CONSULTANCY STUDY ON ADOPTING BUILDING INFORMATION MODELLING FOR STATUTORY SUBMISSIONS UNDER THE BUILDINGS ORDINANCE

1st Task Force meeting

2025-01-20

屋宇署 BUILDINGS DEPARTMENT
bimSCORE
Strategic Building Innovation

Agenda

01

Executive Summary

02

Findings & Highlights of the 1st Stakeholder Engagement

03

Recommendations on BIM framework & Technical issues and solutions

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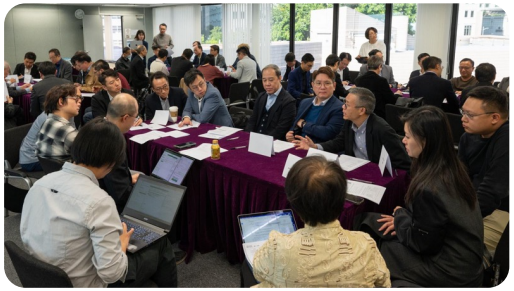
Strategic Building Innovation

1st Stakeholder Engagement



29th Nov

~100 Participants from
+25 organisations

11th Dec

500+ Registered
150+ in person & **300+** Online

13th Dec

50 Participants from
~ 20 departments

Recommended Strategies

openBIM-based Plugins & Regulatory Platform

Findings from Stage 1 & 2:
A collaborative platform is essential for checking compliance with regulations. openBIM is essential for improving efficiency.

openBIM Standards Applied with Localization (Digital Data)

Findings from Stage 1 & 2:
Framework is needed to ensure consistency and clarity of data required for compliance across various government departments.

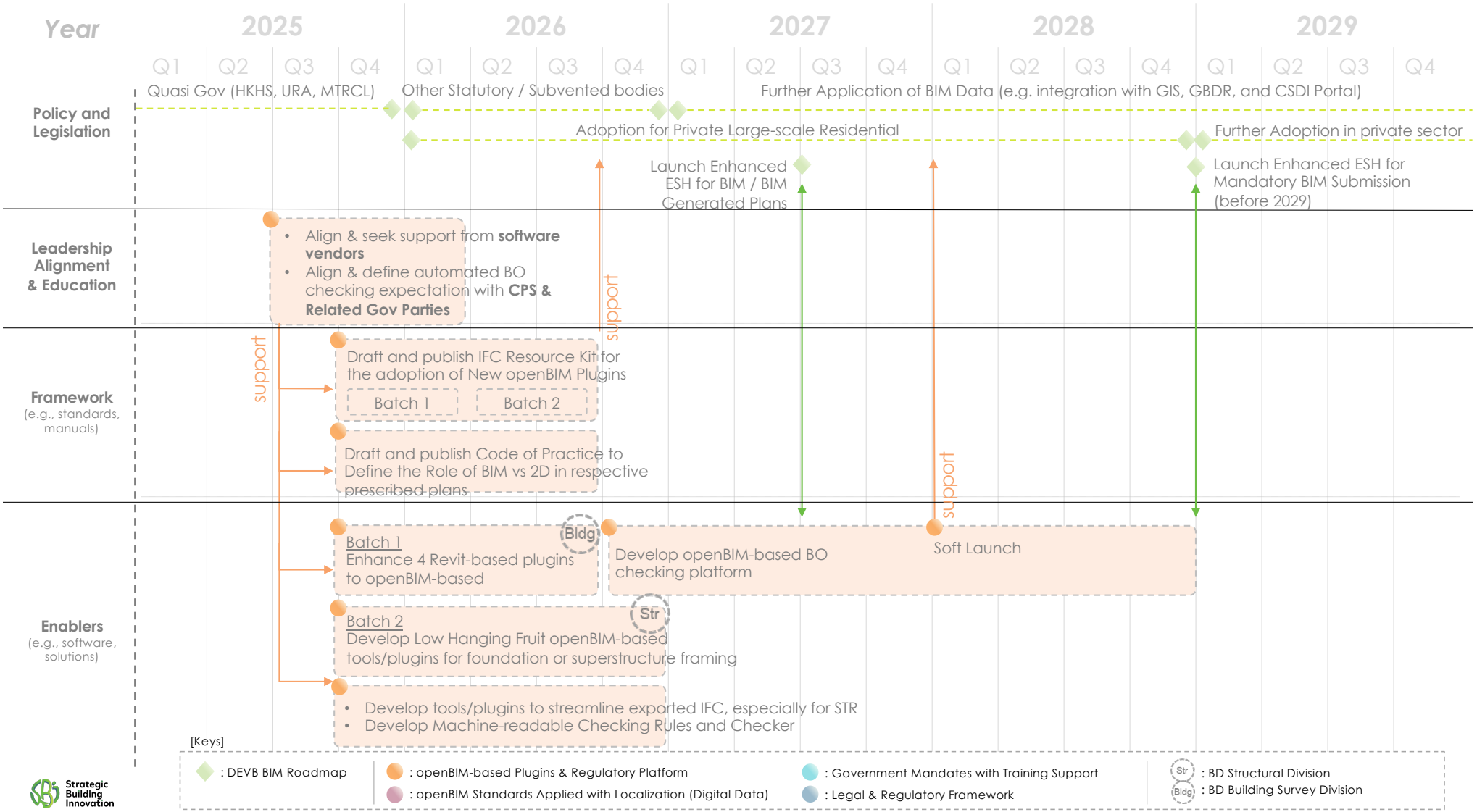
Government Mandates with Training and Support

Findings from Stage 1 & 2:
Successful implementation of BIM often involves government mandates that are accompanied by training and support.

Legal & Regulatory Framework

Findings from Stage 1 & 2:
Introduce a legal framework that addresses the use of BIM in statutory submissions.

	Lead	Support
openBIM-based Plugins & Regulatory Platform		
Align & seek support from software vendors	BD	Vendors
Align & define automated BO checking expectation with CPS & Related Gov Parties	BD	CPS
Draft and publish IFC Resource Kit for the adoption of New openBIM Plugins	BD	Industry
Draft and publish Code of Practice to define the role of BIM vs 2D in respective prescribed plans	BD	Industry
Enhance 4 Revit-based plugins to openBIM-based	BD	CPS
Develop low hanging fruit openBIM-based tools/plugins for foundation or superstructure framing	BD	CPS
Develop openBIM-based BO checking platform	BD	CPS
Soft launch openBIM-based BO checking platform	BD	CPS
Develop tools/plugins to streamline exported IFC, especially for STR	BD	CPS
Develop machine-readable checking rules and checker using IDS	BD	CPS
openBIM Standards Applied with Localization (Digital Data)	**Lead**	**Support**
Align with CPS and prof. institutions on BO related regulations interpretation	BD/CIC/DEVB	CPS/Inst.
Align with CPS and prof. institutions on identifying data standard harmonization use cases	BD/CIC/DEVB	CPS/Inst.
Develop bSDD and IDS framework	BD/CIC/DEVB	Industry
Develop tools/plugins to connect to bSDD for automatic & accurate submission-ready openBIM setup	BD/CIC/DEVB	Industry
Government Mandates with Training and Support	**Lead**	**Support**
Promote funding programs & develop just-in-time & just-enough training for consultant firms	CIC	BD/DEVB
Promote funding programs & develop just-in-time & just-enough training for property mgmt. companies	CIC	BD/DEVB
Explore collaboration opportunities with bSI (e.g., Strategic Projects, Accelerator Program)	BD	bSI
Legal & Regulatory Framework	**Lead**	**Support**
Recognize BIM with Legal importance in Submission or Archive Record	BD	DOJ
Align Stage Submission Requirements with openBIM model-based checking approach	BD	CPS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Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4
Policy and Legislation
Quasi Gov (HKHS, URA, MTRCL)
Other Statutory / Subvented bodies
Further Application of BIM Data (e.g. integration with GIS, GBDR, and CSDI Portal)
Adoption for Private Large-scale Residential
Further Adoption in private sector
Launch Enhanced ESH for BIM / BIM Generated Plans
Launch Enhanced ESH for Mandatory BIM Submission (before 2029)
Leadership Alignment & Education
Align & seek support from software vendors
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Framework
(e.g., standards, manuals)
Draft and publish IFC Resource Kit for the adoption of New openBIM Plugins
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Batch 2
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Bldg
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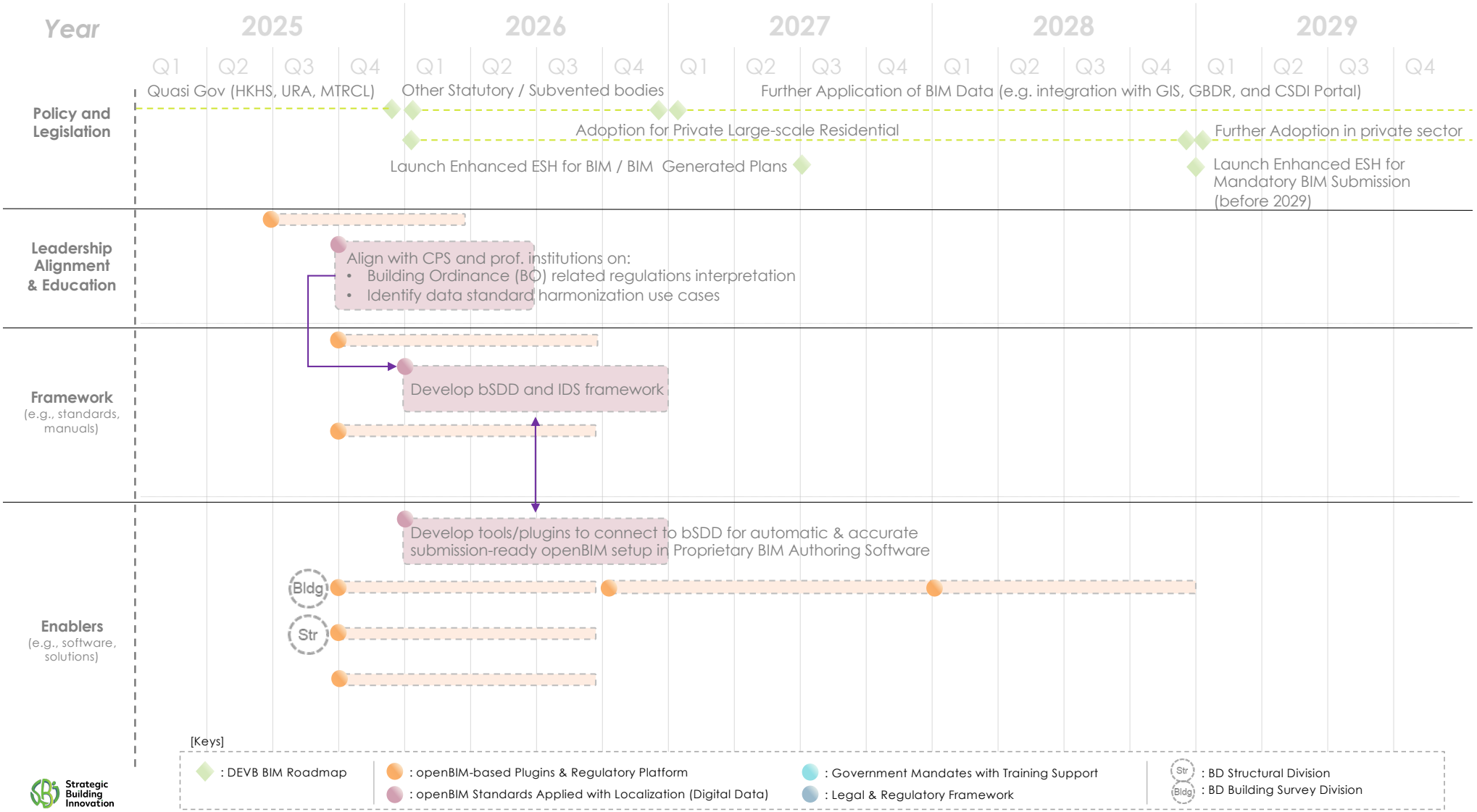
Develop tools/plugins to streamline exported IFC, especially for STR
Develop Machine-readable Checking Rules and Checker
[Keys]
: DEVB BIM Roadmap
: openBIM-based Plugins & Regulatory Platform
: openBIM Standards Applied with Localization (Digital Data)
: Government Mandates with Training Support
: Legal & Regulatory Framework
Str : BD Structural Division
Bldg : BD Building Survey Division
Strategic Building Innovation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Align with CPS and prof. institutions on:
• Building Ordinance (BO) related regulations interpretation
• Identify data standard harmonization use cases
Framework
(e.g., standards, manuals)
Develop bSDD and IDS framework
Enablers
(e.g., software, solutions)
Develop tools/plugins to connect to bSDD for automatic & accurate submission-ready openBIM setup in Proprietary BIM Authoring Software
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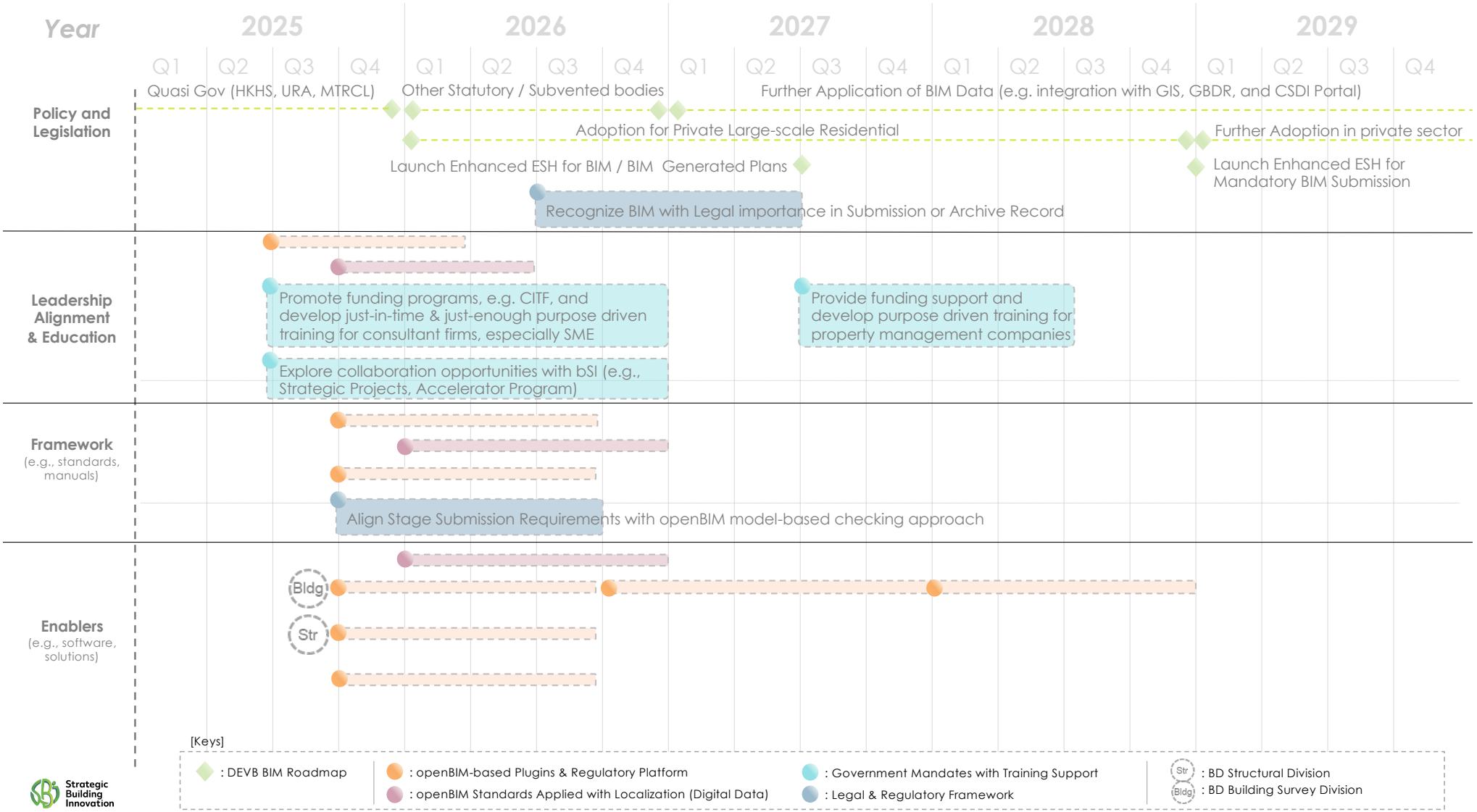
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Recognize BIM with Legal importance in Submission or Archive Record
Leadership Alignment & Education
Promote funding programs, e.g. CITF, and develop just-in-time & just-enough purpose driven training for consultant firms, especially SME
Provide funding support and develop purpose driven training for property management companies
Explore collaboration opportunities with bSI (e.g., Strategic Projects, Accelerator Program)
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(e.g., standards, manuals)
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Recommendations on BIM framework & Technical issues and solutions

Survey Participation

Industry Workshop AM session (2024-11-29)

Industry Workshops PM session (2024-11-29)

Hybrid Forum (2024-12-11)

143 responses

Professional institutions

香港建築師學會 The Hong Kong Institute of Architects

HKIE THE HONG KONG INSTITUTION OF ENGINEERS 香港工程師學會

THE HONG KONG INSTITUTE OF SURVEYORS 香港測量師學會

AAP THE ASSOCIATION OF ARCHITECTURAL PRACTICES 建築師事務所商會

The Association of Consulting Engineers of Hong Kong 香港顧問工程師協會

The Hong Kong Institute of Building Information Modelling 香港建築信息模擬學會

HKIH 香港房屋經理學會

The Hong Kong Institute of Facility Management 香港設施管理學會

buildingSMART Hong Kong, China

BSOMES Building Services Operation and Maintenance Executives Society 屋宇設備運行及維修行政人員學會

THE HONG KONG ASSOCIATION OF PROPERTY MANAGEMENT COMPANIES 香港物業管理公司協會

AREC

PBSCA

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Related experience

Average years of working experience:

Non-CPS: 20.7

Average years of experience in BIM related workflow/technology:

Non-CPS: 8.6

Survey Participation

CPS Seminar (2024-12-13)

30 responses

22 out of 30 representatives have experience in **approval** process (**7.8** years in average).

For those who have approval experience, only **11** have **BIM** experience (**6.4** years in average).

14 out of 30 representatives do **not** have **BIM** experiences.

3 representatives have **no approval** experience and **no BIM** experiences.

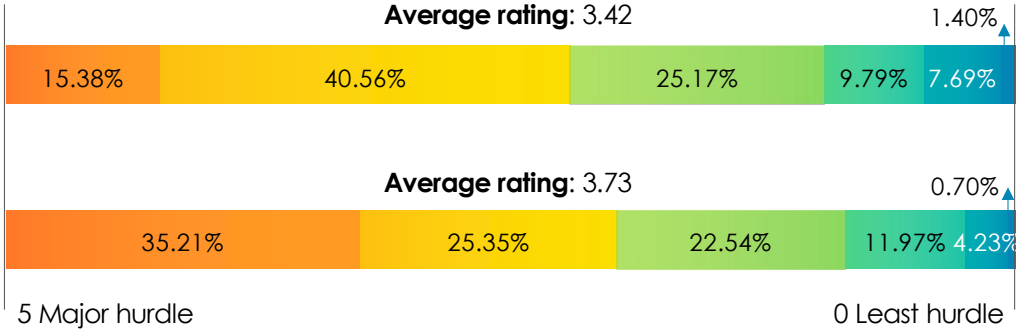
Hurdles in Hong Kong if adopt BIM-based statutory submission.

Sources: Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

A. Mindset / culture

(A1) People I work with view BIM as one of the steps in **complying contract requirements**, instead of an opportunity for improving the process & product.

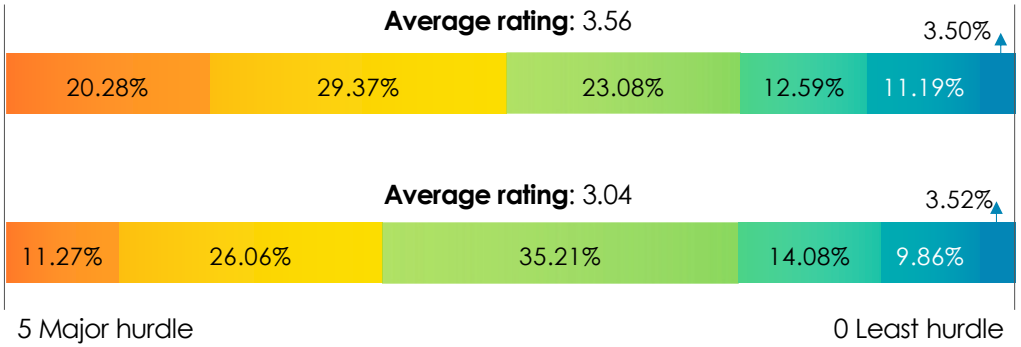
(A2) Using BIM instead of 2D, **Last-minute design direction change** that caused by the shift in market condition would lead to more abortive design effort.



B. Workflow

(B1) Submitting 3D model instead of only 2D **drawing require design team to spend additional time** for a more coordinated design, which is not feasible with typical local project programme and pace.

(B2) **Non-Building-Ordinance related parties' specified drawing convention** made transitioning to BIM-based approach harder.



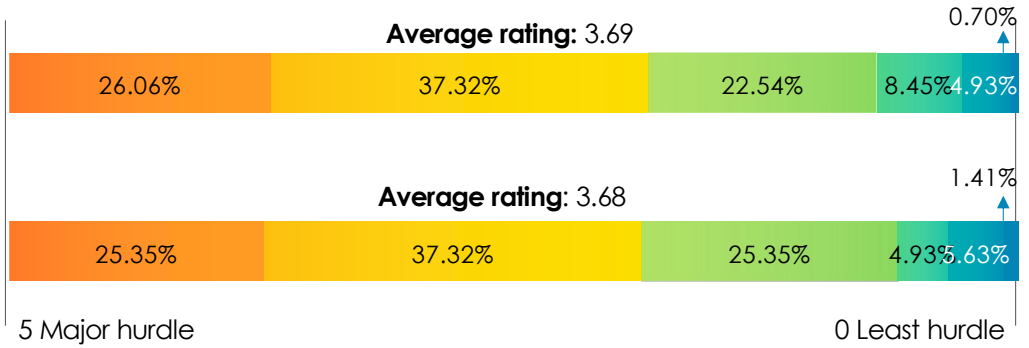
Hurdles in Hong Kong if adopt BIM-based statutory submission.

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

C. Skillset/ personnel resources

(C1) Recruiting **new staff with (open)BIM capability**

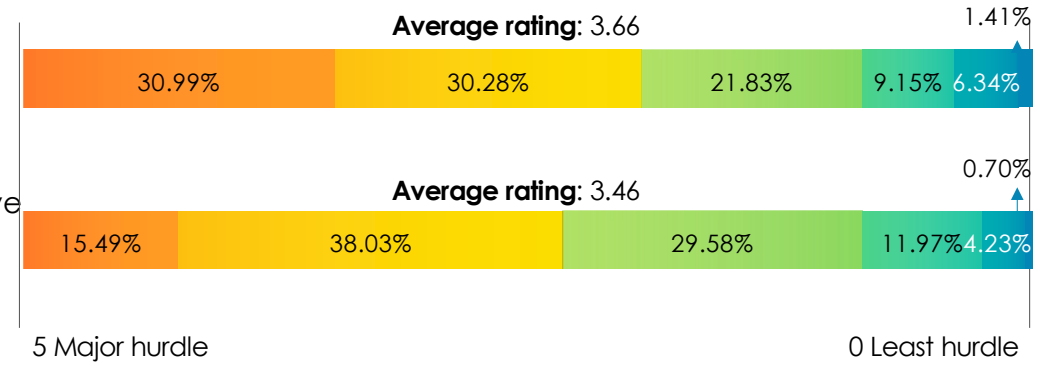
(C2) **Upskilling of existing staff** who are capable enough to handle (open)BIM



D. Financial

(D1) **Additional investments** (e.g., human capital, software, hardware, training, etc)

(D2) Uncertain how **to attain the value** from (open)BIM to improve the return-on-investment



Hurdles in Hong Kong if adopt BIM-based statutory submission.

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

Average rating (in descending order)	**Average rating** **0** = least hurdle ***5* =** major hurdle
(A2) Using BIM instead of 2D, **Last-minute design direction change** that caused by the shift in market condition would lead to more abortive design effort.	3.73
(C1) Recruiting **new staff with (open)BIM capability**	3.69
(C2) **Upskilling of existing staff** who are capable enough to handle (open)BIM	3.68
(D1) **Additional investments** (e.g., human capital, software, hardware, training, etc)	3.66
(B1) Require design team to spend **additional time for a more coordinated design**	3.56
(D2) Uncertain how **to attain the value** from (open)BIM to improve the return-on-investment	3.46
(A1) People I work with view BIM as one of the steps in **complying contract requirements**, instead of an opportunity for improving the process & product.	3.42
(B2) **Non-Building-Ordinance related parties' specified drawing convention** made transitioning to BIM-based approach harder.	3.04

Key Takeaways

- More than **35%** picked **A2 (using BIM instead of 2D)** as a Major Hurdle

> Now government mandates 2D, so consultants discuss 2D, BIM was used for drawing production

- More than **25%** picked **C1** and **C2** (**Recruiting new staff & upskilling existing staff with (open)BIM capability**) as Major Hurdles

> - Recruit/stolen personnel is a big hurdle
> - Difficult to convert 2D engineers to BIM authors

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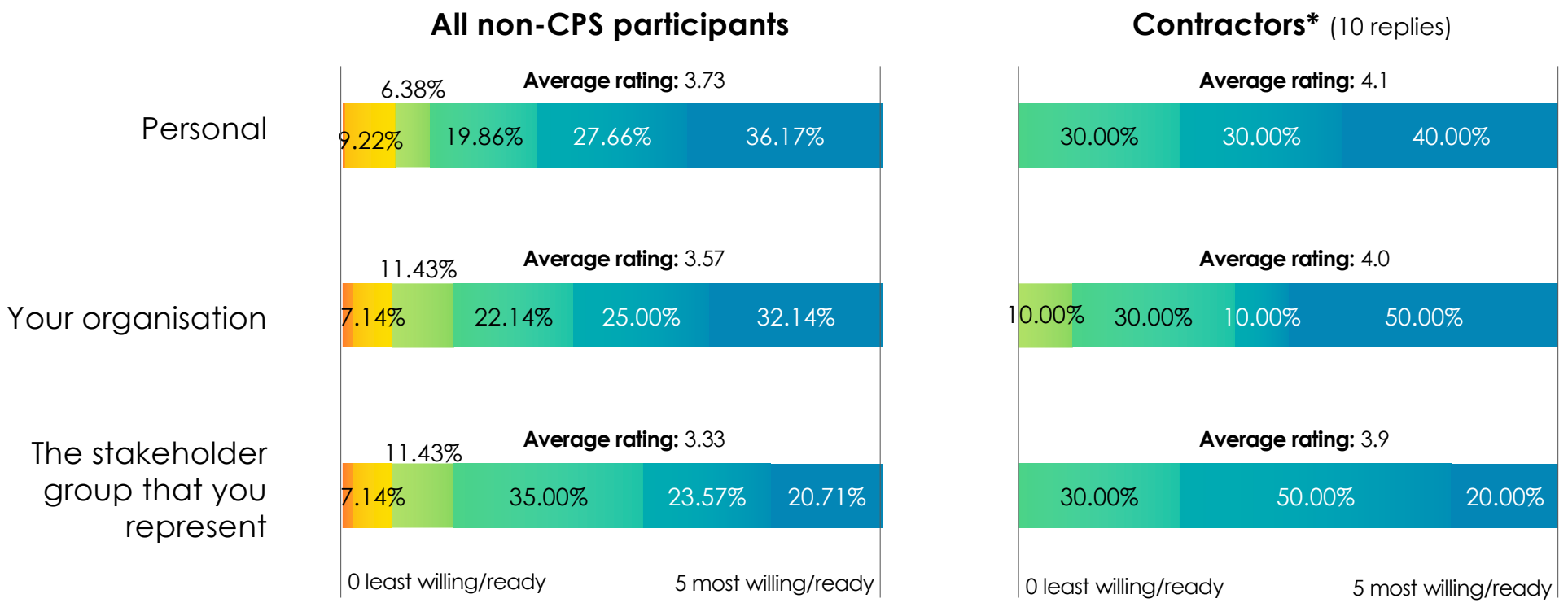
Willingness / readiness in adopting BIM for statutory submissions:

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)



* The strong willingness may result from the fact that 1)**not all submissions require BIM**, alleviating their concerns; 2) Most of the responses are from larger companies, fewer from SME

Technical issues in Hong Kong

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

(1) Challenges with **proprietary BIM software** such as version upgrade to match with other consultants / contractors. Many BIM authoring tools are not backward compatible

(2) **Extra effort** when using BIM **to prepare prescribed plans and Double handling with QA QC workload** to make sure data represented in 2D and BIM are aligned

(3) BIM requirements and data **standards vary among agencies,** e.g. property field naming and value format

(4) Challenge **in receiving and keeping track of comments** from different agencies without use markups on 2D document

(5) Risks of **differentiating elements in BIM** that are intended for agency review from those are for other design intent.

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Technical issues in Hong Kong

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

Average rating (Relevancy of the technical issues) in descending order

Average rating

0 = Least Relevant
5 = Most Relevant

Technical issues	Observed solutions	Average rating
(3) BIM requirements and data standards **vary among agencies**, e.g. property field naming and value format	Finland: Rava3Pro project defines **suitable use cases of automatic permit checking** and produces a **national data specification** for IFC data models. Singapore: **CORENET X** self-help resources' **IFC Resource Toolkit** page contains "Industry Mapping Excel File" that maps the IFC Key Data Structures for each building component	**3.65**
(2) **Extra effort** when using BIM **to prepare prescribed plans and Double handling with QA QC workload** to make sure data represented in 2D and BIM are aligned	Singapore: **Code of practice** delineates whether **BIM elements**, 2D drawings, documents, or forms are the **prevail medium** for regulatory review and approval	**3.64**
(1) Challenges with **proprietary BIM software** such as version upgrade to match with other consultants / contractors	Singapore: **CORENET X self-help resources' IFC page** Shenzhen: 深圳市《建筑信息模型**数据存储标准**》SJG114-2022	**3.38**
(5) Risks of **differentiating elements in BIM** that are intended for agency review from those are for other design intent.	Singapore: CORENET X **code of practice** stated **what type/category of BIM elements** will be used for regulatory review.	**3.23**
(4) Challenge **in receiving and keeping track of comments** from different agencies without use markups on 2D document	Singapore: CORENET X Agencies **will review the coordinated IFC models** together on a **collaboration platform**, and provide consolidated comments to Qualified Professionals.	**3.14**

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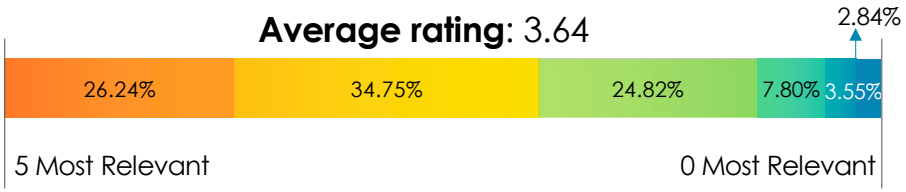
Technical issues in Hong Kong

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

(2) **Extra effort** when using BIM **to prepare prescribed plans and Double handling with QA QC workload** to make sure data represented in 2D and BIM are aligned

All non-CPS respondents

Average rating: 3.64



Architects (12 replies)

Average rating: 4.00

Architects indicate a **significantly higher level of relevancy**

Key Takeaways

BIM requirements and data standards **vary among agencies** & **Extra effort** when using BIM **to prepare prescribed plans and Double handling with QA QC workload** are the **top 2** technical issues**.**

> Private client requirements are different, difficult to standardize

Among all the groups, architects indicate that **'challenges with proprietary BIM software'** is one of their most significant technical issues.

> Purchased different software to serve different owners – also different versions, a lot of investment

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Technical issues in Hong Kong

Source: CPS Seminar (2024-12-13)

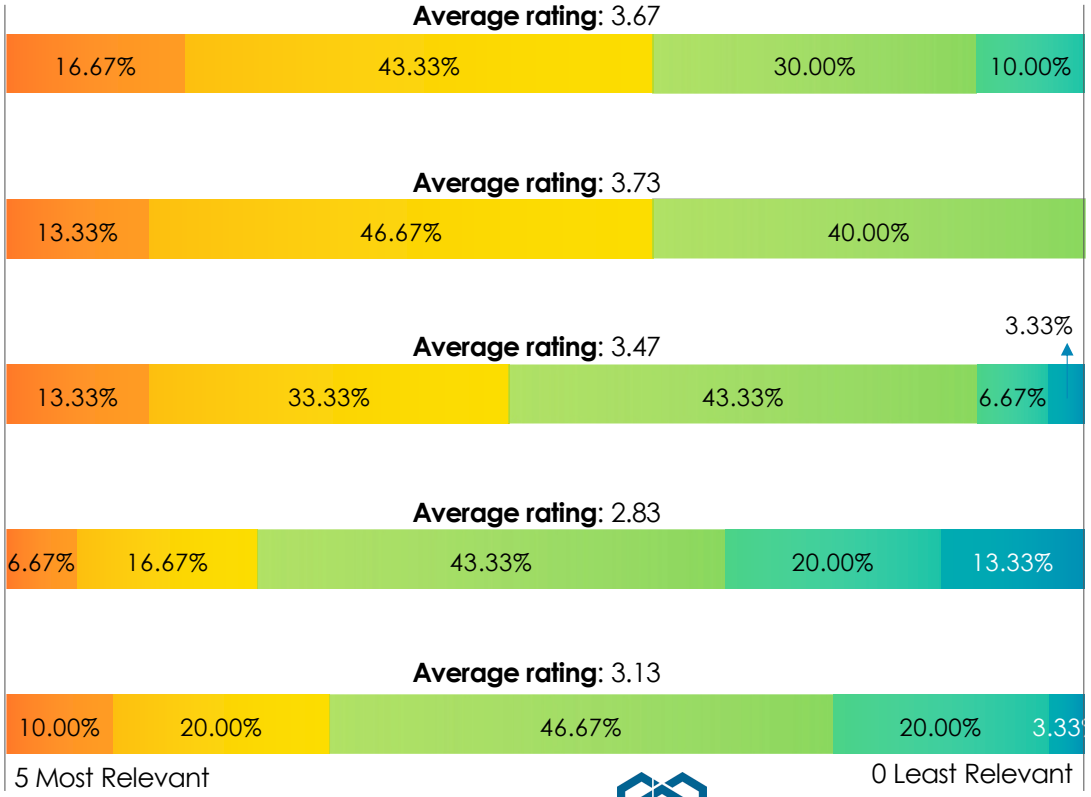
(1) Challenges with **proprietary BIM software** such as version upgrade to match with BIM received. Many BIM authoring tools are not backward compatible

(2) **Extra effort** when using BIM to review prescribed plans and Double handling to review data represented in 2D and BIM.

(3) BIM requirements and data standards lacking / to be developed **vary among agencies**, e.g. property field naming and value format.

(4) Challenge **in keeping track of comments** from different agencies without use markups on 2D document.

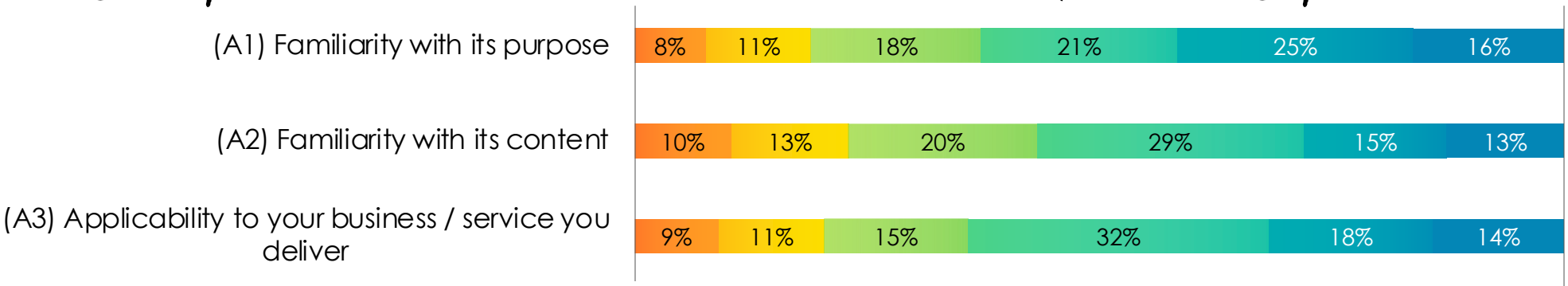
(5) Difficult to **differentiating elements in BIM** that are intended for review and approval from those are for other design intent.



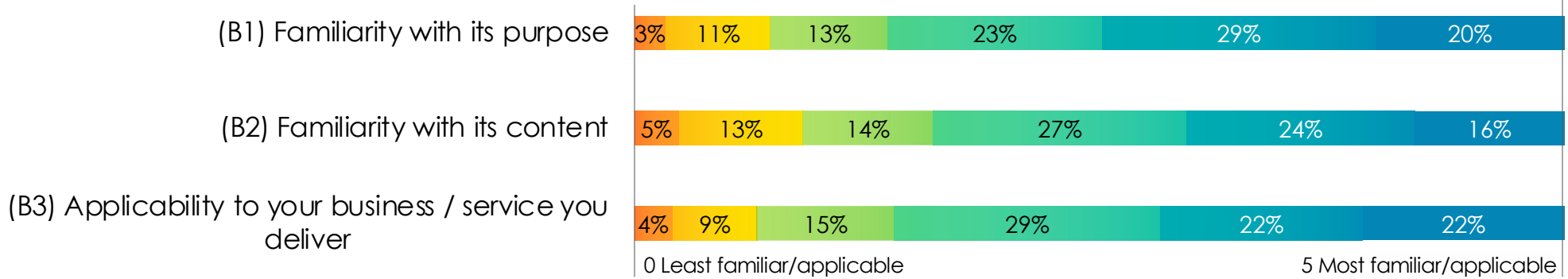
Familiarity and applicability of existing local BIM standards & guidelines

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

Development Bureau BIM Harmonisation Guidelines for Works Departments



The full suite of CIC BIM Standards



Key Takeaways

- Generally, **80%+** of non-CPS respondents find local BIM standards & guidelines **familiar and applicable**.

> There is no openBIM standard

> There shall be one standard focus on submission purpose and indicate the LOD requirements

International approach as the references for Hong Kong

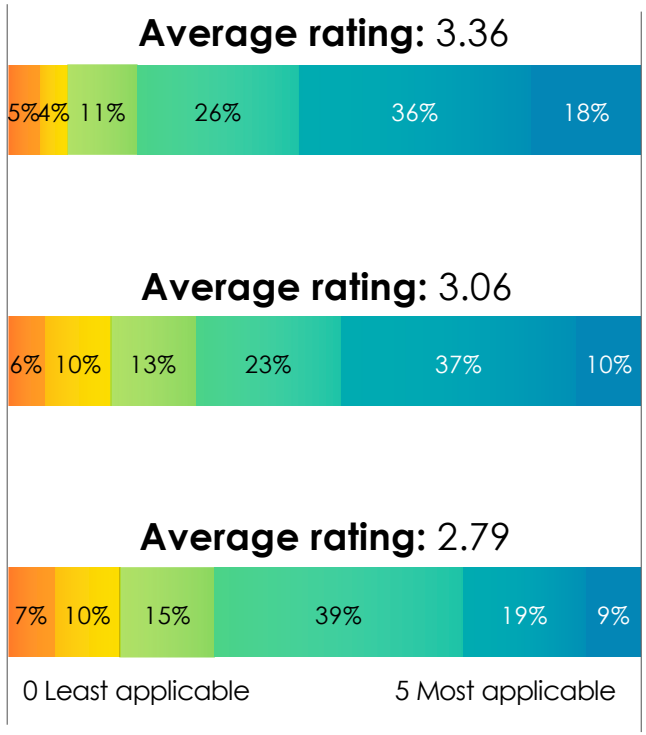
Sources：Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

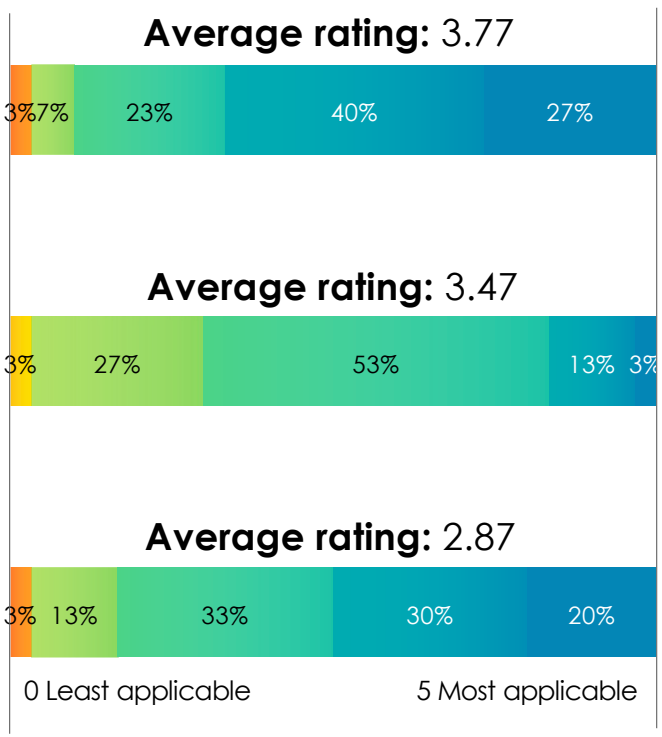
Average rating in descending order

A – Singapore CORENET X: Gateway-based approach, led by government authority, viewer friendly web portal and excel-based mapping file

C – Shenzhen: Single & comprehensive submission, led by government authority
建設單位需要確保模型與圖紙的一致性，並對其真實性，準確性負責

B – Finland Rava3Pro: Use-case driven, led by government authority along with industry, specifications require technical expertise to understand





Importance to prepare the industry with (open)BIM-based submission mandate:

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

List in the order of voted importance:

	Average rating *"1" = Most Essential* *"8" = Least Essential*
Regulatory-agency-approved openBIM automated model checking platform available to facilitate preparation and vetting of statutory submission by practitioners and departments under the centralized processing system respectively	3.30
Code of practice that maps regulations and checking rationale with (open)BIM authoring guideline to align between professionals and regulatory agency officers on sufficiency of submitted models, e.g. CORENET X Code of Practice	3.45
Plug-in or other types of automation tool to increase the productivity for BIM-based statutory submission	3.46
Consolidate and standardize for Hong Kong BIM requirements and information sets (can be in the form of cross-agency data dictionaries) that could fulfil the needs of both private/quasi-government/public project submission and government capital works (building).	3.89
Subsidy scheme for small medium enterprise (SME) consultants / contractors who can demonstrate their transition to (open)BIM-based submission by achieving reasonable outcomes.	4.64
Specific and practical training courses to upskill professionals and reskill technicians with (open)BIM-based data management and 3D design quality control techniques that could bring higher efficiency gain than typical available BIM courses.	4.75
Evaluate and streamline the format, content, and timing of prescribed plans from the perspective of reducing double handling and abortive documentation efforts, e.g. Singapore CORENET X gateway submissions	4.90
Key regulatory agencies agree to accept (open)BIM as the one of the primary submissions mediums and recognize its benefit in improving compliance checking efficiency.	5.26

Key Takeaways

Non-CPS respondents think **openBIM automated model checking platform** is the most essential step for mandating BIM-based submissions.

> Good to have a tool that can let us know that the design we submitted is comply with BD regulations

Code of practice is also considered as one important condition.

> Need to define level of development, clear standards shall be defined.

Importance to prepare the industry with (open)BIM-based submission mandate:

Source: CPS Seminar (2024-12-13)

List in the order of voted importance:

	Average rating *"1" = Most Essential* *"8" = Least Essential*
Funding for government agencies to upgrade hardware / software	3.43
Plug-in or other types of automation tool to increase the productivity for BIM-based statutory submission	3.50
Regulatory-agency-approved openBIM automated model checking platform available to facilitate preparation and vetting of statutory submission by practitioners and departments under the centralized processing system respectively	3.60
Code of practice that maps regulations and checking rationale with (open)BIM authoring guideline to align between professionals and regulatory agency officers on sufficiency of submitted models, e.g. CORENET X Code of Practice	3.63
Specific and practical training courses to upskill government agencies with (open)BIM-based data management and 3D design quality control techniques that could bring higher efficiency gain than typical available BIM courses.	4.97
Consolidate and standardize for Hong Kong BIM requirements and information sets (can be in the form of cross-agency data dictionaries) that could fulfil the needs of both private/quasi-government/public project submission and government capital works (building).	5.00
Evaluate and streamline the format, content, and timing of prescribed plans from the perspective of reducing double handling and abortive documentation efforts, e.g. Singapore CORENET X gateway submissions	5.87
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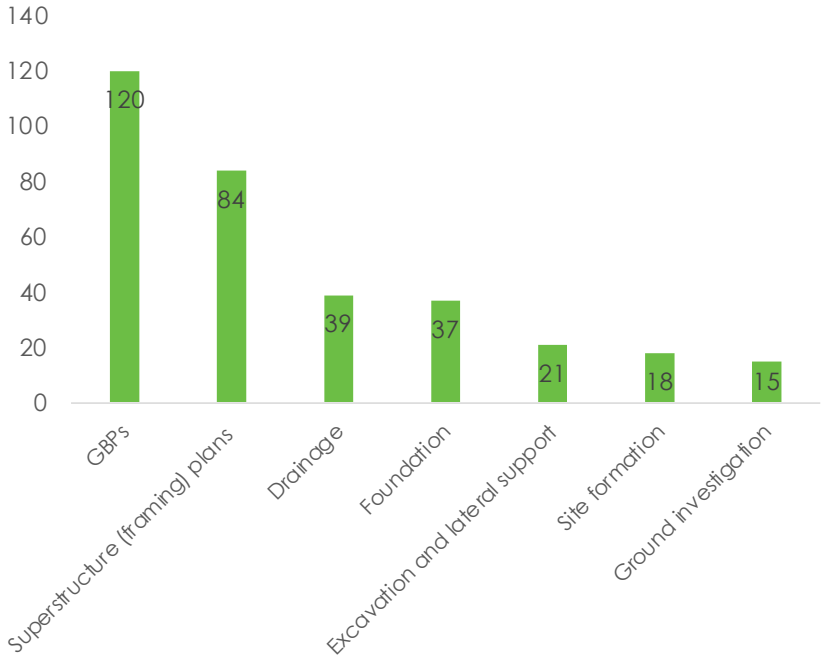
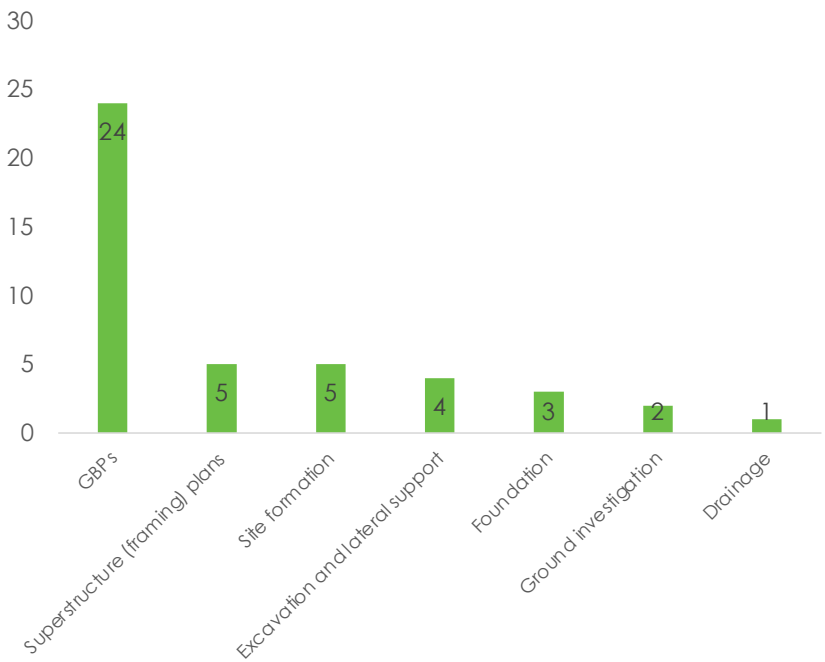
Best Prescribed Plan to pilot (open)BIM for statutory submission

Non-CPS Respondents

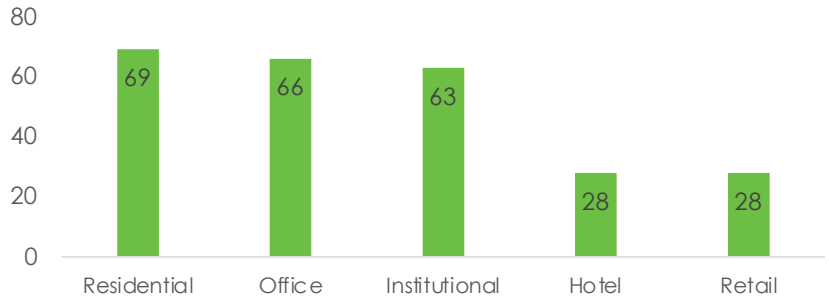


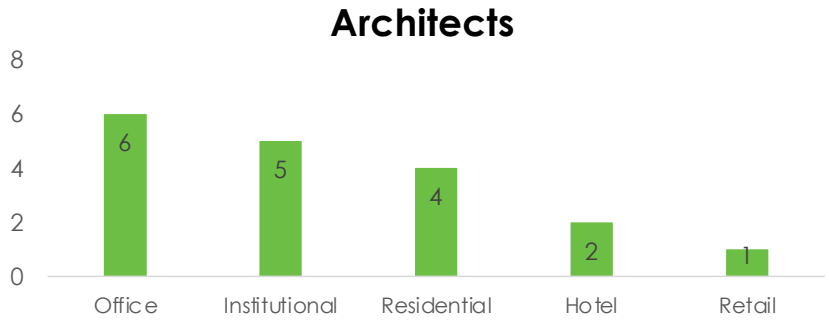
CPS Respondents



Best Project type to pilot (open)BIM for statutory submission

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)





Commercial project is better for pilot – as residential projects have more design changes in order to follow market trend

Best Project type to pilot (open)BIM for statutory submission

Sources：Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

As 一手樓條例 requires to indicate **all dimensions** on the plans…. Lots of effort to mark on the dimensions

Cap. 621 Residential Properties (First-hand Sales) Ordinance

Schedule 1 Information in Sales Brochure

Part 1 - Detailed Requirements for Specific Information Required to be Set Out (See Section 19(2))

(j) floor plans of the residential properties in the development;

10. Floor plans of residential properties in the development

(1) The sales brochure must set out the information specified in section 19(2)(j) in compliance with this section.

(2) Each of the floor plans of the residential properties in the development—

(a) must be drawn to a scale of at least 1:200 and has that scale marked on the plan;

(b) must show the dimensions of the furniture (if any) shown on the plan;

(d) must state the following—

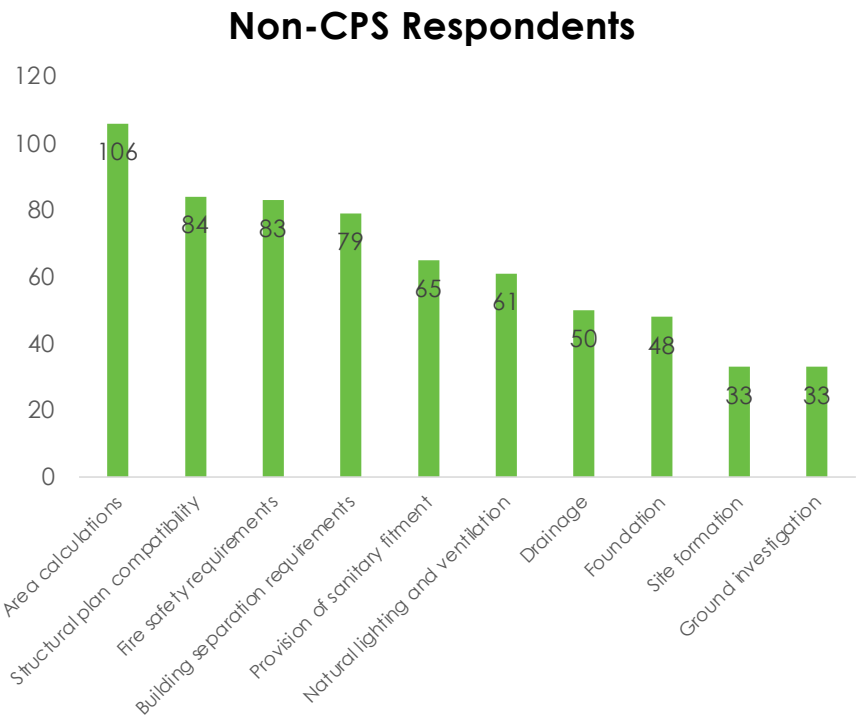
(i) the external dimensions of each residential property;

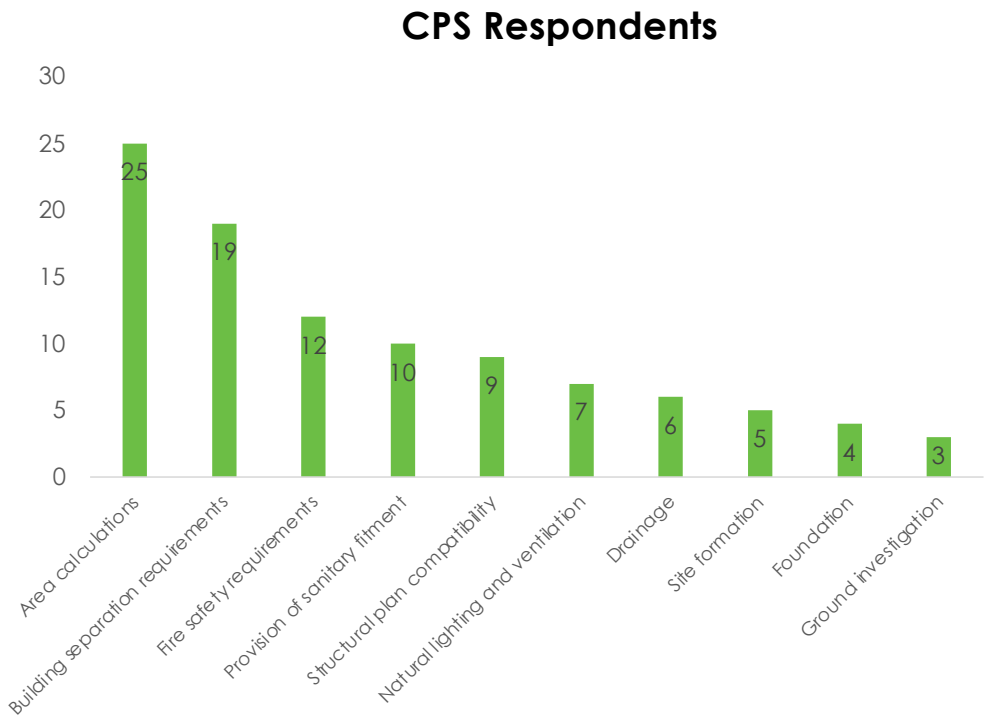
(ii) the internal dimensions of each residential property;

(iii) the thickness of the internal partitions of each residential property;

(iv) the external dimensions of individual compartments in each residential property; and

Automated design review and compliance checking functions needed for a web-based openBIM platform





BUILDINGS DEPARTMENT
bimSCORE
Strategic Building Innovation

Agenda

01

Executive Summary

02

Findings & Highlights of the 1st Stakeholder Engagement

03

Recommendations on BIM framework & Technical issues and solutions

Recommended Strategies

openBIM-based Plugins & Regulatory Platform

Findings from Stage 1 & 2:
A collaborative platform is essential for checking compliance with regulations. openBIM is essential for improving efficiency.

openBIM Standards Applied with Localization (Digital Data)

Findings from Stage 1 & 2:
Framework is needed to ensure consistency and clarity of data required for compliance across various government departments.

Government Mandates with Training and Support

Findings from Stage 1 & 2:
Successful implementation of BIM often involves government mandates that are accompanied by training and support.

Legal & Regulatory Framework

Findings from Stage 1 & 2:
Introduce a legal framework that addresses the use of BIM in statutory submissions.

Importance to prepare the industry with (open)BIM-based submission mandate:

Sources : Industry Workshop AM and PM sessions (2024-11-29) and Hybrid Forum (2024-12-11)

List in the order of voted importance:

	Average rating *"1" = Most Essential* *"8" = Least Essential*
Regulatory-agency-approved openBIM automated model checking platform available to facilitate preparation and vetting of statutory submission by practitioners and departments under the centralized processing system respectively	3.30
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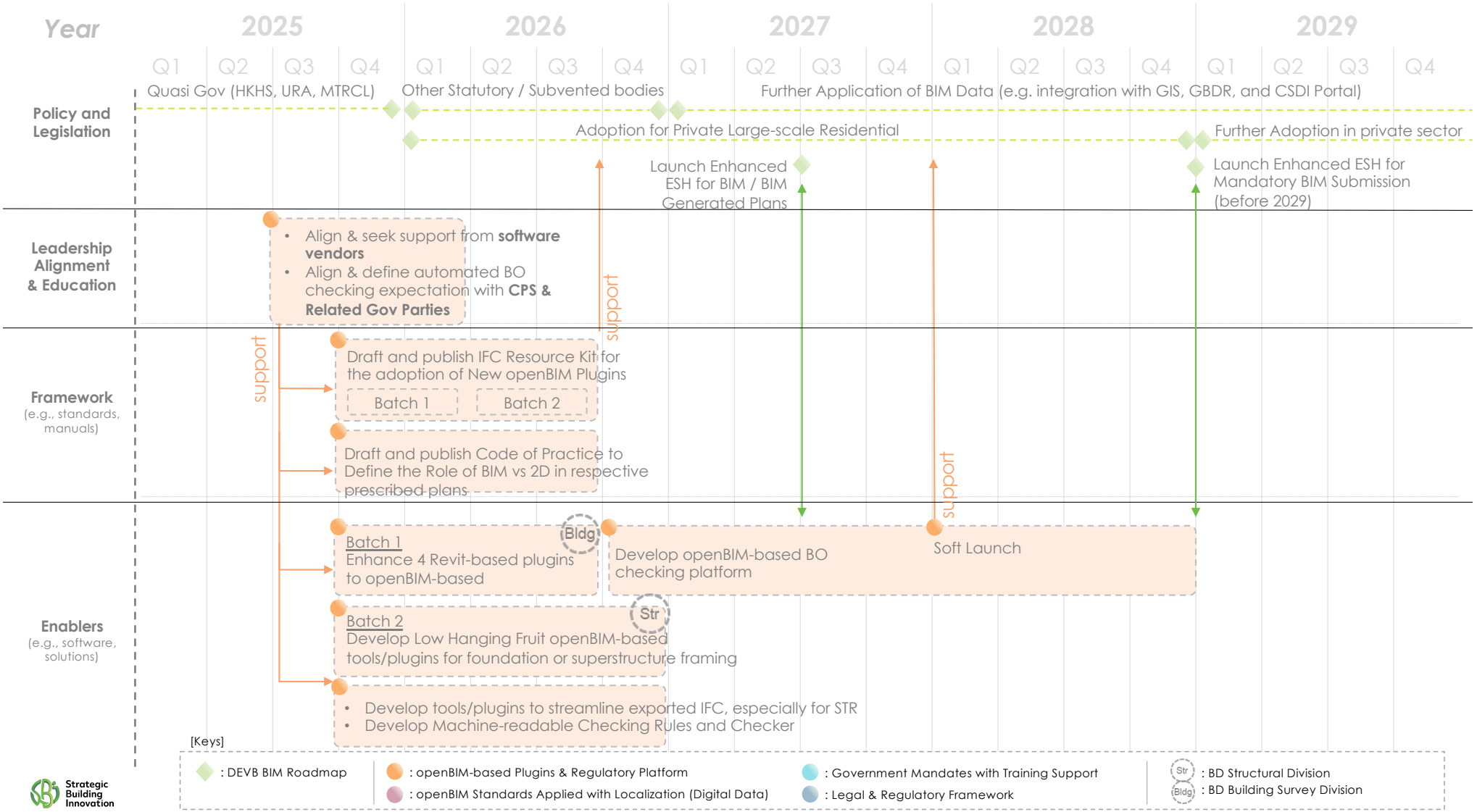
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Further Application of BIM Data (e.g. integration with GIS, GBDR, and CSDI Portal)
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Further Adoption in private sector
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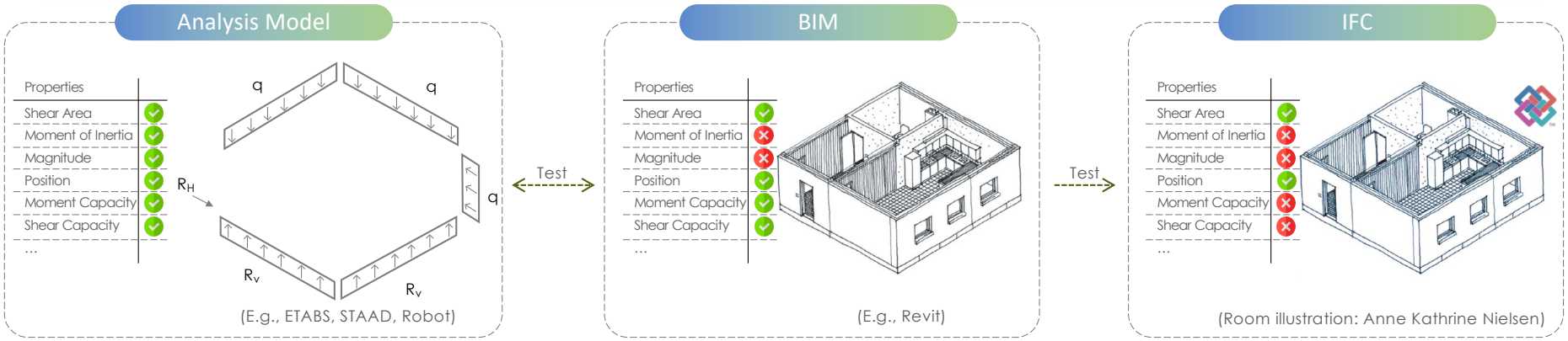
Launch Enhanced ESH for Mandatory BIM Submission (before 2029)
Leadership Alignment & Education
• Align & seek support from software vendors
• Align & define automated BO checking expectation with CPS & Related Gov Parties
support
support
Framework
(e.g., standards, manuals)
Draft and publish IFC Resource Kit for the adoption of New openBIM Plugins
Batch 1
Batch 2
Draft and publish Code of Practice to Define the Role of BIM vs 2D in respective prescribed plans
support
Enablers
(e.g., software, solutions)
Batch 1
Enhance 4 Revit-based plugins to openBIM-based
Bldg
Develop openBIM-based BO checking platform
Soft Launch
Batch 2
Develop Low Hanging Fruit openBIM-based tools/plugins for foundation or superstructure framing
Str
• Develop tools/plugins to streamline exported IFC, especially for STR
• Develop Machine-readable Checking Rules and Checker
[Keys]
: DEVB BIM Roadmap
: openBIM-based Plugins & Regulatory Platform
: openBIM Standards Applied with Localization (Digital Data)
: Government Mandates with Training Support
: Legal & Regulatory Framework
Str : BD Structural Division
Bldg : BD Building Survey Division
Strategic Building Innovation

Align & seek support from **software vendors**

Stage 2 Findings:
Stakeholders have expressed that they are ready to test openBIM workflows and tools.
They have also mentioned that while there are four tools available (Area Tool, SanFit Tool, FS Code Tool, Tool for SBD Guidelines) for architects, there is only one tool for structural engineer.

e.g. exporting IFC from Structural Analysis Software



Align & define automated BO checking expectation with **CPS & Related Gov Parties**

Stage 1 Findings:
Agencies should work with Industry professionals and software vendors to align regulatory requirements across all disciplines, harmonize checking rules, and develop model preparation guidelines.

Recommended Batch 1 Agencies

Central Processing System (CPS)

- FSD
- WSD
- LANDSD
- GEO

Consultation body

- AA

Consultants | **Software Vendors**

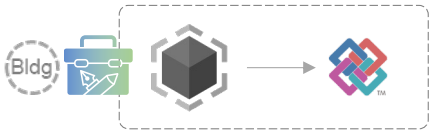
- Form a committee
- Workshops to review and align regulatory requirements across all disciplines
- Harmonize checking rules

Stage 1 Findings:
Singapore BCA & URA started holding workshop series with industry professionals since 2018 before piloting Corenet X in 2021

IFC Resource kit and Code of Practice

Stage 1&2 Findings:
In Hong Kong, BIM requirements and data standards vary among agencies. Submission requirements should be standardized across departments and agencies and documented in a comprehensive Code of Practice. This delineates whether BIM elements, 2D drawings, documents, or forms are the prevail medium for regulatory review and approval.

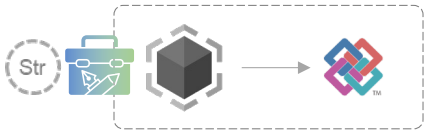
IFC Resource Kit for **4 enhanced Revit-based plugins** to openBIM-based



Batch 1

- Key Data Structures
- IFC Mapping, Viewers, & Validators
- Plug-in Installer for Arch Design
- Plug-in How-to Guide for Arch Design
- Templates
- Videos (tutorials, recorded webinars)
- Quick Start Guide & Exercises for Arch

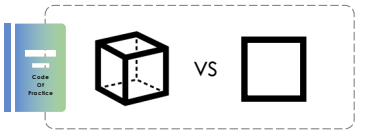
IFC Resource Kit for openBIM-based tools/plugins for **foundation or superstructure framing**



Batch 2

- Agency Specific Modelling Requirements
- Enhance compatibility and convertibility between simulation tool and BIM
- Videos (tutorials, recorded webinars)
- Quick Start Guide & Exercises for Str

Code of Practice to Define the Role of BIM vs 2D in Respective Prescribed Plans



- General requirements (submission workflows)
- Terms & Definitions
- Agency requirements (BIM vs 2D)
- Stage requirements (BIM vs 2D)
- IFC Model Preparation
- BIM Data Representation
- Modelling Good Practice

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Timely Development of Plugins and Platform to Support Industry Adoption

Plugins and Tools

BIM Authors

Tools

(Native) → (IFC Model)

Checker

BD

e-Registration
e-Processing
e-Referral

CPS

FSD
WSD
LANDSD
GEO

Bldg **Batch 1**
Enhance 4 Revit-based plugins to openBIM-based

Str **Batch 2**
Develop Low Hanging Fruit openBIM-based tools/plugins for foundation or superstructure framing

Develop Machine-readable Checking Rules and Checker

Regulatory Checking Platform

Tools

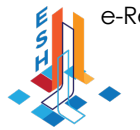
(Native) → (IFC Model)

Platform-based Checker

+

BD

e-Registration
e-Processing
e-Referral



CPS

FSD
WSD
LANDSD
GEO
+
Other Depts

- Develop openBIM-based BO checking platform
- Invite additional departments

Importance to prepare the industry with (open)BIM-based submission mandate:

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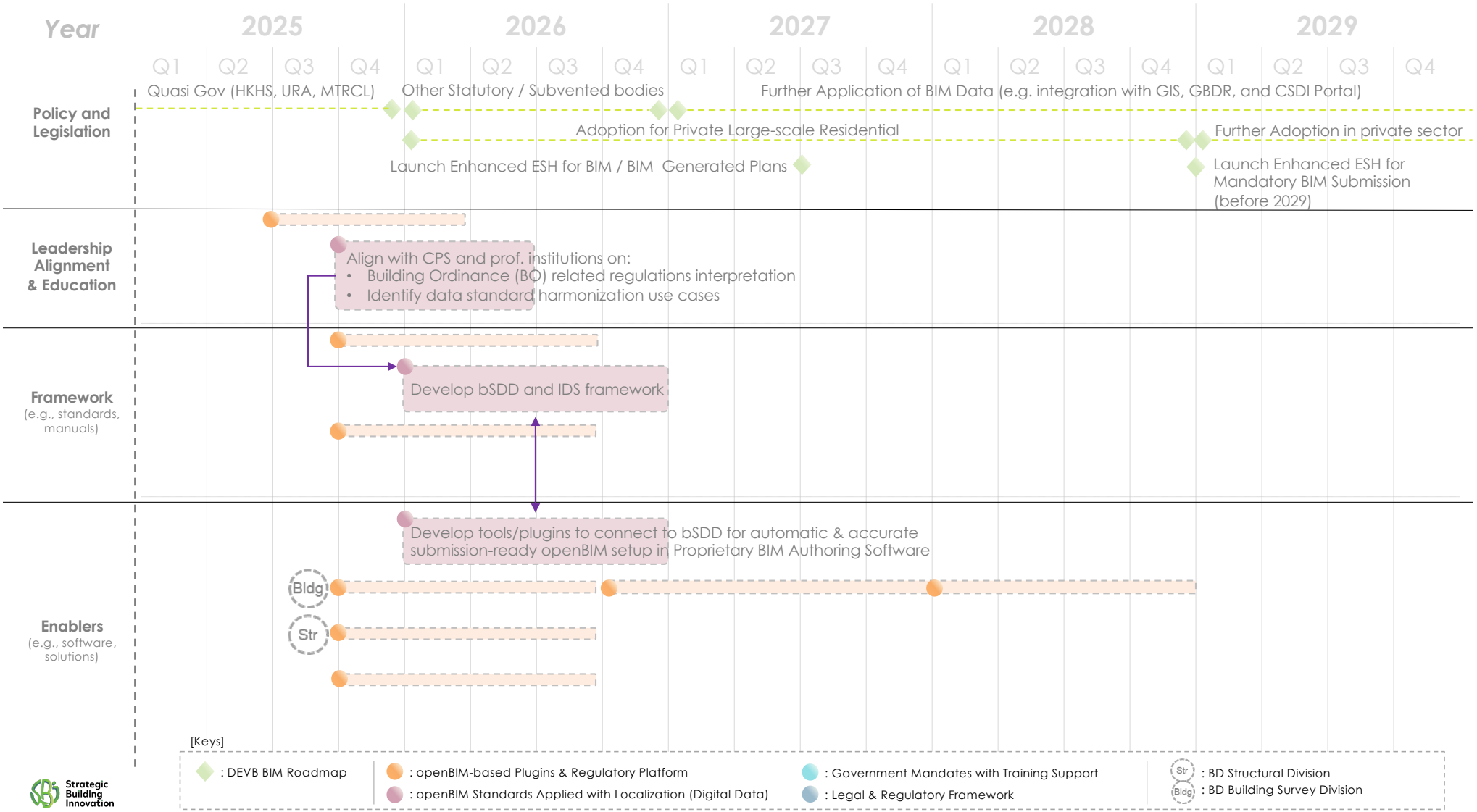
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Policy and Legislation
Quasi Gov (HKHS, URA, MTRCL)
Other Statutory / Subvented bodies
Further Application of BIM Data (e.g. integration with GIS, GBDR, and CSDI Portal)
Adoption for Private Large-scale Residential
Further Adoption in private sector
Launch Enhanced ESH for BIM / BIM Generated Plans
Launch Enhanced ESH for Mandatory BIM Submission (before 2029)
Leadership Alignment & Education
Align with CPS and prof. institutions on:
• Building Ordinance (BO) related regulations interpretation
• Identify data standard harmonization use cases
Framework
(e.g., standards, manuals)
Develop bSDD and IDS framework
Enablers
(e.g., software, solutions)
Develop tools/plugins to connect to bSDD for automatic & accurate submission-ready openBIM setup in Proprietary BIM Authoring Software
Bldg
Str
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: Legal & Regulatory Framework
Str : BD Structural Division
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Strategic Building Innovation

Align with CPS and prof. institutions on:
- BO related regulations interpretation
- Identify data standard harmonization use cases

Develop bSDD and IDS framework

Stage 1 Findings:
Both Singapore and Shenzhen invested efforts in developing openBIM data standards to support statutory submission. **IFC-SG and SZ-IFC extended beyond the standard IFC schema**, which is not recommended by buildingSMART International (bSI).

➢ **bSI Recommends using bSDD for Localization.**

Intended Use of MVD
"Subset of the Standard IFC Schema"

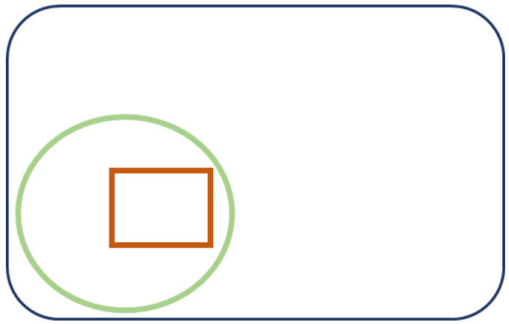


Figure 1: The schema (blue), subset MVD (green) and information requirements (orange)

IFC-SG & SZ-IFC's MVD
Extended Beyond Standard IFC Schema

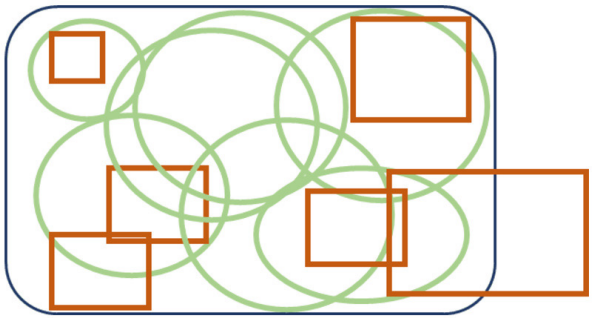


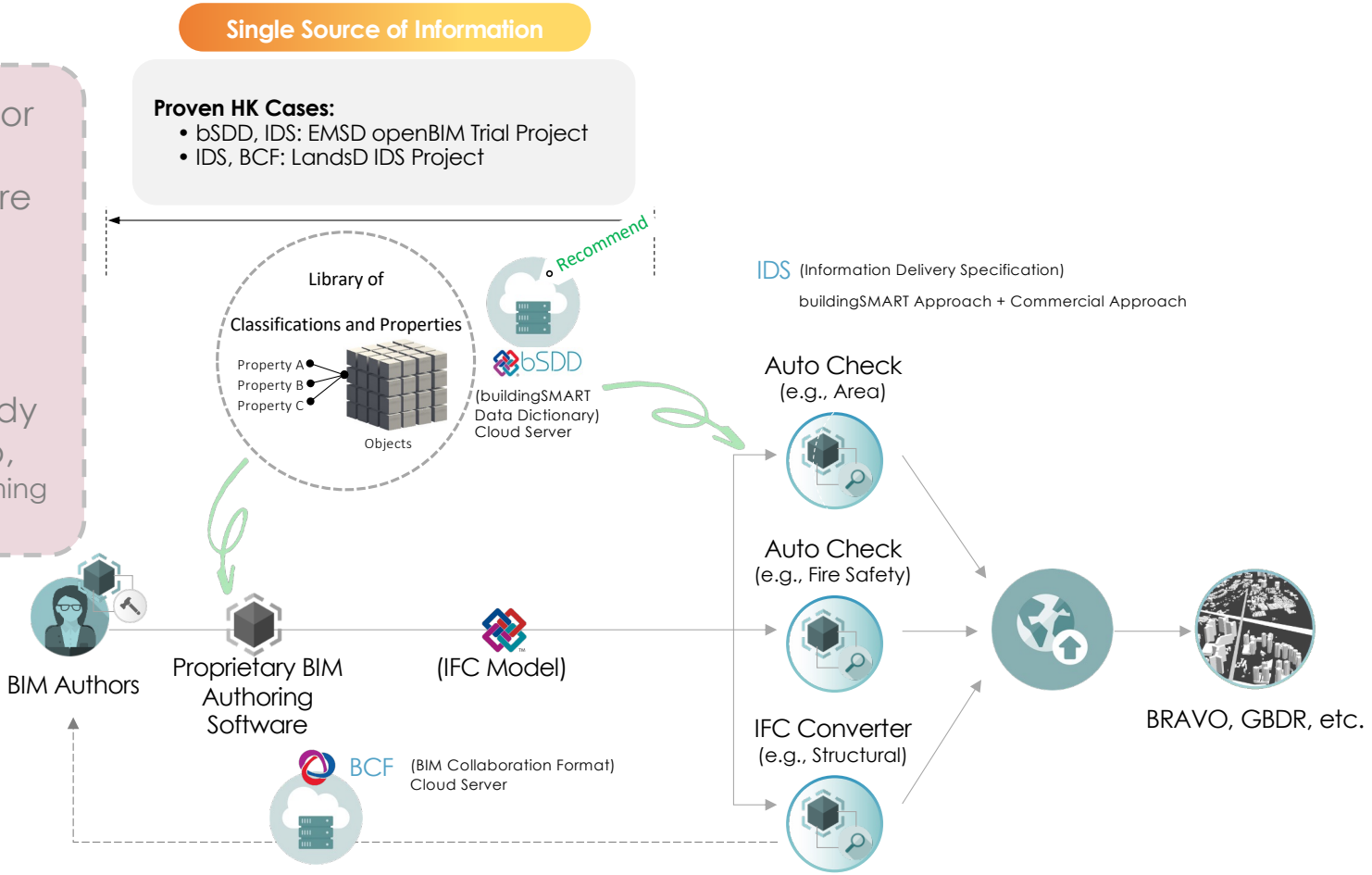
Figure 2: the expansion of MVDs and EIRs adding data from outside an MVD and the IFC schema

(Image source: https://www.buildingsmart.org/the-curious-case-of-the-mvd/)

openBIM Standards Applied with Localization (Digital Data)

Develop plugins for Proprietary BIM Authoring Software to connect with bSDD:

- automatic & accurate submission ready openBIM setup, e.g. Properties naming and value format



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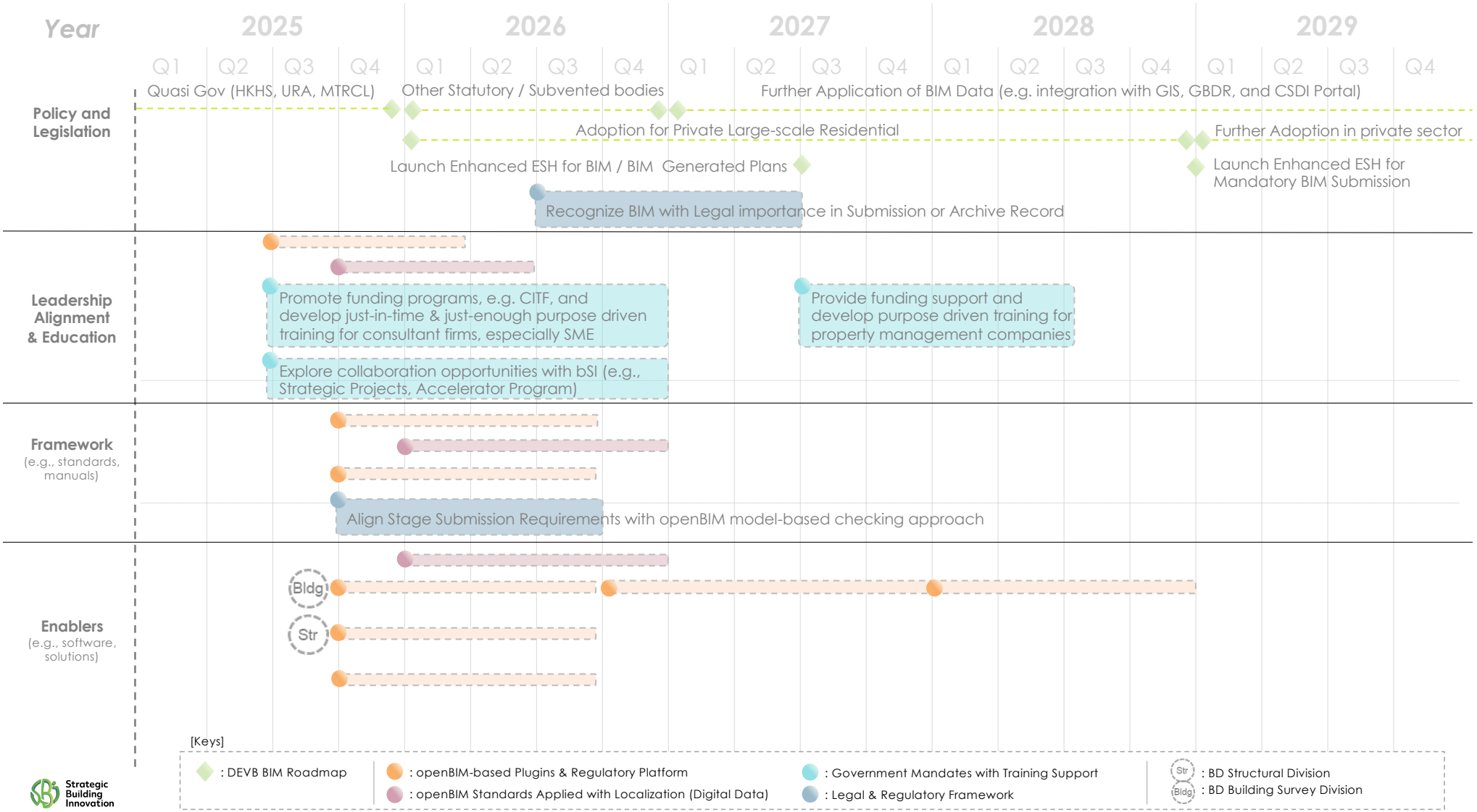
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Launch Enhanced ESH for BIM / BIM Generated Plans
Launch Enhanced ESH for Mandatory BIM Submission
Recognize BIM with Legal importance in Submission or Archive Record
Leadership Alignment & Education
Promote funding programs, e.g. CITF, and develop just-in-time & just-enough purpose driven training for consultant firms, especially SME
Provide funding support and develop purpose driven training for property management companies
Explore collaboration opportunities with bSI (e.g., Strategic Projects, Accelerator Program)
Framework
(e.g., standards, manuals)
Align Stage Submission Requirements with openBIM model-based checking approach
Enablers
(e.g., software, solutions)
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Promote / Develop funding programs and just-in-time & just-enough training, especially key for SME

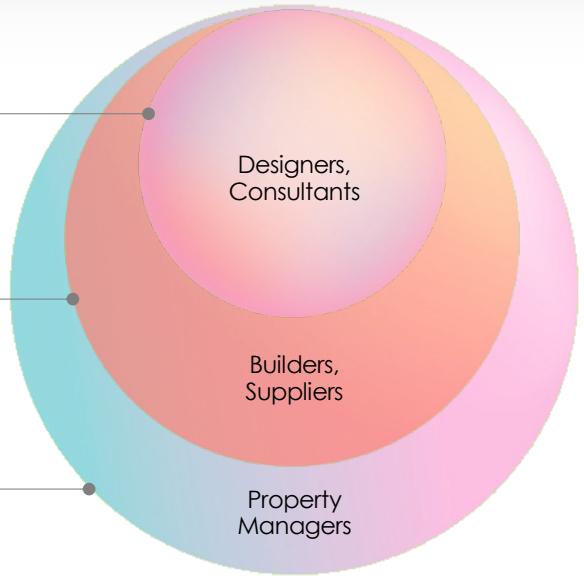
Stage 2 Findings:

- Practitioners (e.g., designers) are not fully aware of support programs (e.g., funding, subsidy) related to BIM
- Practitioners have perception that applying for funding and subsidy is a lengthy process
- Support programs should be available for **property managers** (and asset owners) as well

E.g., Support programs for adopting and submitting IFC models, and using IFC tools

E.g., Support programs for translating design IFC → construction IFC

E.g., Support programs for translating design/construction IFC → operation IFC

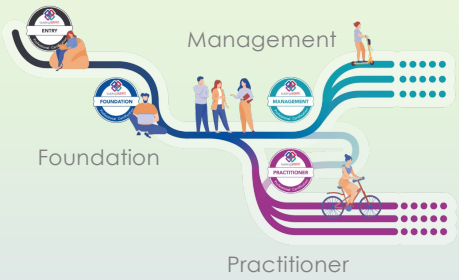


Explore collaboration opportunities with bSI

Stage 2 Findings:
Stakeholders have heard of openBIM but they raise questions (e.g., what alphanumeric and geometry data will be translated correctly to IFC). Many of them expressed that they do not have to actual experience with IFC export.
→ Work with buildingSMART International → Educate and resolve issues

openBIM Courses

buildingSMART International



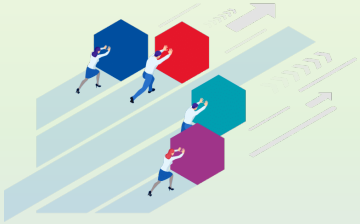
Strategic Projects

buildingSMART International

- IFC Validation Service
- Software Certification
- bSDD
- IFC 4.4
- IFC 5
- PCERT
- Project Enterprise Certification
- openBIM Game
- Business Value Capture

Accelerator Program

buildingSMART International



Support organizations and industry bodies in accelerating the adoption of openBIM

	Lead	Support
openBIM-based Plugins & Regulatory Platform		
Align & seek support from software vendors	BD	Vendors
Align & define automated BO checking expectation with CPS & Related Gov Parties	BD	CPS
Draft and publish IFC Resource Kit for the adoption of New openBIM Plugins	BD	Industry
Draft and publish Code of Practice to define the role of BIM vs 2D in respective prescribed plans	BD	Industry
Enhance 4 Revit-based plugins to openBIM-based	BD	CPS
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Develop openBIM-based BO checking platform	BD	CPS
Soft launch openBIM-based BO checking platform	BD	CPS
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openBIM Standards Applied with Localization (Digital Data)	**Lead**	**Support**
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Develop bSDD and IDS framework	BD/CIC/DEVB	Industry
Develop tools/plugins to connect to bSDD for automatic & accurate submission-ready openBIM setup	BD/CIC/DEVB	Industry
Government Mandates with Training and Support	**Lead**	**Support**
Promote funding programs & develop just-in-time & just-enough training for consultant firms	CIC	BD/DEVB
Promote funding programs & develop just-in-time & just-enough training for property mgmt. companies	CIC	BD/DEVB
Explore collaboration opportunities with bSI (e.g., Strategic Projects, Accelerator Program)	BD	bSI
Legal & Regulatory Framework	**Lead**	**Support**
Recognize BIM with Legal importance in Submission or Archive Record	BD	DOJ
Align Stage Submission Requirements with openBIM model-based checking approach	BD	CPS