ICE MENA (KSA) Online Learned Event

InfoStructure: The Convergence of Information and Infrastructure in Smart Cities

Objectives

- Define InfoStructure as the convergence of information and infrastructure.
- Demonstrate how informationally active infrastructures underpin the smart city.
- Examine the role of AI, IoT, data analytics, and blockchain in transforming civil engineering practice.
- Illustrate practical applications, including structural health monitoring (SHM) in bridge management.

Topic Overview

This session introduces InfoStructure – a framework for understanding how infrastructure becomes adaptive, intelligent, and resilient through the integration of digital technologies. Rather than viewing smart cities as an overlay of services on physical systems, InfoStructure positions them as the emergent property of infrastructures that sense, record, and adapt in real time.

Examples such as structural health monitoring (SHM) in bridge management demonstrate how digital twins, IoT, and AI enable assets to self-assess and improve safety and performance. At scale, these capabilities converge into city-wide operating systems that constitute the smart city.

Aligned with ICE's strategic priorities of decarbonisation, resilience, and productivity, InfoStructure highlights the expanded role of civil engineers as system architects of infrastructures that are both material and informational, robust and adaptive.

Speaker

Prof Christopher Mustafa Kirwan – Smart City Expert, Author and Educator



Christopher Mustafa Kirwan is a multidisciplinary professional, lecturer and visiting professor at leading international universities, with over 40 years of experience in real estate development, urban planning, architecture and smart city systems. He is the author of Smart Cities and Artificial Intelligence: Convergent Systems for Planning, Design, and Operations (Elsevier, 2020, 2025) and Cities as Convergent Autopoietic Systems (Springer, 2022). He advises governments and international organisations on the integration of artificial intelligence, infrastructure and urban operating systems, bridging academic research with practical applications in urban development and smart city transformation.

Date: Monday, 11 January 2027
Time: 18:30 – 20:00 (Saudi Arabia time)
Location: Online, Microsoft Teams

Click here to register

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