography:

- Certified Electrical Engineer.
- Certified Trainer Technical and Vocational Corporation.
- Received her Bachelor's degree from Effat University (2017), in Electrical and Computer Engineering.
- Received her master's degree in (Energy Engineering - Renewable Energy) from Effat University (2021).
- Between 2016 - 2022 She published several research work via IEEE and other engineering and research portals; related to Digital systems, Sustainability, Renewable Energy, and Smart cities.
- Between 2021 – until now worked on electrical design engineering projects.
- Her current interesting in research projects: on renewable energy (solar & wind), power system development, waste management, environment & sustainability studies.

Abstract:

This session will provide an overview of the SMES advantages and the promising advancements as a form of storage technology in the smart grid that can provide a solution to enable the large-scale expansion of renewable energy networking and a faster transition toward a low CO₂ energy system, remaining the grid stability and reliability.

Day 02: Monday 27 January 2025

10th Workshop: Total Quality Management (TQM) for Asset and Facility Management in the Era of Industry 4.0 and Artificial Intelligence

Room 1
10:25 – 11:25



Prof. Omar Gnieber

Board Member

Arab Asset, Facility and Maintenance Management
Council (OMAINTEC)
Libya

Workshop Contents & Objectives

1. Introduction: Bridging TQM with Industry 4.0

- Core TQM Concepts and Their Relevance Today:
- Customer-centric decision-making as the foundation for smart facilities.
- Continuous improvement driven by data analytics and AI.
- Leadership's role in fostering a TQM culture amidst technological shifts.
- Industry 4.0 Technologies and Their Alignment with TQM Principles:
- IoT for real-time quality monitoring (supporting fact-based decision-making).
- Big Data analytics for trend analysis and process improvements (focus on process management).
- Blockchain for transparency and accountability in asset tracking (strengthening integrity).

2. TQM Frameworks in Asset and Facility Management:

- Advanced Principles of TQM for Professionals:
- Total Employee Involvement: Building interdisciplinary teams for integrated asset management.
- Continuous Process Improvement: Using AI for predictive maintenance and minimizing downtime.
- Systematic Problem Solving: Applying Six Sigma within digital systems for defect elimination.
- Aligning ISO Standards with TQM in Modern Management:
- ISO 55000: Achieving sustainable asset management by integrating TQM principles like life-cycle thinking.
- ISO 41001: Utilizing TQM for smart facility operations through energy management and occupant satisfaction metrics.
- Global Case Studies:
Examples where TQM principles improved asset and facility management outcomes using AI and IoT.

3. Applying Industry 4.0 Tools for TQM in Practice:

- AI and Predictive Analytics:
 - Case Study: AI-driven failure predictions in large facilities (supporting zero-defect goals).
 - Strategies for using predictive models to ensure consistent service delivery (enhancing customer satisfaction).
- IoT and Smart Asset Monitoring:
 - Real-time data collection for operational efficiency (data-driven process improvement).
 - Examples of IoT-enabled smart maintenance schedules (ensuring reliability).
- Big Data and Quality Metrics:
 - Advanced applications of Big Data for performance benchmarking (fact-based improvement strategies).
 - AI-based visualization tools for stakeholder reporting (improving communication and transparency).

Day 02: Monday 27 January 2025

Objectives:

- Deepen participants' expertise in integrating TQM principles into asset and facility management strategies.
- Correlate TQM methodologies with cutting-edge technologies from Industry 4.0 and AI to achieve operational excellence.
- Provide advanced frameworks and tools for leveraging TQM in decision-making, process optimization, and resource efficiency.

Who Should Attend:

Engineers, technicians, and professionals working in asset management, facility management, and related fields, seeking practical insights into integrating total quality management principles with emerging artificial intelligence technologies.

Biography:

Prof. Omar Khalifa Gnieber, born on July 15, 1966, in Benghazi, Libya, is a distinguished academic and professional in the fields of Industrial Engineering, Quality Management, and Leadership Development. He holds Libyan nationality and has dedicated his career to advancing engineering education, institutional development, and consultancy.

Prof. Gnieber earned his B.Sc. in Industrial and Manufacturing Systems Engineering with high honors from the University of Garyounis (now University of Benghazi) in Libya. He further pursued postgraduate studies in the United Kingdom, where he obtained an M.Phil in Industrial Engineering (Advanced Engineering Management Techniques) and a Ph.D. in Industrial Engineering with a focus on world-class practices from the University of Bradford.

Throughout his career, Prof. Gnieber has held numerous prominent roles, including:

- Dean of the Faculty of Engineering at the University of Garyounis, overseeing seven departments and 250 faculty members, and implementing strategic reforms in quality assurance and ABET accreditation.
- Vice Chancellor for Academic Affairs at the Libyan Academy, managing 26 postgraduate departments.
- Founder and CEO of the Royal Academy for Training and Development, specializing in organizational development, Lean Six Sigma, and Agile management.
- Jury Member of MEFMA annual Facility and Asset Management Prizes. (UAE)
- Jury Member of the World Reality Congress Annual Prizes. (Dubai)

He has also served as:

- Chairman of the Industrial Engineering and Engineering Management Departments at leading institutions.
- Board Member of the Arabic Union of Land Transportation.
- Management Consultant to the CEO of Brega Oil Company, supporting strategic planning and leadership development.
- Founder of the Management of Innovation and Knowledge at AwaradBrand British Company.

An accredited international trainer, Prof. Gnieber has delivered training and consultancy services across various industries, helping organizations embrace Total Quality Management (TQM) and innovation-driven practices. He is widely recognized for his contributions to education, leadership, and operational excellence, making him a leader in his field and a pioneer of change in Libya and beyond.

Day 02: Monday 27 January 2025

Session 03:
The Role of IoT in Smart Maintenance Practices

Hall A
11:35 - 12:35



Chairman:

Dr. Ayman Alwaleedi

Board Member
Arab Asset, Facility and
Maintenance Management
Council (OMAINTEC)
Executive Director
Rua Almadinah
PIF, Saudi Arabia



Prof. Mohamed Fathy Aref

Chair of the Smart Cities
Code Committee
Housing
and Building National
Research Center
Egypt



Eng. Hanan Alghamdi

Design Project Manager
Shaad Company
Saudi Arabia



Eng. Yazeed Alhaqbani

Electric Engineer
Prince Sattam Bin
Abdulaziz University
Saudi Arabia



Dr. Mostafa El Hawary

VP-Technology
NAMAA Consult
Saudi Arabia

Day 02: Monday 27 January 2025



Chairman:

Dr. Ayman Alwaleedi

Board Member

Arab Asset, Facility and Maintenance Management Council (OMAINTEC)

Executive Director

Rua Almadinah

PIF, Saudi Arabia

Biography:

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Biography:

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Day 02: Monday 27 January 2025



Buildings and Facilities Management Digital Asset Management

Prof. Mohamed Fathy Aref

Chair of the Smart Cities

Code Committee Housing and Building National Research Center

Egypt

Biography:

الوظيفة الحالية: رئيس اللجنة الدائمة لإعداد الكود المصري للأسس واشتراطات تخطيط وإدارة وتشغيل واستدامة المدن الذكية

يعمل بالمركز القومي لبحوث الإسكان والبناء بالقاهرة التابع لوزارة الإسكان والمرافق والمجمعات العمرانية- متدرج في الوظائف الأكاديمية من معيد حتى استاذ دكتور منذ عام 1983 حتى الآن - حاصل على بكالوريوس تخطيط المدن عام 1982، وماجستير عام 1989، ودكتوراه عام 1999.

له خبرة عملية وعلمية قرابة 42 عام، وشارك في العديد من الدراسات والأبحاث العلمية التطبيقية في مجال إدارة العمران والتي أعدها المركز بالتعاون مع جهات محلية ودولية. وقام بنشر العديد من الأبحاث العلمية في المجلات المتخصصة والمؤتمرات الإقليمية والدولية، وأيضاً يعمل استشاري وخبير التخطيط العمراني لعدد من المكاتب الاستشارية.

Biography:

الوظيفة الحالية: رئيس اللجنة الدائمة لإعداد الكود المصري للأسس واشتراطات تخطيط وإدارة وتشغيل واستدامة المدن الذكية

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Day 02: Monday 27 January 2025



Smart Monitoring and Controlling System for Construction Projects as a Prerequisite to Place Smart Facility Management in Saudi Arabia

Eng. Hanan Alghamdi
Design Project Manager
Shaad Company
Saudi Arabia

Biography:

I am an accomplished interior designer with a Master's degree in Construction Management. With a passion for integrating innovative design with efficient project management, I have made significant contributions to the field. As a Design Project Manager at Shaad Company, I oversee a range of projects, ensuring that design excellence and operational efficiency go hand in hand. I have actively participated as a speaker at a conference, sharing insights on the latest trends and technologies in interior design and facility management. My keen interest in utilizing smart systems for facility management reflects a commitment to enhancing the functionality and sustainability of modern spaces.

Abstract:

Vision 2030 offers a great opportunity for the development of the Kingdom's construction sector aligning with technology growth. As Saudi Arabia's buildings are expanding in a rapid manner, result in the complexity of the projects. As projects grow, they increasingly resemble large, worldwide megaprojects that need sophisticated monitoring and controlling systems to guarantee they get the desired outcomes. This paper proposed a new development of a smart system for Saudi Arabian construction project monitoring and management utilizing advanced technologies. Improving project management effectiveness and decreasing delays are the goals. The study combines knowledge of previous studies as well as a survey of the public's thoughts on the development of a smart system, and how it will benefit them in tracking progress and reduce causes of delays. The research methodology involves a literature review of existing smart construction systems, followed by the development of a prototype system. Expert opinions were used to design the prototype system. The survey's findings demonstrate that consumers view the advantages of a smart system for monitoring work and reducing delays. The study results in the conclusion that a smart system can improve Saudi Arabian construction project management effectiveness and decrease delays. The study adds to the increasing body of knowledge on smart building technologies and offers insightful information for Saudi Arabia's construction market.

Day 02: Monday 27 January 2025



Assessing the Impact of Digital Initiatives on Operational Excellence Using Key Performance Indicators (KPIs) and AI-Based Analytics

Eng. Yazeed Alhaqbani

Electric Engineer
Prince Sattam Bin
Abdulaziz University
Saudi Arabia

Biography:

As an advisor to vice rector at Prince Sattam bin Abdulaziz University, my focus is on providing strategic counsel and analysis to support the Vice President's decision-making. My role capitalizes on strong communication and problem-solving skills, which were honed during my tenure as Director of Operations and Maintenance Management. There, we ensured the optimal performance and sustainability of the university's infrastructure.

My professional journey is marked by a commitment to enhancing operational efficiency and safety standards. With a deep understanding of electrical, computer, and communications engineering, my aim is to integrate technical expertise with innovative approaches to drive progress. Collaborating closely with cross-functional teams, I strive to align our operations with the university's overarching goals and values.

Abstract:

In the rapidly evolving landscape of digital transformation within the asset and facility management sector, the importance of using Key Performance Indicators (KPIs) to measure the impact of digital initiatives on operational excellence is increasingly recognized. This paper aims to provide a comprehensive framework for evaluating the performance of digital initiatives using KPIs, integrating AI-based analytics and Machine Learning to analyze big data and improve measurement accuracy. A case study from the asset management sector will be presented to illustrate how these tools can be applied to achieve tangible improvements in operational excellence.

Day 02: Monday 27 January 2025



Impact of Tailored Robots of Construction Engineering Industry & Facility Management

Dr. Mostafa El Hawary

VP-Technology
NAMAA Consult
Saudi Arabia

Biography:

Mostafa is a seasoned information technology and digital solutions expert with over 28 years of experience driving innovation and transformation across diverse industries. Throughout his illustrious career, Mostafa has honed his expertise in leveraging cutting-edge technologies to solve complex business challenges and unlock new avenues for growth.

With a proven track record of delivering impactful results, Mostafa continues to be a driving force in the information technology and digital solutions space, constantly seeking new opportunities to leverage technology to transform businesses and shape the future of the industry.

Abstract:

The emergence of tailored robots in the building and facilities management industry is transforming operational efficiency and service delivery. These advanced robotic systems automate routine tasks such as cleaning, maintenance, and inspections, allowing human personnel to focus on strategic activities that require critical thinking and decision-making. By enhancing precision and consistency, tailored robots improve the quality of services while reducing human error and operational costs. Their ability to function in diverse environments ensures safety and efficiency, particularly in hazardous or hard-to-reach areas. Moreover, the integration of robotics with smart building technologies and the Internet of Things (IoT) facilitates real-time monitoring and data analysis, enabling proactive maintenance and resource optimization. As the industry increasingly adopts robotics, the potential for enhanced productivity, improved tenant satisfaction, and sustainable practices expands, positioning tailored robots as vital contributors to the future of building and facilities management.

Day 02: Monday 27 January 2025

Session 03 Electrical Track:
Smart Solutions & Advance Monitoring

Hall B
11:35 - 12:35



Eng. Marco Tatti

Ttech Srl
Academia sas
Triz Consulting
Italy



Eng. Abdulrahman Alqahtani

Head of Power Plants
Works Quality Section
Central Sector
Saudi Electricity Company
Saudi Arabia



Arulraj Irudayasamy

Regional Application
Specialist for Power Utility
OMICRON Electronics
Middle East
Bahrain



Hind AlQasem

Senior Cybersecurity Analyst
Saudi Electricity Company
Saudi Arabia

Day 02: Monday 27 January 2025



Innovation in Energy Fields with the TRIZ Method: Applications in Key Sectors for the Middle East

Eng. Marco Tatti

Ttech Srl
Academia sas
Triz Consulting
Italy

Biography:

Marco, a graduate in Aerospace Engineering from the Polytechnic University of Milan, began his career in academic research and later collaborated with several industrial companies in the field of production process optimization and technological innovation.

Since the beginning, he has coordinated cross-functional teams for the creation of innovative ideas and implementation of solutions, particularly in the two companies he founded and managed: one in Italy active in industrial nondestructive testing, and a Finnish start-up operating in energy storage solutions. He has gained a deep knowledge of innovation processes working as an innovation consultant in major companies operating in different technological sectors. He has been interested in Systematic Innovation for over 25 years and uses TRIZ as main tool for strategic problem-solving and technology mapping.

Abstract:

Marco, a graduate in Aerospace Engineering from the Polytechnic University of Milan, began his career in academic research and later collaborated with several industrial companies in the field of production process optimization and technological innovation.

Since the beginning, he has coordinated cross-functional teams for the creation of innovative ideas and implementation of solutions, particularly in the two companies he founded and managed: one in Italy active in industrial nondestructive testing, and a Finnish start-up operating in energy storage solutions. He has gained a deep knowledge of innovation processes working as an innovation consultant in major companies operating in different technological sectors. He has been interested in Systematic Innovation for over 25 years and uses TRIZ as main tool for strategic problem-solving and technology mapping.

Day 02: Monday 27 January 2025



Digital Meters Calibration Monitoring Solution (Automation of Preventive Maintenance Work Orders & Escalation)

Eng. Abdulrahman Alqahtani

Head of Power Plants
Works Quality Section
Central Sector
Saudi Electricity Company
Saudi Arabia

Biography:

A mechanical engineer Graduated from King Fahd University of Petroleum and Minerals. 10 years of Experience in the energy production business filed(Saudi Electric Company).6 years working with 12th power plant O&M team . A member of Performance and Efficiency group on the power plant. A member of the combined cycle commissioning team. combined cycle maintenance team leader. Certified trainer in the Saudi Electricity Company. Media representative of the Twelfth Power Plant. A performance & efficiency Engineer in the Generation South Sector. Now , power plants works quality section Head – Central Operation Sector.

Abstract:

The power plants of the Saudi Electricity Company consume huge quantities of water and fuel to produce electricity with high reliability and sustainability.

Digital meters are used to calculate the consumption of fuel, water and electricity produced with high accuracy to control efficiency and build a base of confident with strategic stake holders.

Due to operational conditions that prevent shut down production units for the purpose of calibrating digital meters and some logistical obstacles, the company faces a challenge in calibrating digital meters at the specified time to calibrate them and control the monitoring of this process. A solution has been developed to monitoring Digital meters Calibration (Automation of Preventive Maintenance Work Orders & Escalation). It is essential to implement a sophisticated solution within SAP (Plant Maintenance module) that will facilitate the tracking of maintenance and calibration activities for digital meters equipment, as well as the validation of associated certificates.

A crucial component of this solution includes an automated escalation mechanism that notifies different managerial levels upon the overdue status of work orders, thereby ensuring timely intervention and mitigating potential operational disruptions.

Day 02: Monday 27 January 2025



Standardization of the Signal List and SCL Engineering for IEC 61850 Based Substation Projects: Challenges, Solutions and Future Directions

Arulraj Irudayasamy

Regional Application Specialist for Power Utility
OMICRON Electronics Middle East
Bahrain

Biography:

Arulraj graduated as an Electrical and Electronics Engineer at the Saveetha Engineering College-Chennai-India in 2014 and started at GK Power as Relay Service Engineer for MiCOM Numerical protection and control IEDs, later he worked as a Substation Automation System(SAS) Engineer for many projects for ALSTOM and Schneider Electric in India until 2018.

He worked as a verification and validation Engineer for bay level products in ABB Global R&D team from 2018 until 2020 and now he is responsible for IEC 61850 application testing and cybersecurity solutions in OMICRON.

Abstract:

The Substation Automation System (SAS) serves as a central hub for collecting diverse data used within substations. With IEC 61850 based substation, data collected from different (intelligent Electronic Device) IEDs should build interoperable homogeneous system. IEEE and IEC on electrical systems standards refer to IEC 61850-7 model to represent substation information. Ideally, testing, commissioning and maintaining IEC 61850 based SAS should be systematic and scalable. In reality, managing the various signals originating from different assets such as primary equipment status monitoring, control functions, diagnostics, and software-based protection and metering poses significant challenges. As experienced across projects, SAS systems are often not engineered and commissioned in a standardized manner. In most times substation projects follow bottom-up SCL engineering approach, individual Configured IED Description (CID) are integrated into System Configuration Description (SCD) to generate configuration file project. In these projects, it was observed that assignment of protection element to protection logical nodes is not consistent and general input/out logical nodes are often used. In case of high voltage, assignment of electrical equipment supervision, protection and control to logical nodes is not consistent. Client/server association are not configured. As a result, the specification, engineering, testing, commissioning, maintenance and upgrades of IEC 61850 based substation projects encounter numerous obstacles.

In this paper, we delve into the common challenges faced in existing IEC 61850 projects. Examples covers industrial system electrical substation as well as electrical utilities. The paper proposes recommended solutions and explore future directions to establish robust and future proof IEC 61850 based substations. By addressing signal list recommendations for different facility types and System Configuration Language (SCL) engineering standardization, we aim to enhance efficiency, reliability and interoperability in SAS. In addition, standardizing signal list and SCL engineering for IEC 61850 based substation projects facilitates automating services such as testing and baselining, open horizons for data analytics solutions.

Day 02: Monday 27 January 2025



Smart Meters' Cyber Security Risks and How to Overcome Them

Hind AlQasem

Senior Cybersecurity Analyst
Saudi Electricity Company
Saudi Arabia

Biography:

Hind Alqasem was born in Riyadh, Saudi Arabia. She is holding a master's degree in Cybersecurity from Fontbonne University in United States. and a bachelor's degree in information systems from Imam Mohammed bin Saud Islamic University in Saudi Arabia.

His employment experience included the National Cybersecurity Authority (NCA), Saudi Center for International Strategic Partnerships (SCISP), and Saudi Electricity Company. Her special fields of interest included IT and OT Cybersecurity.

Alqasem received many certification included CompTIA Security+, Pentest+, and CySA+, ,GIAC GSNA and GCCC, and FotiGate Administrator.

Abstract:

Cyber security in smart grid is essential to secure and protect the embedded systems from cyber-attacks. Utility companies have used millions of smart meters to gather power consumption data from client premises on a regular basis. These data are crucial and must be remained private and secure locally in smart meter as well as when transmitted remotely via the network. Smart meters security risks are constantly evolving, and many security breaches are occurring. This paper illustrates the cyber security risks associated with smart meters and how to overcome those risks by applying cyber security solutions.

Day 02: Monday 27 January 2025



IMA COINCIDE EVENT

International Maintenance Association Guideline of Digitalization of Assets, Facilities, and Maintenance Management Re-Shaping the Future of Maintenance

🕒 13:15 – 14:45 📍 Hall A

Main Topic:

IMA is presenting its latest research study, "Guideline to Digitalization of Assets, Facilities, and Maintenance Management," conducted by leading global experts providing a strategic framework for organizations to navigate their digital transformation journeys.

Additionally, IMA is conducting a survey to gather insights on how digitalization impacts various sectors, focusing on the challenges faced, technologies implemented, and overall maturity levels in maintenance management.

Day 02: Monday 27 January 2025

Session 04:
Future Trends in Sustainable Transportation Infrastructure

Hall A
15:00 - 16:00



Chairman:
Eng. Hazim Abdulwahid
Vice President
Saudi Society of Civil
Engineering
Saudi Arabia



Prof. Altayeb Qasem
Professor
Imam Abdulrahman Bin
Faisal University (IAU)
Saudi Arabia



Eng. Simone Bernasconi
Founder & CEO
Avalle
Switzerland



Prof. Moustafa Kassab
Professor
University of Waterloo
Canada



Eng. Ashraf Sabry
Consultant Economist
LSF
Egypt

Day 02: Monday 27 January 2025



Chairman:

Eng. Hazim Abdulwahid

Vice President

Saudi Society of Civil Engineering

Saudi Arabia

Biography:

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Abstract:

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Day 02: Monday 27 January 2025



Developing A BIM Based Model for Road Construction & Maintenance in Saudi Arabia

Prof. Altayeb Qasem

Professor

Imam Abdulrahman Bin Faisal University (IAU)

Saudi Arabia

Biography:

Altayeb Qasem is an experienced academic with a PhD in Construction Management, specializing in asset and infrastructure management. His diverse research interests encompass a wide range of multidisciplinary areas, with a current focus on developing performance assessment models for assets and buildings. Additionally, he explores the digitization of asset management across various fields. Currently, he serves as a faculty member at Imam Abdulrahman Bin Faisal University, where his work primarily involves creating innovative performance assessment tools for buildings and advancing virtual reality modeling techniques for the assessment and maintenance of building infrastructure.

Abstract:

This paper introduces a Building Information Modeling (BIM) based model specifically designed for road construction and maintenance in Saudi Arabia. The model incorporates a virtual environment for comprehensive visualization and management of all facilities within road premises. Utilizing a suite of software tools, including Civil 3D for the detailed modeling of roads and municipal facilities, the model transitions into Revit for enhanced rendering. Subsequently, it is transferred to Navisworks for animation and navigation, creating an immersive virtual environment. This innovative approach facilitates effective communication among various stakeholders involved in road maintenance, enabling integrated rehabilitation efforts and streamlining the approval and execution processes. By adopting this model, Saudi Arabia can align with international benchmarks and standards, aiming to improve infrastructure quality, ensure timely project completions, and enhance stakeholder collaboration. This paper demonstrates how the integration of BIM tools in road maintenance not only mitigates the challenges posed by the need for multiple approvals but also significantly enhances project management and stakeholder communication.

Day 02: Monday 27 January 2025



Crisis Management and Business Continuity: How New Technologies and Innovations are affecting the Transportation Sector

Eng. Simone Bernasconi

Founder & CEO
Avalle
Switzerland

Biography:

I have been on the road for over 20 years and have held various technical and senior managerial positions in the aviation, railway, government, and mobility sectors. I am an innovator, storyteller, creative engineer, strategist, and responsible leader who knows how to manage crises and ensure business continuity. Digital transformation, change management, the evaluation/implementation of new/emerging technologies, and safety/risk management are some of my areas of expertise. I have lived and worked in dozens of countries on all continents, but I am based in Switzerland. I have a daughter and am happily married.

My mindset: Simple is simply better. Innovation is not only technology. Sharing emotions is communication. A crisis can be an opportunity if you are prepared. Always be ready for the unexpected. Creativity is enrichment. Respect builds longstanding relationships. Mobility is the lifeline of the economy.

A citizen of the world who lives in Uster (Switzerland) since 2018. Father of one daughter, happily married.

Abstract:

The transportation sector faces evolving challenges in maintaining business continuity and effective crisis management amid an increasingly complex global landscape. This paper examines the impact of emerging technologies and innovations on the sector's crisis resilience and operational continuity. Key advancements, such as artificial intelligence (AI), the Internet of Things (IoT), and other edge technologies, are reshaping traditional approaches to any business segment including crisis response and risk mitigation. Innovations such as predictive analytics and autonomous systems enable proactive strategies, minimizing disruptions from unforeseen events like technical malfunctions, accidents, natural disasters, cyber-attacks, and pandemics.

The paper explores how digitalization and innovation (1) foster real-time communication, (2) enhance situational awareness, (3) support dynamic decision-making, (4) lead to quicker response times, and (5) optimize resource allocation during crises. At the same time, the fast-paced world we are living in can (1) spread information (real or fake news) within seconds, (2) the overreliance on technology and technology-induced complacency, and (3) the need to include human factor aspects in a complex technological system can back-fire due to many reasons that will be presented in this paper (e.g. lack of hands-on experience, reliance on connectivity and power, etc.).

Of course, adaptive technology frameworks offer the transportation sector (and other related industries) the agility to respond to shifting regulations, customer expectations, and environmental demands, fostering long-term business resilience. By analyzing case studies and a few industry insights, this paper underscores the importance of integrating advanced technologies into crisis management strategies to support sustainable, resilient, and efficient transportation networks in a rapidly changing environment.

Day 02: Monday 27 January 2025



Prospectives on Utilizing Sustainable Smart Maintenance in Infrastructure Projects

Prof. Moustafa Kassab

Professor
University of Waterloo
Canada

Biography:

Dr. Moustafa Kassab received his Master and PhD Degrees in Systems Design Engineering and in Civil Engineering (Infrastructure Projects / Environmental Engineering Systems), from University of Waterloo, Canada. He taught many Systems Design Engineering, Civil Engineering, and Project Management courses at the University of Waterloo, Canada; Taibah University, and UPM, Saudi Arabia; and elsewhere. He has various publications in prestigious international journals and conferences such as American Society of Civil Engineering (ASCE), Institute of Electrical and Electronics Engineers (IEEE), Canadian Society of Civil Engineering (CSCE), and others. Dr. Kassab is professional engineering expert approved by the government of Canada, and has an extensive industrial engineering experience in USA, CANADA, and Middle East. His expertise in Civil engineering and Systems designs of infrastructure projects, Operation and Maintenance, Green Buildings and Sustainability, Construction of Nano technology labs, Artificial Intelligence tools in Civil engineering fields and Infrastructure systems design. He is reviewer and referee for international journals and conferences. Dr. Kassab associates with American Society of Civil Engineering (ASCE), Institute of Electrical and Electronics Engineers (IEEE), Canadian Society of Civil Engineering (CSCE), and Project management Institute (PMI) and others. He is former CEO of Armada Engineering consulting in Canada. Currently he is faculty member affiliated with Civil engineering departments and research associate with UPM, and University of Waterloo, Canada.

Abstract:

The rise of digital technologies and data-driven innovations is transforming how infrastructure projects are managed and maintained. Smart maintenance, which leverages real-time monitoring, predictive analytics, and automation, plays an increasingly vital role in optimizing the efficiency, reliability, and longevity of infrastructure assets. This paper explores the concept of smart maintenance, its applications in infrastructure projects, the technologies driving its adoption, and the benefits and challenges it presents. It also highlights case studies to illustrate its effectiveness in different sectors of infrastructure.

Day 02: Monday 27 January 2025



Effect of Using Geocell in Paved, Unpaved Roads on Sustainability, Technology for Digitizing Roads, and Infrastructure

Eng. Ashraf Sabry

Consultant Economist

LSF

Egypt

Biography:

Abstract:

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Abstract:

This study explores architectural digital twinning as an advanced tool for managing and maintaining heritage buildings. It begins by introducing the concept of digital twinning and its applications in architecture, focusing on its significance for historically valuable structures. The research reviews various types of maintenance, identifying the most suitable approach for implementation within the digital twin context. It also discusses appropriate restoration methods for this technology, analyzing decision models related to preservation and maintenance processes. The study presents a methodology for assessing heritage building needs and prioritizing interventions using digital twins. Finally, the research evaluates this methodology, highlighting its advantages and limitations, and providing insights into the potential of digital twinning in efficiently preserving and managing architectural heritage.

Day 02: Monday 27 January 2025

Session 05:
Innovative Strategies for Water Systems Management

Hall B
15:00 - 16:00



Eng. Suhail Kattan
Utilities Plants &
Distribution Systems
Manager
King Abdullah University
of Science and Technology
(KAUST)
Saudi Arabia



Eng. Ali El Turki
Lecturer
Civil Engineering
Department
University of Benghazi
Libya



Eng. Ahmed Alghamdi
Green and Renewable
Energy Group Leader
Saudi Water Authority
Saudi Arabia



Eng. Khalid Al-habib
Chief Strategy &
Development Officer
Water Transmission Co.
Saudi Arabia



Eng. Walaa Elsrogy
General Manager of AI
and Control Department
Greater Cairo Water
Company (GCWC)
Egypt

Day 02: Monday 27 January 2025



Comprehensive Asset Condition Assessment Framework for Various Equipment Types in Desalination Plants

Eng. Suhail Kattan

Utilities Plants & Distribution Systems Manager
King Abdullah University of Science and Technology (KAUST)
Saudi Arabia

Biography:

I'm Suhail S. Kattan, a dedicated maintenance and engineering professional with over a decade of experience in overseeing complex operations across various industries, including desalination, petrochemicals, and utilities. Currently, I'm leading the maintenance team of the desalination plant at King Abdullah University of Science and Technology (KAUST), where I focus on strategic planning, risk management, and driving operational excellence. My work has led to significant improvements in equipment reliability, service quality, and cost efficiency, saving my organization substantial resources. I hold a Bachelor's degree in Mechanical Engineering from King Fahd University of Petroleum & Minerals and am certified in Project Management (PMP) and Risk Management (PMI-RMP). I'm passionate about asset management, safety, and continuous improvement, always striving to deliver the best results.

Abstract:

This paper presents a comprehensive framework for the asset condition assessment (ACA) of various equipment types in desalination plants, including rotating equipment, pressure vessels, filters, and tanks. The study outlines the development and application of detailed checklists tailored to each equipment type, ensuring a thorough evaluation of operational parameters, visual inspections, and performance metrics. The paper also incorporates an Asset Condition Assessment Priority Rating Matrix, which aids in the prioritization of maintenance activities based on condition and performance rankings. The framework is supported by best practices in asset management and condition assessment from several established guidelines and case studies.

Day 02: Monday 27 January 2025



Evaluation of Pipe Alternatives for Maintenance and Replacement in the Great Man-Made River Project-Libya

Eng. Ali El Turki

Lecturer
Civil Engineering Department
University of Benghazi
Libya

Biography:

Abstract:

Ali EL-Turki is a lecturer in the Civil Engineering Department at the University of Benghazi, specializing in water supply engineering. With over 10 years of experience, his research primarily focuses on water engineering planning and management. Ali's dedication to his field has earned him the honor of being a speaker at OMAINTEC 2024 in Cairo.

He holds a Master's degree in Civil Engineering from Colorado State University, USA, and is currently pursuing a second Master's in Engineering Management at the Libya Academy for Postgraduate Studies. In his current studies, Ali is focusing on the application of engineering management tools and techniques in the water engineering sector.

Abstract:

The Great Man-Made River Project has relied on prestressed concrete pipes since 1990. However, these pipes have experienced significant damage due to corrosion and hydraulic factors, necessitating extensive maintenance or replacement. The required maintenance work involves heavy machinery and specialized equipment, some of which are currently unavailable. To address these challenges, the project management is considering lightweight pipes with advanced technical specifications as alternatives. The project emphasizes ease of operation and maintenance as critical success factors, prompting the evaluation of alternative pipe materials such as steel, cast iron, and glass fiber reinforced plastic (GRP) pipes. Given the project's scale, GRP pipes have emerged as a promising option due to their lightweight nature and ability to withstand internal and external pressures. To identify the optimal replacement for the damaged pipes, the project employs the Multi Criteria Decision Analysis (MCDA) technique to compare cast iron, prestressed concrete, steel, and GRP pipes. Financial and technical evaluations indicate that GRP pipes offer superior performance compared to the other alternatives. Consequently, GRP pipes are recommended as the preferred choice for maintenance and replacement in the Great Man-Made River Project.

Day 02: Monday 27 January 2025



Integration of AI Solutions in Desalination Operation Optimization

Eng. Ahmed Alghamdi

Green and Renewable Energy Group Leader
Saudi Water Authority
Saudi Arabia

Biography:

Group leader of clean and renewable energy in WTIRA research center of SWA. Chemical engineer with Master in waterdesalination. 16 years of experience in water and renewable energy research have more than 20 published paper and 6 patent in watersector and renewable enrgy

Abstract:

Automation and AI-driven operation prediction are becoming crucial in improving the management of desalination plants, as traditional manual monitoring often fails to detect issues early enough to prevent costly inefficiencies. Membrane biofouling, for instance, is a significant challenge for plants utilizing reverse osmosis (RO) technology. Addressing this problem is essential for reducing maintenance costs, improving operational efficiency, and extending membrane lifespan.

This paper explores how integrating AI-based real-time optical water quality sensors, such as the Spectromarine, offers a novel solution for monitoring and managing feedwater quality. The Spectromarine sensor provides continuous data on organic content and biomass levels, offering early warnings of potential biofouling. These insights allow for preventive actions, optimizing pre-treatment and membrane cleaning processes. By automating the monitoring system and utilizing predictive AI, desalination plants can significantly reduce energy consumption, minimize chemical use, and improve overall performance.

Evaluations conducted in collaboration with WTIRA-SWA and the Institute of Solid State Physics, University of Latvia, highlight how this integration extends membrane lifespan, lowers operational costs, and enhances the overall economic performance of desalination plants. AI and automation in desalination operations not only streamline management but also ensure greater plant reliability and cost-efficiency in the long term.

Day 02: Monday 27 January 2025



Data Integration of Plant Equipment's and Spare Parts and Impact of that on the Cost Computing in the Seawater

Eng. Khalid Al-habib

Chief Strategy & Development Officer
Water Transmission Co.
Saudi Arabia

Biography:

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Day 02: Monday 27 January 2025

11th Workshop:
**Enhancing Infrastructure Asset Management Through
Stakeholder Dynamics and Collaboration**

Room 1
15:00 - 16:00



Eng. E. Kingkof Kofi Opoku-Ohemeng

Asset Management Leader (Senior Manager)
Royal Commission of Yanbu
Saudi Arabia

Biography:

Kingkof is a seasoned expert in asset management and infrastructure development, with over 25 years of global experience across industries such as transportation, water, energy, oil and gas, and mega infrastructure projects. A Chartered Engineer, Chartered Project Manager, and certified Asset Management Auditor and Assessor, he is a Fellow of both the IAM and CIHT, and a member of CIOB and WPIAM.

Currently leading Assets and Facilities Management for the Royal Commission for Yanbu, Kingkof drives the Commission's transformation into a robust asset management organization. He oversees the entire asset lifecycle management process, ensuring the development and implementation of comprehensive strategies, policies, and procedures to enhance efficiency and sustainability.

An accomplished author, Kingkof contributed to the book "Building a Body of Knowledge in Project Management in Developing Countries" as the author of Chapter 12: "Project Stakeholder Management in Developing Countries."

Kingkof has held leadership roles with KIS Plus, AECOM, and Colas Ltd, delivering large-scale projects and pioneering asset management solutions worldwide. His work combines technical excellence with strategic foresight to maximize client investments and drive sustainable development.

Workshop Contents & Objectives

This workshop will provide a comprehensive exploration of stakeholder dynamics in infrastructure asset management, focusing on strategies to foster collaboration, improve communication, and align practices with international standards such as ISO 55001 and IAM Anatomy. Designed as an interactive platform, the session will enable participants to engage in meaningful discussions and share knowledge while achieving the following objectives:

- Understand the critical role of stakeholder engagement in asset management success.
- Explore tools and techniques for resolving competing priorities and fostering sustainable outcomes.
- Learn how to leverage digitization and innovation to enhance operational efficiency and resilience.
- Examine case studies to identify actionable best practices in stakeholder collaboration for large-scale infrastructure projects.

This workshop aims to empower participants with the knowledge and skills needed to enhance collaboration, drive innovation, and achieve excellence in infrastructure asset management.

Who Should Attend:

- Asset management professionals.
- Facility management specialists.
- Stakeholders involved in infrastructure projects.
- Strategic planners and sustainability experts.
- Professionals seeking to deepen their knowledge in asset management and stakeholder collaboration.



Day 03

28 January 2025

Day 03: Tuesday 28 January 2025

2 PARALLEL SESSIONS

Session 06:
Strategic Asset Planning and Performance Optimization

Hall A
09:00 - 10:15



Keynote Speaker:

Dr. Álvaro Vale e Azevedo
Head of Buildings Department
L nec - National Laborator
for Civil Engineering
Portugal



Chairman:

Prof. Shabab Alhammadi
Professor
Princess Nourah bint
Abdulrahman University (PNU)
Saudi Arabia



Eng. Ondrej Stejskal
Senior Project Manager
Logio s.r.o.
Czech



**Prof. Adolfo Crespo
Marquez**
Professor
Universidad De Sevilla
Spain



Eng. Majed Aljeshi
Senior Process Engineer
Saudi Aramco
Saudi Arabia



Eng. Shukri Habib
Managing Director
Qualiserv
Qatar

Day 03: Tuesday 28 January 2025



Keynote Speaker:

Maintenance and Asset Management: Evolution, Big Data Integration, Digital Transformation and Future Challenges in the AECO Sector

Dr. Álvaro Vale e Azevedo

Head of Buildings Department

Lnec - National Laborator for Civil Engineering
Portugal

Biography:

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Abstract:

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Day 03: Tuesday 28 January 2025



Chairman:

Prof. Shabab Alhammadi

Professor
Princess Nourah bint
Abdulrahman University (PNU)
Saudi Arabia

Biography:

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Abstract:

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Day 03: Tuesday 28 January 2025



Cost Optimal Asset Replacement Plan Case Study

Eng. Ondrej Stejskal

Senior Project Manager
Logio s.r.o.
Czech

Biography:

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Abstract:

This article describes a case study of application of decision model when setting up plan for renewal of assets. This particular case is dedicated to material handling equipment (AGV) while the principle is applicable for any type of asset. The first part of the article shows project situation and premises. The second part describes used methodology for project solution. In the third part the methodology is applied and the project results are presented. The article is finished by conclusion of the project as well as evaluation of usage of the methodology.

Day 03: Tuesday 28 January 2025



Generation of Solutions Catalog for Early-Stage Asset Lifecycle Decision Making

Prof. Adolfo Crespo Marquez

Professor
Universidad De Sevilla
Spain

Biography:

Adolfo Crespo Márquez is currently Full Professor at the School of Engineering of the University of Seville, and recently Head of the Department of Industrial Management. He holds a Ph.D. with Honors in Industrial Engineering from this same University.

He is included in the Stanford University's list of world top-scientists in 2022 (doi: 10.17632/btchxktzyw.5) and he received the Spanish Maintenance Award from the Spanish Maintenance Association (AEM) in 2020. Prof. Crespo is the author of 8 books and Editor of 5 books with Springer, Aenor, IGI Global and INGEMAN, about maintenance, warranty, supply chain and assets management.

Professor Crespo is Fellow and Director of ISEAM (International Society of Engineering Assets Management), Editor-in-Chief of the Springer Book Series Engineering and Asset Management Review. He also leads the SIM (Sistemas Inteligentes de Mantenimiento) research group related to maintenance and dependability management and has extensively participated in many engineering and consulting projects for different companies.

Abstract:

This paper highlights the importance of digital transformation for asset management when applied across every stage of the asset lifecycle. To achieve this, a thorough assessment of the entire asset lifecycle is essential, emphasizing the identification of key indicators that furnish valuable data for decision-making at each stage. Most of digital IAMS (Intelligent Asset Management Solutions) are focused on the O&M (operations and maintenance) stage of assets lifecycle, however, in this paper we propose a solution in the early stages of the lifecycle, that could be use either for manufacturers or asset buyers/owners. In this study, we present a solution for analysing asset needs and their future operations and maintenance plans with the aim of guiding asset acquisition decision-making based on maintenance service, type of operation, and fleet of assets size. The proposed approach utilizes discrete event simulation to predict the levels of availability for a fleet of assets under a specific demand and maintenance service type. This type of solutions guides the path to servitise not only O&M, but earlier stages of assets lifecycle, and clarify the interaction between companies that acquire valuable assets and the asset's manufacturers by defining the needs and helping to balance the capital and operational investments.

Day 03: Tuesday 28 January 2025



Sustaining Crude Stabilizer Performance & Optimize Maintenance Frequency by Leveraging Digital Simulation

Eng. Majed Aljeshi

Senior Process Engineer
Saudi Aramco
Saudi Arabia

Biography:

Majed A. Al-Jeshi is a senior Process Engineer for crude oil processing facilities in the process and control systems department in Saudi Aramco. His responsibilities include providing technical support to a corporate crude quality program, capital projects, technology evaluation & deployment, and facilitating the fourth industrial revolution for crude oil facilities. He holds a Bachelor of Science in chemical engineering from Colorado State University (Fort Collins, CO, USA)

Abstract:

Saudi Aramco team has conducted a troubleshooting activity to assess challenges impacting crude stabilization efficiency leading to an increase in the maintenance frequency of crude stabilizers. The technical team findings suggested stabilizer column reboiler tubes were continuously getting plugged with salt and corrosion products forcing stabilizer to be take temporarily out of service for maintenance activities. By leveraging digital simulations capabilities, it was determined that residual water in crude was evaporating depositing salt contents on reboiler tubes and recommended solution will be to increase direct steam injection flow rate. The recommendation was validated through an extended field test and it successfully sustained crude stabilizer performance as well as optimizing column maintenance frequency.

Day 03: Tuesday 28 January 2025



Implementing ISO 41001: Transitioning from Operations and Maintenance Contracts to Total Facility Management Performance-Based Contracts in KSA

Eng. Shukri Habib

Managing Director
Qualiserv
Qatar

Biography:

Adolfo Crespo Márquez is currently Full Professor at the School of Engineering of the University of Seville, and recently Head of the Department of Industrial Management. He holds a Ph.D. with Honors in Industrial Engineering from this same University.

He is included in the Stanford University's list of world top-scientists in 2022 (doi: 10.17632/btchxktzyw.5) and he received the Spanish Maintenance Award from the Spanish Maintenance Association (AEM) in 2020. Prof. Crespo is the author of 8 books and Editor of 5 books with Springer, Aenor, IGI Global and INGEMAN, about maintenance, warranty, supply chain and assets management.

Professor Crespo is Fellow and Director of ISEAM (International Society of Engineering Assets Management), Editor-in-Chief of the Springer Book Series Engineering and Asset Management Review. He also leads the SIM (Sistemas Inteligentes de Mantenimiento) research group related to maintenance and dependability management and has extensively participated in many engineering and consulting projects for different companies.

Abstract:

Facility management (FM) in Saudi Arabia has experienced significant transformation over the past decade, driven by urbanization, economic diversification, and the government's Vision 2030 initiative. As of 2023, the FM market in Saudi Arabia is valued at approximately \$7.2 billion and is projected to grow at a compound annual growth rate (CAGR) of 10.3% from 2024 to 2030 (Source: Market Research Future, 2023). This growth is largely attributed to increased investments in infrastructure, commercial real estate, and public facilities, underscoring the critical role of FM in maintaining efficiency and operational excellence in various sectors. The traditional FM landscape in Saudi Arabia has predominantly relied on operations and maintenance contracts, which often emphasize short-term cost efficiency over long-term performance outcomes. A recent survey indicated that 60% of facility managers reported challenges associated with fragmented service delivery and lack of accountability in these contracts (Source: FM Insights, 2023). This has prompted a shift towards more integrated and performance-based approaches, aligning with international standards such as ISO 41001:2018, which emphasizes improved service delivery and strategic alignment with organizational goals.

With the growing recognition of FM's importance, the Saudi government has initiated several programs aimed at enhancing the capabilities of FM professionals and integrating innovative practices. The establishment of training programs and certifications, along with partnerships with international FM organizations, reflects a commitment to elevating the standards of facility management in the country. As of 2023, 75% of FM companies are actively pursuing ISO certifications, showcasing a proactive approach to adopting global best practices (Source: Saudi Facility Management Association, 2023). This evolution in the FM sector not only supports economic diversification but also aligns with sustainability goals set forth in Vision 2030, promoting more efficient use of resources and improved service quality across facilities. This paper aims to explore the transition to performance-based contracts in Saudi Arabia through the lens of ISO 41001:2018. The structure includes an understanding of the standard, the current state of contracts, the benefits of the shift, implementation steps, challenges, and future implications.

Day 03: Tuesday 28 January 2025

2 PARALLEL SESSIONS

Session 07:
**Role of Training and Education in Empowering Asset
and Facility Management**

Hall B
09:00 - 10:15



Keynote Speaker:

Prof. Zaher Kyle
President of the British
Academy for eLearning
United Kingdom



Chairman:

Dr. Isam Kabbani
Owner & CEO
Al Kabbani Engineering
Consulting Office
Saudi Arabia



Prof. Mansour Benzahi
Professor
University of Ouargl
Algeria



Eng. Hamid Yagoub
Senior Consultant ISO
Standard and Project
Management
Engineering Science Institute
for Training ESI
Saudi Arabia



Dr. Asmaa Nusairi
Director of Continuous
Education Center
Assistant Professor
in Management
University of Sharjah
United Arab Emirates



**Prof. Hossam
Elborombaly**
X-head Of Architecture
Department
Ain Shams University
Egypt

Day 03: Tuesday 28 January 2025



Keynote Speaker:

FAM Industry Future Needs in Education and Training

Prof. Zaher Kyle

President of the British Academy for eLearning
United Kingdom

Biography:

Prof. Kyle; is a UK graduate, with a PhD from Salford University 1989, in Civil /Infrastructure Engineering and an MSC from Queens University 1986.

- He is a professional engineer, worked in two major fields ; as a senior consultant in “Infrastructure Engineering and Management” and as a top academic management and professor, lead two universities and as a professors for 34 years.
- His professional work included analysis and design of different infrastructure projects (ports, water, stormwater and sewage networks, advanced modelling,...etc); also as trainer for professional engineers and technicians in municipal and project management and maintenance.
- One of the unique areas is the GIS DSS (Geographic Information System and Decision Support System) for infrastructure and superstructure, including “Macro and Micro planning”.

Abstract:

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Day 03: Tuesday 28 January 2025



Chairman:

Dr. Isam Kabbani

Owner & CEO

Al Kabbani Engineering Consulting Office

Saudi Arabia

Biography:

Qualifications Summary:

Accomplished and proven leader in Engineering, Construction Management, Operation and Maintenance, Member of many engineering councils, including Member of the National Project Support Program Council and Vice Chairman of the Executive Committee for Facilities Management, community deputy Chairman of value management organization in KSA and Owner of Engineering and Project Management Consultancy office.

Professional Experience:

Thirty years of professional experience at General Directorate of Military Works in Ministry of Defense & Aviation, Managed many a Major projects.

Publications:

Participated in numerous scientific conferences and forums and has published many scientific papers.

Authored two books:

- Economics of facilities (Life Cycle Costs)
- Legalization and standardization of Operation & Maintenance

Day 03: Tuesday 28 January 2025



Towards a Training Program for Developing Leadership Skills for Facility Managers at Sonatrach, Algeria

Prof. Mansour Benzahi

Professor
University of Ouargl
Algeria

Biography:

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Abstract:

This article describes a case study of application of decision model when setting up plan for renewal of assets. This particular case is dedicated to material handling equipment (AGV) while the principle is applicable for any type of asset. The first part of the article shows project situation and premises. The second part describes used methodology for project solution. In the third part the methodology is applied and the project results are presented. The article is finished by conclusion of the project as well as evaluation of usage of the methodology.

Day 03: Tuesday 28 January 2025



The Role of AI-Powered Training in Enhancing Compliance with ISO 55001 Asset Management Standards

Eng. Hamid Yagoub

Senior Consultant ISO Standard and Project Management
Engineering Science Institute for Training ESI
Saudi Arabia

Biography:

With over 20 years of experience in the oil and gas industry, including roles as a project manager and general manager of contractor companies, this professional holds a B.Sc. in Civil Engineering and an M.Sc. in Construction Management from Sudan University of Science & Technology. He has served as General Manager of Ashkal Engineering and Asawer Civil & Infrastructure (Sudapet), and as a Senior Engineer at White Nile Petroleum Operating Company. A consultant and trainer in the Gulf, he is a member of various engineering bodies. He has presented papers at international conferences in Riyadh and Kuwait, focusing on project quality plans and training program development.

Abstract:

This paper explores how AI-enhanced training can improve compliance with ISO 55001 standards for asset management. The paper outlines how technology can enhance training quality and efficiency through interactive customization, targeting individual trainee needs. It emphasizes the significance of integrating AI in developing technical and administrative skills, achieving strategic goals through effective asset management. Using case studies from the oil and gas sector, the paper demonstrates the benefits achieved, including a 25% increase in compliance, a 20% reduction in operational costs, and a 30% improvement in long-term asset performance.

Day 03: Tuesday 28 January 2025



The Evolution of Continued Education with the Future Role of Artificial Intelligence: A Case Study of the University of Sharjah

Dr. Asmaa Nusairi

Director of Continuous Education Center
Assistant Professor in Management
University of Sharjah
United Arab Emirates

Biography:

Dr. Asmaa Nusairi is a distinguished expert in the UAE's knowledge economy and a leading advocate for the transition to Industry 4.0. With a rich and prestigious career spanning government and private sectors in aviation and education, Dr. Nusairi is globally recognized as a prominent speaker, skilled researcher, and published author.

One of her outstanding strengths is empathy, which she seamlessly integrates into her professional journey. Dr. Nusairi's empathetic approach has been a driving force behind her pivotal contributions as a lead assessor in multiple Government Excellence programs at both the Federal and Emirate levels. Her ability to understand and connect with individuals and teams has significantly influenced governance and performance excellence.

Currently, Dr. Nusairi serves as the Director for the Center of Continuing Education and Professional Development and the Director for the Office of Scientific and Consultation Services. Additionally, she holds the position of Assistant Professor at the University of Sharjah's Business Management College, specializing in Management. Beyond her professional pursuits, Dr. Nusairi embraces life with a unique perspective, valuing passion and joy as essential components of a fulfilling existence. Her philosophy reminds us that we only live once, and living with passion and joy makes each moment more than enough.

Abstract:

The continuous evolution of education is crucial in a rapidly changing world driven by technological advancements and the growing complexity of global challenges. This paper explores the transformative role of artificial intelligence (AI) in shaping the future of continuous education. By integrating AI into educational frameworks, institutions can provide personalized learning experiences, enhance accessibility, and foster lifelong learning opportunities. The study examines current trends, potential benefits, and challenges associated with AI implementation in education. It also envisions future scenarios where AI plays a pivotal role in redefining educational paradigms, ultimately contributing to a more adaptive, efficient, and inclusive educational landscape.

Day 03: Tuesday 28 January 2025



Key Performance Indicators (KPIs) and Digital Maintenance (CMMS) for Facility Management

Prof. Hossam Elborombaly

X-head Of Architecture Department
Ain Shams University
Egypt

Biography:

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Abstract:

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Day 03: Tuesday 28 January 2025

12th Workshop:
**Optimizing Asset Performance: The Strategic Integration
of Smart Power Transformers in the Saudi Arabia
Electricity Network**

Room 1
10:25 - 12:25

Workshop Contents & Objectives

This workshop aims to delve into the strategic integration of Smart Power Transformers within the Saudi Arabia Electricity Network to optimize asset performance. Participants will explore the latest advancements in transformers technology and how they can be effectively utilized to enhance the efficiency, reliability, and sustainability of the electricity network.

Workshop Motivation:

The strategic integration of Smart Power Transformers in Saudi Arabia's electricity network can significantly optimize asset performance by enhancing grid reliability, efficiency, and enable real-time monitoring, ultimately leading to a more reliable electricity network. Smart Power Transformers offer advanced functionalities such as real-time monitoring and predictive maintenance, which are crucial for modernizing the grid infrastructure in response to increasing energy demands. This integration can lead to reduced operational costs, improved energy efficiency, and enhanced grid stability. By leveraging these smart technologies, utilities can better minimize outages, paving the way for a sustainable energy future that aligns with Saudi Arabia's Vision 2030 goals.

Who Should Attend:

Open to those who are interested in power transformers subject.

Day 03: Tuesday 28 January 2025



Eng. Ayyoub Hourani

Design & Engineering Manager
Saudi Power Transformer Company (SPTC)
Saudi Arabia

Biography:

Ayyoub Hourani, born on June 17, 1987, in Amman, Jordan, is a distinguished professional with a robust academic background and extensive experience in the field of electrical engineering. He earned his Master of Science degree in Electrical Power Engineering from King Fahd University of Petroleum & Minerals (KFUPM) in Dhahran, Saudi Arabia, in 2017, following his completion of a BSc in Electrical Engineering at the University of Jordan in 2010. Currently nearing the completion of his Ph.D. in Electrical Engineering at KFUPM, Ayyoub serves as the Design & Engineering Manager at the esteemed Saudi Power Transformers Company (SPTC) in Dammam, Saudi Arabia. With over 14 years of dedicated experience in the realm of transformers engineering, he brings a wealth of knowledge and expertise to his role, demonstrating a deep commitment to excellence in his field.



Eng. Ayyoub Hourani

Control and Protection Design Lead
Saudi Power Transformer Company (SPTC)
Saudi Arabia

Biography:

Mahmoud Elsayed, born on September 24, 1989, in Sharqiah, Egypt, is a seasoned professional with a solid foundation in electrical engineering. He obtained his Bachelor of Science degree in Electrical Engineering from Zagazig University in Egypt in 2012. Currently serving as the Control and Protection Design Lead at the prestigious Saudi Power Transformers Company (SPTC) in Dammam, Saudi Arabia, Mahmoud is a distinguished PMP® Certified professional. With over 12 years of hands-on experience in the fields of LV/MV switchgears and transformers engineering, he has demonstrated a profound understanding of complex systems and a proven track record of delivering high-quality solutions. Mahmoud's commitment to excellence and his expertise make him a valuable asset in the realm of electrical engineering.

Day 03: Tuesday 28 January 2025

Session 08:
Innovative Asset and Facility Solutions for Enhanced Resilience

Hall A
10:25 - 11:25



Chairman:
**Prof. Adolfo
Crespo Marquez**
Professor
Universidad De Sevilla
Spain



Prof. Claudio Rolandi
Principal
Academia s.a.s.
Italy



**Eng. Hussameddin
Alzaatreh**
Operations Director
ACES
Saudi Arabia



**Eng. Mohammad
Abu Afifeh**
CEO
Conceliare
Jordan



**Dr. Mohsen
Alamir Alkady**
Chairman
Misr Foundation for Science
and Technology Research
Egypt

Day 03: Tuesday 28 January 2025



Chairman:
**Prof. Adolfo
Crespo Marquez**
Professor
Universidad De Sevilla
Spain

Biography:

Adolfo Crespo Márquez is currently Full Professor at the School of Engineering of the University of Seville, and recently Head of the Department of Industrial Management. He holds a Ph.D. with Honors in Industrial Engineering from this same University.

He is included in the Stanford University's list of world top-scientists in 2022 (doi: 10.17632/btchxktzyw.5) and he received the Spanish Maintenance Award from the Spanish Maintenance Association (AEM) in 2020. Prof. Crespo is the author of 8 books and Editor of 5 books with Springer, Aenor, IGI Global and INGEMAN, about maintenance, warranty, supply chain and assets management.

Professor Crespo is Fellow and Director of ISEAM (International Society of Engineering Assets Management), Editor-in-Chief of the Springer Book Series Engineering and Asset Management Review. He also leads the SIM (Sistemas Inteligentes de Mantenimiento) research group related to maintenance and dependability management and has extensively participated in many engineering and consulting projects for different companies.

Day 03: Tuesday 28 January 2025



An Innovative Resilience Assessing for Critical Infrastructures Using the Lean Methodology

Prof. Claudio Rolandi

Principal
Academia s.a.s.
Italy

Biography:

Graduated in Nuclear Engineering at the Polytechnic of Milan in 1980, he was working for Italian Navy, Philips, Parke Davis and Festo both as industrial engineer and as senior consultant for many international organizations. He was also Italian representative in CEN (European Committee for Standardization) for Technical Committees Maintenance and Management Consulting and former President of ISPE (International Society of Pharmaceutical Engineers) Italy Affiliate. He was professor of "Design and Management of Industrial Facilities" in SUPSI-DTI and Responsible of Advanced Studies Masters. Now he is consultant for some international companies and member of IMA.

Abstract:

One of the results of the European "Smart Resilience" project was to provide a new methodology to assess and manage the resilience of critical infrastructures, i.e. their ability to cope with possible scenarios or adverse events that can potentially lead to significant disruptions in its availability.

Lean Thinking, on the other hand, is a management style that aims to reduce waste to create excellent, standardized and low-cost processes, making it adaptable to all sectors and contexts. Its application in the analysis of complex processes, such as the infrastructures, can be an effective optimization tool.

Starting from the considerations made on the prevention of risky events, some significant cases will be examined in order to increase the level of prevention, reduce recovery times and improve performance following the actions taken.

Day 03: Tuesday 28 January 2025



Transforming Telecom Infrastructure Operations: A Vendor-Agnostic, Multi-Telecom Integrated OSS/NMS Platform for Enhanced MNO/Towerco Passive Network Operations

Eng. Hussameddin Alzaatreh

Operations Director
ACES
Saudi Arabia

Biography:

Dynamic Operations Director with 18 years of progressive experience in telecom infrastructure, managed services, and energy management. Proven track record of transforming operations through digitization, automation, and advanced analytics, leading to significant improvements in efficiency and cost savings. Expertise in managing large-scale projects across multi-OEM networks, driving strategic initiatives for operational excellence, and delivering customer-focused solutions. Skilled in financial modeling, business development, and energy management, with a strong focus on sustainability and innovation. Adept at leading cross-functional teams, enhancing service delivery, and fostering strong vendor and stakeholder relationships. Committed to continuous improvement and poised for leadership roles that leverage telecom operations and facility management expertise.

Abstract:

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Day 03: Tuesday 28 January 2025



ESG Metrics and Risk Factors in Asset and Facility Management Adapting to Mandatory Reporting Policies

Eng. Mohammad Abu Afifeh

CEO

Conceliare

Jordan

Biography:

Dr. Asmaa Nusairi is a distinguished expert in the UAE's knowledge economy and a leading advocate for the transition to Industry 4.0. With a rich and prestigious career spanning government and private sectors in aviation and education, Dr. Nusairi is globally recognized as a prominent speaker, skilled researcher, and published author.

One of her outstanding strengths is empathy, which she seamlessly integrates into her professional journey. Dr. Nusairi's empathetic approach has been a driving force behind her pivotal contributions as a lead assessor in multiple Government Excellence programs at both the Federal and Emirate levels. Her ability to understand and connect with individuals and teams has significantly influenced governance and performance excellence.

Currently, Dr. Nusairi serves as the Director for the Center of Continuing Education and Professional Development and the Director for the Office of Scientific and Consultation Services. Additionally, she holds the position of Assistant Professor at the University of Sharjah's Business Management College, specializing in Management. Beyond her professional pursuits, Dr. Nusairi embraces life with a unique perspective, valuing passion and joy as essential components of a fulfilling existence. Her philosophy reminds us that we only live once, and living with passion and joy makes each moment more than enough.

Abstract:

The continuous evolution of education is crucial in a rapidly changing world driven by technological advancements and the growing complexity of global challenges. This paper explores the transformative role of artificial intelligence (AI) in shaping the future of continuous education. By integrating AI into educational frameworks, institutions can provide personalized learning experiences, enhance accessibility, and foster lifelong learning opportunities. The study examines current trends, potential benefits, and challenges associated with AI implementation in education. It also envisions future scenarios where AI plays a pivotal role in redefining educational paradigms, ultimately contributing to a more adaptive, efficient, and inclusive educational landscape.

Day 03: Tuesday 28 January 2025



Dr. Mohsen Alamir Alkady

Chairman

Misr Foundation for Science and Technology Research

Egypt

Biography:

Dr. El Kady serves as the Chairman of the Board of Trustees for the Misr Foundation for Science and Technology Research, where he fosters innovation and scientific advancement. He actively participates in the engineering community as a member of several esteemed professional bodies, including:

- The Engineering Education Committee of the General Syndicate of Engineers.
- The Committee for Granting the Degree of Consultant in Sanitary Engineering.
- The Egyptian Society of Engineers, where he is recognized as an active member.

His contributions to the field have been acknowledged through nominations for prestigious scientific awards, including the King Abdullah bin Al Hussein Award for Creativity in its tenth session and the Egypt Impact Award for Sustainable Initiative of the Year at The Big 5 in 2021.

In addition to his academic and professional achievements, Dr. El Kady shares his expertise with the public through radio and television appearances, such as the "Life Messages" program on Egyptian Radio, which focuses on rationalizing water usage, and the "New Day" TV program, which discusses the innovative educational system in STEM schools.

Abstract:

Today, the drive in industries is to focus on reducing production and maintenance cost while increasing customer satisfaction. One key to succeed with these goals is to develop and improve both quality and maintenance in every phases of any industry processes.

As water industry is the most industry need to be safe and sustainable.

So, there is a need to revolutionize the water industry with the current paradigm shift in the technology to better monitoring and control capabilities.

Hence, there is a need for it situ, smart system for on-line monitoring the complex water treatment processes.

The digitalization of water sector is of utmost importance for improving the efficiency and sustainability of managed system. The digitalization process, however, can be seen as a ladder with several steps that the water utility must climb to become a smart utility, the reality is that many water utilities have not completely realized yet the benefits of digital transformation.

The fourth revolution industry (industry 4) has been implemented in multiple engineering field. Such as provisioning of smart monitoring and control capabilities to water supply system (Water 4)

So, water (4) provides an opportunity to identify a promising approach to addressing future management in water supply network. It incorporates the primary features of (industry 4).

Such as digitization and automated sensors (for pressure, flow, and temperature measurement) and model application such as (hydraulic model of water network) opportunity may be created to better understanding water management problems in terms of their complexity and illustrate the use of water 4 in production, early warning and for the decision making process that tends to sustainability in providing clean water.

Day 03: Tuesday 28 January 2025

Session 09:
Cybersecurity and Sustainable Innovation in Smart Maintenance

Hall B
10:25 - 11:25



Chairman:

Prof. Mufid Samoraei

Board Member
Arab Asset, Facility and
Maintenance Management
Council (OMAINTEC)
Senior Advisor, Sahara Group,
United Arab Emirates



Tamer Hellah

Director
Happy Life Limited
United Kingdom



Eng. Ahmed Rezik

Baseband Software
Engineer
Rohde & Schwarz
TUM
Germany



Samira Ben Ali

President
Maramm
Morocco



Eng. Sulaiman Al Ismaili

MSc Engineering
Management
Oman



Prof. Mohamed Marzouk

Professor
Cairo University
Egypt

Day 03: Tuesday 28 January 2025



Chairman:

Prof. Mufid Samoraei

Board Member

Arab Asset, Facility and Maintenance Management Council (OMAINTEC)

Senior Advisor, Sahara Group

United Arab Emirates

Biography:

Prof. Mufid Samarai is a senior consultant at Sahara Consultancy and the Jahzin Program, sponsored by Sharjah Holding, and an advisory board member of the Civil Engineering Department at the University of Sharjah. He has served as a professor, dean, and research director at universities in Iraq, Jordan, and the UAE. He also worked as a consultant at the National Center for Construction Labs and Deputy Minister of Housing in Iraq. Prof. Samarai earned his Ph.D. from University College London and has led the rehabilitation of over 100 facilities in Iraq, Jordan, and the UAE. With over 230 publications, two books, and four patents, his research focuses on quality control, non-destructive testing, concrete durability, and sustainability.

Day 03: Tuesday 28 January 2025



Zero Trust Architecture Application in Maintenance Operations: A Cybersecurity Perspective

Tamer Hellah
Director
Happy Life Limited
United Kingdom

Biography:

As the visionary Director of Happy Life Limited, a prominent British company, I lead strategic market research, deliver impactful reports, and ensure operational excellence through innovative software solutions. As the founder of Cyber SecVeillance UK, I spearhead cybersecurity initiatives, offering cutting-edge penetration testing, bespoke training sessions, and expert consultation to safeguard client assets. My role as a cybersecurity consultant for DV Solicitors showcases my expertise in identifying vulnerabilities and fortifying web applications and infrastructure.

With years of experience in law enforcement, I have conducted regular security assessments and testing to protect infrastructure against threats. I excel in addressing critical security issues, developing effective strategies, and educating staff on best practices. My volunteer work at the Rosemere Cancer Centre highlighted my exceptional communication skills and empathetic approach.

Passionate about cybersecurity and committed to excellence, I bring unparalleled expertise and leadership to every project, ensuring top-tier security and operational efficiency for my clients.

Abstract:

The benefits of digitisation are improved operational efficiency but significant dangers in terms of cyber security. Especially with IoT, prognostic maintenance and digital twins. This paper discusses the Zero Trust Architecture (ZTA) that can be used in mitigating this risk during maintenance activities. The core principles of ZTA include identity verification, continuous monitoring and data encryption which are a strong basis for protecting digital systems. Real case studies illustrate ZTA enhances security and operational reliability while minimising problems like data breaches among others and conserving resources. Additionally, new technologies such as AI and blockchain will play a role in the future cybersecurity strategies discussed. ZTA is also meant to address issues posed by older security models including unauthorized access, ransomware attacks, malware infections as well as IoT vulnerabilities. As such it would ensure safe, dependable and sustainable maintenance operations thus highlighting the increasing importance of safeguarding sensitive information in an ever more digitalised age.

Day 03: Tuesday 28 January 2025



Building a Smart OS for Facilities Management: How can Facility Managers Leverage Data Engineering, 5G Network, Machine Learning Algorithms and LLMs to Create a Futuristic Management Operating System for Facilities

Eng. Ahmed Rezik

Baseband Software Engineer
Rohde & Schwarz
TUM

Biography:

Network Baseband Software Engineer at Rhode & Schwarz Munich working on next generation of communication Networks (6G) and Masters Researcher at The Technical University in Munich. I also worked on AI systems on National Scale with Egyptian Ministries and helped scale many startups in the MENA region including (Foodics, Instabug, Thndr). An ex founder of a robo advisor AI app called Wafrah that was incubated by the American University in Cairo Venture Lab and acquired by Thndr now under the name Rumble.

Abstract:

Facility Management (FM) has transformed with the advent of new technologies, yet current systems still struggle to fully optimize operations such as predictive maintenance, space utilization, and resource management. This paper presents a framework for a Smart Facility Management Operating System (FMOS) that harnesses advanced technologies, including Data Engineering, 5G Networks, Machine Learning (ML), and Large Language Models (LLMs), to enhance operational efficiency, decision-making, and sustainability. FMOS integrates real-time data processing, predictive analytics, and natural language interfaces, simplifying interaction and reducing operational complexity. The proposed system improves energy efficiency, automates maintenance, and optimizes resources, offering substantial operational cost savings. Our analysis shows that implementing FMOS in a medium-sized facility could generate estimated annual savings of \$380,000, making it a compelling investment for the future of FM.

Day 03: Tuesday 28 January 2025



Revolutionizing Industrial Performance: The Disruptive Power of Sustainable Operability in the Age of AI and Net-Zero Carbon Emission

Samira Ben Ali

President
Maramm
Morocco

Biography:

Visionary leader in sustainable industrial transformation and green technologies with 18 years of international operational experience. As President of MARAMM and Co-founder of GREENTECH-TOUCH, she provides strategic consulting and expertise globally. Their areas of expertise include Industry X.0 & AI, sustainable industrial transformation, green hydrogen, water management, and energy efficiency. A thought leader in industrial sustainability, they excel at bridging emerging technologies with practical applications. Her career highlights include leading major strategic studies, organizing high-impact conferences, and managing complex international projects. As an internationally recognized speaker, she regularly contribute to global forums, shaping the future of industry with a focus on sustainable growth and environmental stewardship. Her forward-thinking approach continues to push boundaries in green technology and industrial innovation.

Abstract:

This presentation explores how Sustainable Operability revolutionizes industrial performance in the era of artificial intelligence (AI) and carbon neutrality goals. We will define this crucial concept and demonstrate how integrating sustainable practices in asset management allows companies to reduce their carbon footprint while improving operational efficiency.

We will first examine the importance of Sustainable Operability, highlighting its economic, environmental, and social benefits. Then, we will address the critical role of AI and emerging technologies in the industry of the future, focusing on predictive and proactive maintenance. We will see how advanced algorithms and data analysis enable anticipating failures, optimizing operations, and extending equipment lifespan while minimizing energy costs.

We will present a Sustainable Operability roadmap inspired by international best practices. This structured approach includes initial assessment, adoption of digital technologies, process optimization, implementation of sustainable practices, employee training, and inter-company collaboration. Case studies will illustrate the impact of these practices across various industrial sectors, with a comparative table of effective actions, specific KPIs, and expected improvement percentages.

We will also discuss recommendations for measuring sustainability, including the development of key performance indicators (KPIs) and the implementation of adapted monitoring systems. Emphasis will be placed on stakeholder engagement and proactive management of sustainability-related risks.

Finally, we will address the challenges associated with adopting these innovations, particularly in terms of training and investment.

This presentation will offer participants a clear vision of how Sustainable Operability can transform their approach to maintenance and asset management in a world focused on sustainability and operational efficiency.

Day 03: Tuesday 28 January 2025



The Impact of Digital Twin

Eng. Sulaiman Al Ismaili

MSc Engineering Management

Oman

Biography:

A results-driven Facilities Management Professional with 15+ years of experience in Operations and Maintenance. Possessing a Master's degree in Engineering Management, I am adept at applying key concepts, analytical tools, and theories to strategic planning in the Engineering sector. My experience and skills allow me to lead teams in a consultative manner while ensuring ethical and sustainable practices. I am adaptable to technological trends and have successfully managed the impact of emerging and disruptive technologies. I am currently seeking new opportunities and challenges for professional growth in higher roles.

Abstract:

Digital Twin technology serves as a digital replica of physical assets, systems, or processes, enabling real-time insights through advanced integration with IoT, AI, and big data analytics. This paper, titled "The Impact of Digital Twin," explores how digital twins are transforming industries by enhancing operational efficiency, predictive maintenance, and sustainability. With applications across sectors like manufacturing, urban planning, and healthcare, digital twins provide a powerful tool for optimizing resources, reducing downtime, and fostering innovation. Despite challenges such as data management, cybersecurity, and high initial costs, the rapid adoption of digital twins is reshaping technological landscapes, supporting more sustainable and resilient infrastructure. The study examines current implementations and the future potential of digital twins, emphasizing their significance in aligning with Industry 4.0 goals and advancing the integration of digital and physical worlds for more strategic decision-making and optimized performance.

Day 03: Tuesday 28 January 2025



Automating Subsurface Utilities Detection and Visualization using Deep Learning and Augmented Reality

Prof. Mohamed Marzouk

Professor
Cairo University
Egypt

Biography:

Dr. Marzouk is Professor of Construction Engineering and Management in the Structural Engineering Department, Faculty of Engineering, Cairo University. Dr. Marzouk has more 25 years of experience in the Civil Engineering. His experience covers different phases of projects including design, construction, monitoring, research, consulting, and project management. He also served as a consultant for many mega-construction projects in Egypt. Dr. Marzouk has been involved in several academic and scientific committees. He is acting as a chairman of Building Information Modeling (BIM) Egyptian Code. Dr. Marzouk authored and co-authored over 350 scientific publications. He is recognized and named among the top 2% of the world's most impactful scientists by Stanford University and Elsevier for five successive years 2020 to 2024.

Abstract:

Recent urban development requires advanced utility management through modern technology implementation to optimize utility management with minimal risks. While commonly used, traditional methods are often time-consuming and prone to human errors, leading to inefficiencies. This research proposes a comprehensive framework that leverages advanced technologies, specifically Ground Penetrating Radar (GPR), Mask R-CNN Deep Learning Model, and Augmented Reality (AR), to automate and enhance the process of subsurface utility detection and visualization. The framework is validated through the implementation of a case study where data from GPR scans are processed to detect and visualize buried utilities. The case study demonstrates the efficiency of integrating deep learning techniques with GOR data, significantly improving the accuracy of utilities detection. On the other hand, the use of AR-enabled seamless visualization of these results, offering an interactive experience for field operations. This approach does not only reduce the risk of damaging existing utilities but also accelerates decision-making processes where the developed system demonstrates promising results, providing an efficient utility detection and visualization solution.

Day 03: Tuesday 28 January 2025

Session 10:
Advancements in Digital Solutions for Predictive Maintenance

Hall A
11:35 – 12:45



Chairman:
Dr. Tomáš Hladík
Principal Consultant
Logio s.r.o.
Czech



Eng. Waleed Nazhat
Chief Engineer
Baba Gurgur Association
of Turkmen Engineers
Iraq



Dr. Nader Gharib
Head of Architectural
Engineering and
Environmental Design
College of Engineering and
Technology
AASTMT
Egypt



Eng. Mohammed Al-Haj
Facility Engineer
Sulaiman Alrajhi University
Saudi Arabia



Dr. Saleh Abu Dabous
Associate Professor,
University of Sharjah
United Arab Emirates



Eng. Suleiman Barada
Managing Partner
XEEVOLVE
Lebanon

Day 03: Tuesday 28 January 2025



Chairman:

Dr. Tomáš Hladík
Principal Consultant
Logio s.r.o.
Czech

Biography:

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Day 03: Tuesday 28 January 2025



Data Analytics of Machines through Predictive Maintenance Strategies and Their Applications using Programmable Control Systems and the Internet of Things

Eng. Waleed Nazhat

Chief Engineer
Baba Gurgur Association
of Turkmen Engineers
Iraq

Biography:

Waleed Nazhat Nashat, Member of the Baba Gurgur Association of Turkmen Engineers and membership in Arab Asset, Facility and Maintenance Management Council
And Member of the Iraqi Engineers Union, and chief engineer at the Oil Company

He holds a Bachelor's degree in Fuel and Energy Technology Engineering from Kirkuk College of Technology (2003-2004). He has many research papers published inside and outside Iraq, the most important of which are (Oil prices in the international market and their implications for the politics of countries / International Conference for Iraqi Oil Studies / Baghdad), (Apply Markov chains to control degradation

Facilities and equipment management at the Conference of the Eleventh International Forum for Operation and Maintenance in Arab Countries / Cairo), (Maintenance is the basic building block and quality guide for companies and institutions / Conference of the Eleventh International Forum for Operation and Maintenance in Arab Countries / Lebanon), (Management of operations and maintenance in companies and institutions during... Wars and regional instability within the framework of a comprehensive (comprehensive) emergency plan/UAE)

Abstract:

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Day 03: Tuesday 28 January 2025



Architectural Digital Twins: Enhancing Building Lifecycle Management through Predictive Maintenance and Restoration

Dr. Nader Gharib

Head of Architectural Engineering and Environmental Design
College of Engineering and Technology
AASTMT
Egypt

Biography:

Nader Mohamed Gharib Mohamed holds a PhD in Sustainable Environmental Architecture (2010) from the Faculty of Engineering, Alexandria University. His dissertation was titled "Sustainable Environmental Architecture: Applying Life Cycle Assessment to Siwan Housing." He has been the Head of the Department of Architecture and Environmental Design at the College of Engineering and Technology, Arab Academy for Science, Technology, and Maritime Transport, Port Said branch, since September 2015.

He was honored to serve as an Assistant Professor of Architecture at Umm Al-Qura University in Saudi Arabia for seven years. From December 2003 to March 2005, he also had the privilege of working as the Executive Director of the Forum for the Preservation of Archaeological and Architectural Heritage in Alexandria, Rosetta, and Siwa, a project funded by the U.S. Government's NGO Service Center and affiliated with the Friends of the Environment Society. He was a member of the Architectural Heritage Documentation Committee in Alexandria, under the National Organization for Urban Harmony in 2007.

Dr. Nader has participated in numerous local and international conferences, presenting research related to Egyptian urbanism, and has contributed to several publications, including a booklet titled "Archaeological Heritage as a Pathway to Sustainable Development in the City of Rosetta" in 2004. He has also won first place in several international architectural design competitions.

Abstract:

This study explores architectural digital twinning as an advanced tool for managing and maintaining heritage buildings. It begins by introducing the concept of digital twinning and its applications in architecture, focusing on its significance for historically valuable structures. The research reviews various types of maintenance, identifying the most suitable approach for implementation within the digital twin context. It also discusses appropriate restoration methods for this technology, analyzing decision models related to preservation and maintenance processes. The study presents a methodology for assessing heritage building needs and prioritizing interventions using digital twins. Finally, the research evaluates this methodology, highlighting its advantages and limitations, and providing insights into the potential of digital twinning in efficiently preserving and managing architectural heritage.

Day 03: Tuesday 28 January 2025



Ai-Enhanced Predictive Maintenance and Leakage Detection of Underground Steel Pipelines Using Ground Penetrating Radar

Dr. Saleh Abu Dabous

Associate Professor, University of Sharjah
United Arab Emirates

Biography:

Saleh Abu Dabous is an Associate Professor at the Department of Civil and Environmental Engineering - University of Sharjah. Saleh's educational background includes a Ph.D. in Building Engineering, a Master's in Civil Engineering from Concordia University in Canada, and a Bachelor's degree in Civil Engineering from Jordan University of Science and Technology. Saleh is a licensed Professional Engineer in Ontario/Canada with several years of industry experience.

Abstract:

Pipelines are critical for the efficient transportation of oil over long distances, making their structural integrity essential for the safety and sustainability of the oil industry. Leaks from these pipelines can lead to severe environmental and safety hazards, emphasizing the need for effective maintenance and monitoring strategies. This paper presents an innovative, maintenance-focused approach for detecting and assessing the severity of petroleum leakage from underground steel pipelines using Ground Penetrating Radar (GPR) and convolutional neural networks (CNN). A comprehensive laboratory setup was designed to replicate various petroleum leakage scenarios, enabling the collection of B-scan GPR images under controlled conditions. These images were used to train CNN models, which were capable of identifying and classifying the extent of leakage. The trained models demonstrated high performance, achieving 100% accuracy in detecting the presence of leaks and 95% accuracy in quantifying the severity of leaks during validation tests on unseen data. This method not only enhances the accuracy and reliability of leak detection but also supports predictive maintenance by providing real-time insights into pipeline health. By integrating AI-driven diagnostics into maintenance management systems, this approach facilitates proactive maintenance planning, minimizes downtime, and enhances the overall safety and efficiency of pipeline operations.

Day 03: Tuesday 28 January 2025



Digital Twin Emerging Technology: Empowering Predictive Maintenance for Enhanced Equipment Reliability and Operational Efficiency

Eng. Mohammed Al-Haj

Facility Engineer
Sulaiman Alrajhi University
Saudi Arabia

Biography:

Electrical Engineer in Facilities Management at Sulaiman Al-Rajhi University, with an interest in energy systems and the integration of renewable energy sources. Focused on developing smart and sustainable solutions to enhance facility efficiency and extend operational lifespans, with a particular emphasis on advanced maintenance technologies. Actively involved in research projects that explore the impact of renewable energy on infrastructure resilience and operational cost reduction. Mohammed is committed to contributing to the community through volunteer activities, participating in initiatives aimed at raising awareness about clean energy, and promoting sustainable energy use. He has participated in several scientific conferences and seminars in the energy field, enhancing his knowledge and facilitating the exchange of expertise with other professionals. He strives to develop the field and sector continuously.

Abstract:

Predictive maintenance has gained significant attention as a crucial system capability in accurately identifying impending machine failures and scheduling timely repairs. With the advent of technologies like the Internet of Things, Big Data, and Artificial Intelligence, a new data-driven paradigm known as the digital twin has emerged, capturing the interest of researchers and industry stakeholders. This paper thoroughly explores the role of digital twin technology in predictive maintenance, specifically focusing on its potential to overcome the limitations associated with accuracy, reliability, and adaptability. It provides an in-depth examination of the technical features and real-world applications of digital twin technology in fault diagnosis, prediction, and maintenance decision-making. The primary objective of this study is to provide valuable insights and practical recommendations to organizations seeking to elevate their maintenance practices through the adoption of digital twin-based predictive maintenance strategies. By conducting a comprehensive review of two scientific papers that develop digital twin models for monitoring and maintaining electrical machines, this paper emphasizes the practical implementation and tangible benefits of digital twin technology in the field of predictive maintenance. It highlights the potential for cost reduction, increased productivity, and improved maintenance schedules across diverse industries. In conclusion, this paper contributes to the advancement of digital twin technology in predictive maintenance by underscoring the significance of digital twins in enhancing equipment reliability and operational efficiency. It emphasizes the need for continuous research and development efforts to fully harness the transformative potential of digital twin-based predictive maintenance systems.

Day 03: Tuesday 28 January 2025



Digital Infrastructure Mapping

Eng. Suleiman Barada

Managing Partner
XEEVOLVE
Lebanon

Biography:

Eng. Suleiman Barada is a distinguished leader in the fields of management consulting and digital business transformation, with nearly 25 years of experience. Suleiman is the Senator for Lebanon at the World Business Angel Investment Forum, Regional Ambassador for Lebanon at the Global Blockchain Business Council, and President of the Lebanon Chapter at the Global Innovation Institute. Suleiman has led and scaled multidisciplinary consulting practices in the MENA region and has worked with sectors such as construction and engineering, international development, defense, government, financial services, healthcare, higher education, and more. Holding multiple certifications, including Certified Business Architect, Certified Innovation Strategist, Authorized Innovation Assessor, and Project Management Professional, Suleiman is a passionate advocate for innovation, value creation, and purpose-driven solutions.

Abstract:

Recent urban development requires advanced utility management through modern technology implementation to optimize utility management with minimal risks. While commonly used, traditional methods are often time-consuming and prone to human errors, leading to inefficiencies. This research proposes a comprehensive framework that leverages advanced technologies, specifically Ground Penetrating Radar (GPR), Mask R-CNN Deep Learning Model, and Augmented Reality (AR), to automate and enhance the process of subsurface utility detection and visualization. The framework is validated through the implementation of a case study where data from GPR scans are processed to detect and visualize buried utilities. The case study demonstrates the efficiency of integrating deep learning techniques with GOR data, significantly improving the accuracy of utilities detection. On the other hand, the use of AR-enabled seamless visualization of these results, offering an interactive experience for field operations. This approach does not only reduce the risk of damaging existing utilities but also accelerates decision-making processes where the developed system demonstrates promising results, providing an efficient utility detection and visualization solution.

Day 03: Tuesday 28 January 2025

Session 10:
Exploring New Horizons in Maintenance and Design

Hall B
11:35 – 12:45



Chairman:

Dr. Hamza Ghulman

Dean and Academic
Consultant
College of Engineering
University of Business
and Technology UBT
Saudi Arabia



Eng. Ehab Bassam

Business Development
Manager
Lasoman Machines
Empowering
Saudi Arabia



Eng. Esraa Rashad

Researcher
Mansoura University
Egypt



Eng. Hamza Ibrahim

Lead Technical Sales
Neura Robotics
Germany



Dr. Tarek Nasab

Associate Professor
Lebanese International
University
Lebanon

Day 03: Tuesday 28 January 2025



Chairman:

Dr. Hamza Ghulman

Dean and Academic Consultant
College of Engineering
University of Business and Technology UBT
Saudi Arabia

Biography:

Dr. Hamza A. Ghulman is an Associate Professor in Mechanical Engineering Department, College of Engineering, University of Business and Technology UBT. He has total experience of more than 35 years of Teaching at Umm Al-Qura University and 03 years of Industrial experience. He held positions from 2001 to 2018, where he held the position of Head of the Mechanical Engineering Department, Vice Dean for Academic Affairs, Dean of the Custodian of the Two Holy Mosques institute of Hajj and Umrah Studies, and Dean for the college of Engineering and Islamic Architecture for many periods.

- Bachelor's and Master's degree in industrial engineering-King Abdul Aziz University, KSA.
- Master's degree in Mechanical Engineering-Ohio University, USA
- PhD (Mechanical Engineering) Ohio University, USA.

He has a wealth of experience in manufacturing and industrial courses.

A member of the national and international associations such as the Saudi Council of Engineers (consultant), ASME, Arab Institute for Operation and maintenance and many other societies.

He published more than 85 research papers and books that have been published in scientific journals, conferences, seminars and workshops in which he participated locally and internationally.

Chair of the Mechanical Technical Committee of the Advisory Committee of the National Committee for the Saudi Building Code.

Head of the technical team to supervise the designs of the project to increase the capacity of the terminal in the Holy Mosque in Makkah.

Day 03: Tuesday 28 January 2025



Saudi Arabia's Industrial Future with 3D Printing and Digital Solutions

Eng. Ehab Bassam

Business Development Manager
Lasoman Machines Empowering
Saudi Arabia

Biography:

A Mechatronics Engineer with over five years of experience in additive manufacturing, reverse engineering and business development. I started my journey in technical sales, and over time, I've found my passion in driving growth and innovation by blending engineering expertise with business strategies. As a Business Development Manager, I've been fortunate to work with amazing teams and clients, helping to introduce cutting-edge solutions and foster strong client relationships. Outside of work, I'm passionate about creating science content on social media, where I love to share interesting facts and discoveries

Abstract:

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Day 03: Tuesday 28 January 2025



Advancing Prosthetics: Personalization with 3D Printing, AI, and the Critical Role of Maintenance

Eng. Esraa Rashad

Researcher
Mansoura University
Egypt

Biography:

Esraa Ahmed Rashad is a biomedical engineer, researcher, and professional CAD designer pursuing her M.S. in Biomedical Engineering, her thesis focuses on optimizing running blade prosthetics using advanced materials. Esraa has completed internships at Mansoura University Oncology Hospital, an ophthalmic hospital, and the Military hospital in Mansoura, gaining valuable experience in clinical engineering. She has also supervised student projects in hospital planning.

Esraa is committed to community service. She volunteers as a language instructor, a wall artist for a local school, and a member of Resala Charity. She looks forward to sharing her research at the OMAINTECH conference and contributing to advancements in biomedical engineering.

Abstract:

This paper explores the technological advancements in prosthetic design through 3D printing and AI integration. Special emphasis is placed on personalized prosthetics for athletes, specifically the development of running blades. The importance of prosthetic maintenance is also discussed, with a focus on predictive maintenance solutions that utilize AI and smart sensors. By addressing the challenges in the current system of prosthetics in Saudi Arabia (KSA) and Egypt, this paper suggests improvements to increase accessibility, affordability, and longevity of prosthetic devices.

Day 03: Tuesday 28 January 2025



Robotics and AI: Shaping the Future of Large-Scale Maintenance and Construction Operations (Painting as a Case Study)

Eng. Hamza Ibrahim

Lead Technical Sales
Neura Robotics
Germany

Biography:

I am a mechanical engineer specializing in collaborative and cognitive robotics. With a strong foundation in software development and embedded systems, integrated mechanical design expertise with advanced software skills to drive innovation in robotics. My vast experience working with software startups has equipped me with a versatile skill set, bridging the gap between hardware and software solutions.

For the past three years, I have been based in Germany, contributing to the field of robotics development. My work focuses on creating intelligent robotic systems that enhance human-robot collaboration, pushing the boundaries of how machines interact with people. Through my multidisciplinary approach at the forefront of advancing technologies that shape the future of robotics.

Abstract:

The construction industry faces significant challenges in labor-intensive tasks like painting, including labor shortages, inconsistent quality, safety risks, and environmental concerns stemming from traditional manual methods. This paper explores the application of robotics and artificial intelligence (AI) to automate painting operations on construction sites, aiming to enhance efficiency, safety, quality, and sustainability. We introduce a prototype robotic painting system that integrates advanced robotic arms equipped with AI algorithms for optimized painting paths, precise application, and real-time data collection for continuous process improvement. By automating the painting process, the proposed system is expected to achieve a 40% reduction in labor costs and a 2.5-fold increase in operational speed compared to conventional methods, while significantly reducing material waste and enhancing safety by minimizing human exposure to hazardous environments.

A case study of the Canvas robotic drywall finishing system is presented to illustrate the practical benefits of robotics and AI in construction painting. The case study demonstrates substantial improvements in productivity, consistent high-quality finishes, and enhanced worker safety. The findings underscore the feasibility and positive impact of integrating robotics and AI into construction painting tasks, aligning with industry trends toward automation and digitalization. This integration contributes to the broader goals of sustainable operational excellence and environmental stewardship in the construction sector, offering a viable solution to longstanding inefficiencies and setting the stage for future advancements in construction technology.

Day 03: Tuesday 28 January 2025



Optimal Automated Designing Process for Annual Planning and Workload Distribution of Work Orders

Dr. Tarek Nasab

Associate Professor
Lebanese International University
Lebanon

Biography:

Dr. Tarek Nasab is an Associate professor at Lebanese International University in Electrical Engineering Dept. since Sept. 2016.

He was the Chairman of the Technical and Construction Departments at Saudi Oger Training Institute; May 2011 – Sept. 2016. He pursued an education in Electrical Engineering / Control System that culminated with a Ph.D. from the University of Tennessee, USA in 1995. In 1986 and 1988 He earned his B.S. and M.S. degrees from the Tennessee Technological University. He has 23 publications in his field of expertise. From 1994 till 1998, he joined the College of Technology as an Assistant Professor at Dammam, Saudi Arabia. Since 1998, he joined the Saudi Oger Ltd. Company. He has 21 years of teaching experience and 20 years of Maintenance Management experience." He worked as a maintenance management consultant for 2 years for the director of the South Lebanese Water Establishment (SLWE) Foundation.

Abstract:

Effective planning of preventive maintenance work orders is crucial for the optimal performance and longevity of equipment and systems in various industries. This study investigates a strategic approach to scheduling preventive maintenance tasks by aligning them with common maintenance frequencies, synchronized execution hours, and consistent manpower allocation. The objective is to streamline maintenance operations, minimize downtime, and enhance overall efficiency. By analyzing historical maintenance data and identifying patterns in maintenance needs, the research proposes a model that groups work orders based on their frequency of occurrence, ensuring that tasks requiring similar intervals of attention are scheduled concurrently. Additionally, the model standardizes the execution hours for maintenance activities, allowing for better coordination and reduced disruption to operational workflows. The allocation of manpower is optimized to maintain a uniform number of personnel assigned to maintenance tasks, balancing the workload and preventing bottlenecks. The findings indicate that such an integrated planning approach can significantly improve the predictability and effectiveness of maintenance operations, leading to cost savings and improved asset reliability. This study provides a framework for maintenance managers to enhance their preventive maintenance strategies, ensuring that resources are utilized efficiently and maintenance activities are performed with minimal impact on productivity.

Day 01: Sunday 26 January 2025

Panel Discussion:
International Experiences and Expertise in Maintenance
(Experiences from China)

🕒 13:15 – 14:15 📍 Hall A

Main Topic:

Experiences and Practices in Digitizing Operations and Maintenance Procedures in China (The Guest Country)



Moderator:

Dr. Alan Wilson

Director
Carmichael Smith Ltd.
United Kingdom



Prof. Baowen Li

Chairman
Huamou Consulting
Technology (shenzhen)
Co. Ltd
China



Prof. Baoqiang Xu

Associate Professor
School of Mechanical
and Electrical Engineering
Guangzhou University
China



**Eng. Yuchang
Zhang**

Independent Advisor
of R&D Program
Beijing Centraltech
Co. Ltd.
China



Eng. Colin Ning

Head of International
Business Development
Yado Monitoring Technology
Co. Ltd.
China