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# Pioneering BIM Application for Enhancing Buildings Operation and Maintenance

CHAN Hor Yin, Steve

Electrical and Mechanical Services Department, The Government of the Hong Kong Special Administrative Region

## Learning Objectives

- How BIM could enhance buildings operation and maintenance via visually intuitive integration among BIM, asset management system and various electronics systems
- How BIM-AM System could facilitate responsive incident handling in critical venues to enhance building sustainability
- Learn about other applications of BIM-AM System such as effective pre-planning, site preparation in alterations, additions & improvements (AA&I) works, and verification during system hand-over

## Description

BIM has rapidly emerged in AEC industry but its application in long building lifecycle of operation and maintenance is little investigated. This course aims to share a novel framework and our works for enhancing buildings operation and maintenance by visually intuitive integration among BIM, asset management and various electronics systems.

## Speaker

Mr. CHAN Hor Yin, Steve, is a Senior Engineer of the Electrical and Mechanical Services Department of The Government of the Hong Kong Special Administrative Region. His particular passion has been for exploring new ideas with innovative technologies. His over 20 years of project management and maintenance management experiences has enabled him and his team to develop a practical solution for enhancement of workflow and O&M services by integrating Asset Management with BIM.

## Synopsis

As the largest Mechanical, Electrical and Plumbing (MEP) maintenance agency for the public sector in Hong Kong, the Electrical and Mechanical Services Department (EMSD) of the Government of HKSAR is always on the lookout for better solutions to provide quality and cost-effective operation and maintenance (O&M) services to its clients. BIM has rapidly emerged in recent years in AEC industry to reduce construction and design efforts for building design and engineering works, however, its application in the long building lifecycle of O&M stage is little investigated. This course is designed to presents a novel framework and our development works for enhancing building asset management, particularly O&M, by visually intuitive integration among BIM, asset management (AM) and various electronics systems.

Furthermore, the system provides an intuitive way to access heterogeneous O&M information of assets such as photos, attributes, equipment relationships, manuals, drawings, maintenance records, live view of Closed Circuit Television (CCTV) System, real-time sensing data from a Building Management System (BMS) and wireless ad-hoc sensors, as well as location information from a Real Time Location System (RTLS) in one single integrated mobile platform. All these information is accessible simply by asset repository, manoeuvring throughout a BIM model, or even a handheld Radio Frequency Identification (RFID) scanning tool.

Having selected the EMSD Headquarters Building as a showcase project, an integrated BIM-AM System with four key generic user models has been developed to implement the novel framework. The results have successfully demonstrated the system capabilities in not only facilitating O&M workflow, but also responsive incident handling, thus enhancing building sustainability.

The speaker will share their project team knowledge and experience on the development of the BIM-AM System as well as several typical showcases and live demonstration of using the BIM-AM System for workflow management and incident handling. All these would be good indicators for productivity improvements.

The features we will focus on will be:

- Novel architecture of EMSD BIM-AM System
- Cross-referencing among reality, BIM and asset information
- Benefits in fault handling (e.g. fault reporting, pre-diagnosis, and on-site repair)
- Responsive incident handling
- Other applications of BIM-AM System (e.g. gesture synchronisation, easy measurement, e-form for safety compliance, effective pre-planning for alterations, additions & improvements (AA&I) works, and streamlined system hand-over)