Singapore Institute of Building Limited

BUILD NEWS

SIBL Newsletter

JUNE 2022

TABLE OF CONTENT

Data Interoperability in the Built Environment

For many years now, the Built Environment community in Singapore has tried to enhance collaboration among stakeholders to drive improved results and increased efficiencies in construction projects.

Building projects typically involve many parties, such as the developer, consultants, contractors, subcontractors, specialist contractors and facility managers. Regardless of where you are on the Built Environment value chain, the fact is that you are likely involved in communicating large amounts of complex information in the execution of a project. To complete a project on time and within budget, it is important to communicate accurate and complete information in a timely way with your project partners.

The Singapore context

The goal of enhanced collaboration is surely at the heart of the Building Information Modelling (BIM) mandate in Singapore's Bult Environment. In January 2021, the Building and Construction Authority (BCA) released Singapore's CDE Data Standards to establish information requirements in a common data environment for projects to ensure consistency.

This consistency is crucial for data interoperability, an issue that is widely discussed across various industries so long as they have attempted a digital transformation. In which industries have digital transformation left untouched? (PSA: It's a rhetorical question). In today's digital society, everyone and every organization benefit from having seamless access to all data types. Electronic data has become the go-to standard for storing and managing information. And so long as collaboration is required, data exchange is a necessary function, hence interoperability is essential.

What is interoperability?

Interoperability refers to the basic ability of different computerized products or systems to readily connect and exchange information with one another, in either implementation or access, without restriction. For two or more systems to be interoperable, they must be able to exchange, interpret, and present shared data in a way that is understood by the other.

This is achieved by two primary processes. In the first process, organisations can share data and resources through a local area network (LAN) or a wide area network (WAN). In the second process, organisations can share data between different systems or machines, for example, by adopting a common data structure with meta data that links each data element to a shared, controlled vocabulary. The meta data categorizes groups of information together that otherwise exist as disparate gibberish.

At the very base level, interoperability allows different information systems to talk and comprehend information that is passed with each other.

The Three Layers of Interoperability

This article will cover the three main types of interoperability and contextualize them to the digitalization processes in the Singapore Built Environment.

Syntactic interoperability refers to the ability of two or more systems to communicate and share data, thus allowing different types of software to work together. An example of the work done to enhance syntactic interoperability is the development of Industry Foundation Class (IFC), which is an open-source file format for BIM models to be shared regardless of the BIM tool (e.g. Revit, ArchiCAD, OpenBuildings, Tekla) used to create them. IFC is now an international standard (ISO16739:2018) that promotes vendor-agnostic capabilities across a wide range of hardware devices, software platforms and interfaces for different use cases.

Structural interoperability is a middle layer that defines the data exchange format, which specifies the standards used to format messages sent from one system to another. This allows users to be able to understand the information's purpose clearly, such as within a Common Data Environment. In ISO19650, the international standard for organization and digitization of information about buildings and civil engineering works, a framework is established to manage information including the exchanging, recording, versioning, and organizing for all actors.

Semantic interoperability refers to the ability of the systems to exchange meaningful data with unambiguous, shared meaning. This is hardest layer of interoperability to achieve successfully, for it requires users within our Built Environment community to establish a common vocabulary. Across various industries outside of the Built Environment, the lack of standardization among terminologies represents a key barrier to semantic interoperability. At the project level, this can be established by some sort of file naming convention in the BIM Execution Plan.

Why data interoperability is important

Efficient automated data sharing between applications, databases, and other computer systems is a crucial component throughout networked computerized systems, for example the common file server shared by various stakeholders of a construction project.

Digitalization is not an end to itself – the point of digitalization is to achieve better collaboration, which is done effectively only if the information that is created digitally could be shared and exchanged between various parties.

About the Author:
Vanessa Tang, AcePLP

Vanessa Tang is an SIBL Director and a leading BIM Advisor for guiding firms in the Built Environment to digitize and enhance their Integrated Digital Delivery workflows. She is a Corporate Development Director at AcePLP, which offers Building Information Modelling (BIM), Virtual Design and Construction, reprography, and digitization services. The AcePLP group includes Ace Industrial Academy, which provides highly relevant, short, and industry-focused technical courses on topics such as BIM and Industry Foundation Classes (IFC). Her clients include government agencies, consultants and contractors working on Singapore's Built Environment projects. She works with technology partners such as Autodesk, Bentley, and Trimble to deliver technological and information management solutions for her clients. She sets up BIM teams and grooms future talent for the Built Environment.

Connect with her in LinkedIn:
https://www.linkedin.com/in/vanessa-tang-103b6717/

SINGAPORE GREEN BUILDING COUNCIL

gmap.sgbc.online

Accrediting Green Building Professionals

The SGBC Green Mark Professional Qualification Scheme succeeds the BCA Green Mark Specialist programme and aims to uplift, upskill and recognise green building competencies of professionals active in the built environment sector.

Certification Types

Green Mark AP

The Green Mark AP certification qualifies industry professionals with the knowledge and expertise needed for the implementation of Green Mark projects.

- Green Mark Accredited Professional *(Green Mark AP)*
- Green Mark Advanced Accredited Professional *(Green Mark AAP)*

Green Mark AP (FM)

The Green Mark AP (FM) certification qualifies industry professionals with the knowledge and expertise needed to maintain and operate green buildings.

- Green Mark Accredited Professional (Facilities Management) *[Green Mark AP(FM)]*
- Green Mark Advanced Accredited Professional (Facilities Management) *[Green Mark AAP(FM)]*

Continuing Professional Development

A key feature of the SGBC Green Mark Professional Qualification Scheme is the establishment of a Continuing Professional Development (CPD) framework for all Green Mark APs. Through a host of meaningful programmes and activities, Green Mark APs are able to remain abreast of industry trends and stay ahead of sectoral developments.

Green Mark AP certifications are renewed annually upon fulfillment of the renewal requirements.

Renewal requirements **for Green Mark AP and Green Mark AP (FM)** → **12** SGBC-GMAP CPD Points

Renewal requirements **for Green Mark AAP and Green Mark AAP (FM)** → **18** SGBC-GMAP CPD Points

About the scheme

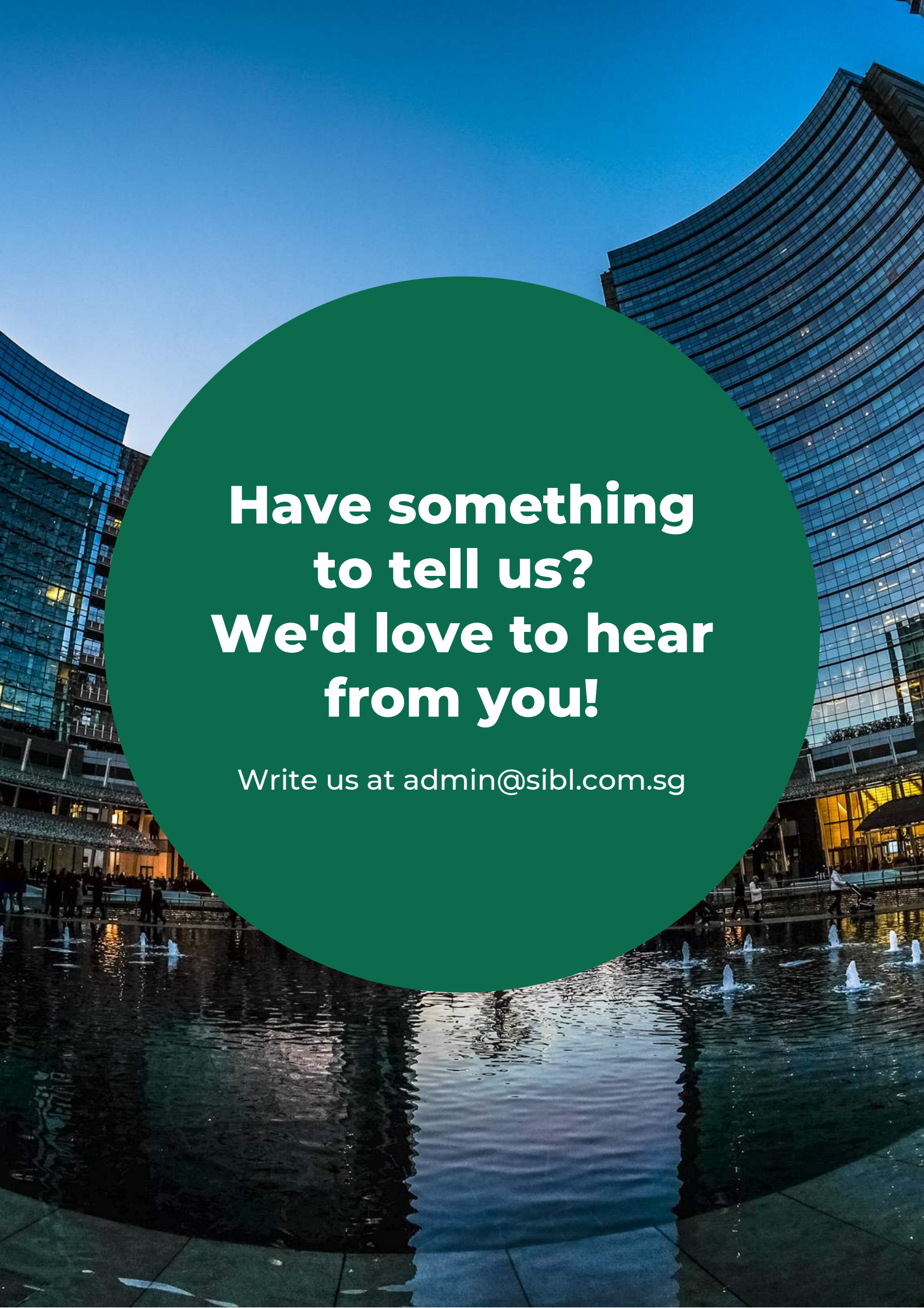
Upcoming CPD activities

Renewal Requirements

Frequently Asked Questions

Singapore Green Building Council
Block H Level 2, BCA Braddell Campus
200 Braddell Road, Singapore 579700

Tel: (65) 6732-5518
Email: gmap@sgbc.sg



Have something to tell us? We'd love to hear from you!

Write us at admin@sibl.com.sg